

QUEENSLAND

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ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE  
AND STOCK

1929-1930



1930.  
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QUEENSLAND.



ANNUAL REPORT  
OF THE  
DEPARTMENT OF AGRICULTURE  
AND STOCK

FOR  
THE YEAR 1929-1930.

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## REPORT OF THE DEPARTMENT OF AGRICULTURE AND STOCK FOR THE YEAR 1929-30.

TO THE HONOURABLE THE SECRETARY FOR AGRICULTURE AND STOCK.

SIR,—I have the honour to present herewith my report for the year ended 30th June, 1930.

The past year was remarkable for a steady agricultural advance in Queensland. A general movement towards higher production standards was also apparent in the period under review.

In a State like Queensland, with its enormous territory and wide range of soils and climate—temperate, sub-tropical, and tropical—there can be little uniformity in rural conditions. The agricultural situation for the year was, however, much more even from the standpoint of production than the preceding one, and reviewing the whole period the brighter aspects predominated. This was the natural consequence of a return of good seasons as presaged in my last report.

Substantially larger returns were obtained from all sources of rural wealth, and present prospects are a sound basis for healthy optimism. There are indications, too, that the current agricultural year will provide further evidences of complete recovery from a series of adverse seasons. This is demonstrated by increased production, and numerous signs of progress in the improvement of manufacturing processes and marketing arrangements.

New gains have been recorded in field efficiency as well as by results of well-directed efforts towards more systematic marketing of primary products. There is a general realisation, however, that the farming problem is not solely one of production; it is also distinctly one of marketing. Price depression in some commodities was a natural consequence of a glutted domestic market. The year's experience shows that the demand side of the equation calls for further careful study and satisfactory adjustment. The strengthening of marketing machinery by which products are adequately fed into the ordinary trade channels is required, to avoid over-supply or shortage and keep prices at a reasonable level. The need of economic information on which wise adjustment may be based is becoming each year more insistent.

It is pleasing to report that farmers themselves are displaying a tendency to study closely influencing commercial factors, and also to look for and apply economic intelligence in planning their seasonal programme. This is being done

much more than formerly, and from a development of this tendency has arisen a call for more relevant information on crop demand and methods of disposal.

There was a considerable expansion of acreage during the year, and crops generally moved to market in increasing volume.

In departmental activities, considerable progress was made, and a wide scope of instructive, constructive, and administrative effort was successfully covered.

### SEASONAL CONDITIONS.

Good seasonal conditions prevailed throughout the whole of the agricultural areas. Heavy autumn rains were followed by light winter falls in the Southern Division. In early spring, however, the outlook was far from promising, but generous and general registrations in October changed the position entirely. The wheat districts benefited substantially, and high yields were in prospect. At harvest time, which was mostly a period of favourable weather, seasonal promises were amply fulfilled with a record grain yield. In the dairying districts similar conditions prevailed, and butter production was over one and a-half million pounds in excess of that of the previous peak year, 1928-1929.

In the Central Division the rainfall on the coast was well above the average. On the Dawson and Callide country the average was also exceeded. July to September are always dry months in Central Queensland, and last season was no exception; as a consequence, planting was considerably hampered. The yield of winter crops was also affected by this dry period, especially on land not thoroughly prepared. On fallowed areas, the moisture conserved, added to useful rains in June, was sufficient to grow a payable crop. A dry spring, followed by an early summer, made feed somewhat scarce in many localities, though stock kept in fair condition. From December to June pastures were exceptionally good, and this was reflected in the exceeding of the previous peak year output by local district factories. This year's winter was remarkable for its mildness, and few sharp changes of temperature were recorded. In the western pastoral zone considerably improved conditions were experienced. Useful rains were general.



In the first half of the period under review the rainfall in the Northern Division was under the average, but from January until June heavy and widely distributed rains were repeatedly recorded.

Generally the seasonal prospects, with the exception of portions of the far western pastoral country, at present are good throughout the State.

#### AGRICULTURE.

*Wheat.*—The wheat yield for the year was the highest yet attained in Queensland, and surpassed all expectations. The harvest returns were 4,235,172 bushels, as against 2,515,561 bushels for the previous year. The grain was of good milling quality. This fine result was due, apart from timely rains, to careful and thorough cultivation, which is becoming characteristic of wheat-farming in Queensland. Good progress was made in wheat-breeding at the Roma State Farm. Varieties bred there were sown largely. They have proved, in the main, good yielders, and are becoming more favoured each season. The value of the wheat breeding and extension work of the Department is becoming increasingly evident. Varieties and types evolved have survived searching tests under practical field conditions. Breeding plots were established at several suitable centres, and the varietal trials entered on thereat represent a continuity of the work carried on from season to season. The system, in brief, is the testing of new Roma cross-bred wheats under actual working conditions, the elimination of undesirable varieties, and the propagation of the selected strains. Included in the trials are 240 new Roma crossbreds and 40 standard varieties.

A seed wheat improvement scheme approved by the Department and the State Wheat Board was made effective. Satisfactory results were obtained, both as regards yield and general field behaviour of the wheats involved. Growers have co-operated heartily in this work, and purpose extending their acreages as a result of the successful operation of this scheme.

In the Central Division grain-growing is extending gradually, particularly in the Dawson Valley. The possibilities of a more rapid extension in Central Queensland are being explored by the Department, and to that end varietal trials are being carried out in different localities. Last season Dululu on the Dawson, and Retro in the Capella district, were the main centres of these activities. Though the rainfall was very light, satisfactory yields were bagged. Details are set out in an appended report.

The usual annual crop competitions were held in the Warwick and Toowoomba districts. As a stimulus to farming efficiency, their importance is becoming more widely recognised. Their educational value is also appreciated by all engaged in grain production.

Although the presence of "flag smut" was reported from many localities in the 1928 season, it is noteworthy that in the next succeeding crop very few individual stands were affected, and where there was an appearance of disease it was present in only a minor degree. This favourable condition may be attributed to the acceptance of precautionary measures advocated by your Department for checking the disease, and to the nature of the season.

The consensus of opinion is that marketing arrangements have improved under the recent agreement between the Wheat Board and the millers. This agreement has also had a stabilising effect on prices.

A considerable increase in acreage under crop is expected this year. The present crop prospects are good, though early planted wheat is too far advanced for this time of the year, as a result of over-generous winter rains. The soil in some parts has been too wet to carry sheep. Anticipated frosts should ensure, however, a satisfactory harvest.

*Maize.*—Weather conditions during the planting season were not generally favourable, and early crops were consequently light. The late-sown crops had the advantage of the December rains and prospered accordingly.

Market values were high, especially when only limited supplies were available at the beginning of the season.

Heavy summer rains marred the crop prospects on the Atherton Tableland. "Rust" occurrence was one of the results. A dry February, however, helped to create a favourable balance of seasonal circumstances.

Satisfactory progress is being made in seed maize improvement, and the demand for seed of improved varieties evolved by departmental officers is constant, and available supplies are eagerly sought. This work is the subject of a supplementary report embodied herein. Its value was made manifest at the Royal National and other shows where exhibited grain illustrated the success of the departmental breeders. The principal varieties of maize now grown in Queensland are of departmental origin. This is the outcome of systematic breeding and regular distribution of pure seed.

*Barley.*—Upwards of 100,000 bushels of malting barley were produced last season on the Darling Downs. Individual yields were high and the quality was uniformly good. The whole crop went into local consumption.

The current season's sowing has had the advantage of an excellent start and high yields are anticipated, also improved marketing arrangements under the Barley Pool Board which was constituted in the course of the year.



The development of improved varieties is in hand. Field officers are testing some very promising barleys, including several new cross-breeds, the product of the Roma State Farm. Special attention is being given to these comparative tests in order to assist in the revival of barley-growing on the Downs. For the same purpose seed of the Californian brewing type has been imported from England for trial and propagation.

*Oats.*—The testing of suitable varieties of oats for the purpose of determining their qualities for grain, hay, and green fodder, respectively, was continued during the year with satisfactory results.

*Canary Seed.*—Production of canary seed increased very substantially, 280 tons being harvested, as against 50 tons, approximately, in the previous year. As this crop is grown in no other State and annual Commonwealth requirements are about 1,500 tons, it certainly warrants more attention from Downs farmers. The acreage planted this year promises, on present prospects, to produce sufficient seed for Australian needs. Its grazing value, too, is considerable, though it is susceptible to dry-season checks. In furtherance of our efforts to bring this crop into more general and regular cultivation, referred to in my last report, special plots were established successfully for the purpose of raising enough seed of an improved strain to extend its cultivation.

*Roots and Fodder Crops.*—Details of progress in the cultivation of root, fodder, and other field crops are set out in appended reports; also particulars of fertiliser trials, mainly with winter fodders.

Increased attention has been given to onion-growing in the Central Division on a scale large enough to supply local and Northern requirements. For the guidance of farmers, variety trial plots were established in several centres, and satisfactory results were achieved.

*Tobacco.*—In the course of the year consideration was given to the possibility of opening up new furrows in agricultural production in Queensland, and I have pleasure in advising that the extension of tobacco cultivation, mentioned in my last report, has been substantially advanced. Progress was made in experimental work, particularly in the northern division of the State.

In Queensland, we have a promising field for the production of bright, flue-cured leaf of good texture and smoking quality. Results of our new experiments, so far, go to show that we may in the not far distant future be able to supply an appreciable proportion of the tobacco leaf required for Australian use. The economic importance of this expected development may be measured by the fact that tobacco to the value of more than £2,000,000 is annually imported

into the Commonwealth. An account of the progress made in efforts to establish the industry in Queensland is given in the reports of the Director of Agriculture and his staff among the appendices hereto.

*Pasture Improvement.*—The paspalum renovation trials initiated in 1928 were continued. Trials of other introduced grasses and clovers were also carried out in different parts of the State with generally satisfactory results. This work is described in detail in attached reports.

*Reclamation of Prickly-pear Land.*—The remarkable success of efforts to combat the prickly-pear by biological control methods, mainly by means of the moth *Cactoblastis cactorum*, the caterpillars of which feed voraciously on this plant, has created interest in the question as to how land reclaimed from the pest may be brought into economic production. Accordingly, a series of experiments were begun last October on a 70-acre section of belah and brigalow country near Palardo, in the Maranoa district. Various grasses and fodder plants were sown. For the greater portion of the experimental term, exceptionally favourable seasonal conditions prevailed. By May, every kind of plant grown had made sufficiently good progress to warrant light stocking with sheep of the area sown. Extraordinarily prolific growth followed the heavy rains of late autumn, and much heavier stocking of both cattle and sheep would have been possible. It may therefore be assumed with some justification that, after the destruction of the timber by "frilling" and poisoning (sufficient shelter belts and groves, of course, being retained), and the sowing of suitable grasses and fodders, this land may, without an unduly heavy outlay, be brought readily into profitable use.

The practical application of this system to extensive tracts of pear country, now in process of being freed from the pest, should have a far-reaching effect on production, particularly in relation to animal husbandry.

#### STATE FARMS.

*Home Hill.*—Since my last report, it was deemed expedient, as its purposes had been fulfilled, to close the State Farm at Home Hill and make the land available for ordinary agricultural purposes.

*Roma.*—In the Roma district, it was generally a season of light rainfall. Two inches in May, however, improved the winter cereal prospects.

The regular wheat propagation and improvement routine was followed with varying results, governed by local seasonal circumstances. Wheats bred at Roma are now in actual cultivation throughout the grain-growing regions, and the influence of this institution is reflected in the higher yields and improved milling quality which are becoming characteristic of Queensland crops.



A review of the general work of the year, covering a wide range of experimental work with grain, vine, fibre, fodder, fruit, and root crops, is included among attached summaries.

*Gindie.*—Fair seasonal conditions prevailed on Gindie, the rainfall for the year being just over 20 inches. Pastures were good, with an ample supply of water.

The beef shorthorns continue to increase in number and improve in quality generally. Animals from this stud gained the championship for both male and female exhibits at the Royal National Show at Brisbane, as well as numerous awards in other important beef classes. An increase in inquiries is evidence that this stud is becoming better known to cattlemen as being strong in the best shorthorn blood.

The Clydesdale and Suffolk Punch studs have also been maintained satisfactorily.

#### SUGAR.

The crop for 1929 was not quite so large as in the previous year. Final figures have not yet been supplied by the Registrar-General at time of writing, but from other figures supplied to the Department the yield of cane was 3,581,265 tons, from which 518,516 tons of 94 net titre sugar are estimated to have been manufactured. The figures for 1928 were 3,736,311 tons of cane and 520,620 tons of 94 net titre sugar, these figures being a record.

The tons of cane required to manufacture one ton of 94 net titre sugar in 1929, however, was an improvement on 1928. In 1929 it was estimated that only 6.91 tons of cane were used for the making of one ton of sugar, this being the lowest on record, the previous year's figure being 7.18. This ratio has been steadily decreasing during recent years, due to better varieties and greater mill efficiency. As recently as 1921 it was 8.11 tons, and in 1908 9.49 tons.

The reduction in last year's crop was not great, and it was principally due to climatic conditions. Dry weather was experienced from Mackay south and frosts were severe in places. Grubs also caused more damage than usual in the Northern cane areas.

It is interesting to glance backward and note the development of the sugar industry during the last twenty-nine years, as evident from the following table:—

Year.	Acres Cultivated.	Acres Crushed.	YIELD.	
			Tons Cane.	Tons Sugar.
1900	108,535	72,651	848,328	92,554
1928	283,476	215,674	3,736,311	520,620

The acreage has more than doubled, and the yield of sugar per acre is much higher.

Owing to Australia producing more sugar in recent years than can be consumed, it is necessary to export the surplus. The quantity exported in 1929 was 197,000 tons, which exceeded the export for 1928. This was partly due to a lower consumption of sugar in Australia. The price received by the grower of the cane was not quite so good as in 1928, owing to there being a larger export and the overseas price of sugar being less.

Considerable attention has been given during the year to the utilisation of so-called by-products. It has more than once been pointed out that the difficulty in doing this is not so much from a technical point of view as from an economic one. To take the case of bagasse, that portion of the cane left after the juice has been extracted; this leaves a valuable form of fuel for the mill, and it is not to be expected that mills will part with this unless a satisfactory price is offered to enable them to alter furnaces for other fuels. Another point is that with bagasse the mill is independent of industrial disturbance from a fuel aspect. As far as molasses is concerned, this is being more and more utilised. The distillery at Plane Creek is putting out power alcohol made from molasses which is being mixed with petrol and marketed under the trade name of "Shellkol." What is needed in order to increase the use of power alcohol is, it is suggested, a regulation providing that all petrol coming into the country for internal combustion engines must be mixed with, say, 10 or 15 per cent. of power alcohol made in Australia.

The yield for the present season is expected to be below 1929, due to the fact that the rainfall for the first four months of 1930 has been lighter than the average in some districts. Grub damage has not been so severe this season, however, and no serious floods or cyclones have been experienced.

Growers are taking a much keener interest in the work of the Bureau of Sugar Experiment Stations and in the large number of experiment plots on individual farms. From these methods of extension work, considerable information of value to the industry is expected, such as the demonstration of the fertiliser, cultural and variety requirements of the differing types of sugar soils. Sugar farmers generally have co-operated in the endeavour to make these field trials successful. The work of the Bureau of Sugar Experiment Stations now comprises the following divisions, each of which is doing its best to assist the industry:—

- (a) Agriculture and soils;
- (b) Sugar-mill technology;
- (c) Pathology of sugar-cane;
- (d) Entomology of sugar-cane.



The staff of the Bureau has been added to and rendered capable of more assistance to millers and growers. Laboratories for research and analytical work have been provided, and its educational work is now of great interest and value to the industry generally.

A perfect mechanical canecutter has not yet been evolved, but one or two machines have been demonstrated during the past year.

Full details of the sugar experiment work of the Bureau will be published later in the year in the Annual Report of the Bureau of Sugar Experiment Stations.

#### COTTON.

Trying fluctuations in respect of crop development and its effect on cultural and spinning futures marked the cotton season.

The decision of the Government to guarantee an average price of 5d. per lb., and the provision of a Federal bounty for both growers and spinners, created a spirit of buoyancy early in the period. Extension of acreage naturally followed. Exceedingly variable climatic conditions existed for the greater part of the year and, in consequence, crop prospects fluctuated most disconcertingly. Considerable uncertainty regarding Federal legislation relating to the industry was also for a long time an unsettling influence. It is pleasing to be able to advise, however, that the total yield will, on present appearances, be about 75 per cent. greater than last year's output. The future development of the industry will be assisted greatly by the Commonwealth legislation to which reference has been made. Tariff imposts have enabled Australian spinners to take the whole of this season's cotton. Unfortunately, there has since been a serious drop in world's prices. As the Australian prices are influenced by these, it may be that final payments for the Queensland crop will be somewhat lower than they were last season.

Erratic seasonal conditions ruled in most of the cotton districts, and planting rains were extremely variable. Considering the climatic vagaries, the total yield was exceptionally good.

An appreciable increase in interest in cotton-growing was noticed in many parts of the Southern Division following the announcement by the State Government of a guaranteed price. The results obtained over nearly the whole of the territory from both experimental and commercial crops were very gratifying. As a consequence, a substantial increase in acreage is planned for the coming season.

In the Lower Burnett there was little change, owing to unfavourable conditions in early spring. Yields, however, were good, and there is a prospect of a greater area being prepared for the coming crop.

There was an appreciable increase in acreage in the greater part of the Central Burnett, and returns were mostly very satisfactory. Added to the prospects of a permanent Australian market, this result has stimulated further interest in cotton-growing.

The Upper Burnett was not so fortunate, and the yields, although satisfactory, were lowest yet recorded for that province. The season was against high returns, and a serious attack of corn-ear worm helped to further reduce the output.

Somewhat similar conditions prevailed in the Callide Valley for a time, though favourable conditions later in the year compensated for a comparative failure with the early planted crops. A very good harvest was experienced over most of the Valley, and the 13,000 acres under cotton this season will be substantially extended.

In the Dawson Valley the best returns for some time were secured. The 7,000 acres under crop there will also be added to this year.

There were good crops, too, on the Dawson Valley irrigation project, though the ravages of the corn-ear worm caused some alarm in mid-season. In most cases, however, a remarkable recovery was recorded.

Summarising the divisional results, it can be said that the general yield has been fairly satisfactory, considering the seasonal conditions. This and the prospects of an established home market for an increased output of lint have aroused a greater interest in cotton cultivation. Many former growers who went into other fields of production are showing an inclination to revert to cotton again, and a big expansion of area under this crop is now expected.

The general standard of cultivation is still much below what it should be, especially in the drier areas. Growers, however, who were thorough in their fieldwork demonstrated the full value of proper and therefore profitable cultivation.

The general yield for the year will greatly exceed that of last. At the end of the period under review a total of 13,349,945 lb. of seed cotton had been received at the ginneries, with further returns to come. This may be compared with 7,965,339 lb. for the previous crop.

The general quality of the cotton harvested would probably have been better than any for several seasons but for the very heavy and prolonged autumn rains, which changed the character of most of the fibre exposed to it. As a result, much more of it had to be put into lower grades than would otherwise have been necessary.

The work at the research station was continued methodically. It was proved there that early



planting has again been of decided advantage; that late summer fallowing has given most outstanding benefits; that annually sown plants of a toughened growth do not appear to be attractive to the corn-ear worm, even if not planted early; and that crops grown on newly broken virgin soils appear to have less tendency to grow rankly than do crops on old cultivations.

Through our pure seed development work, sufficient seed was obtained last year to plant 580 acres this season. Large stocks of seed from the higher-grade crops were also saved for this season's sowing.

In addition to the development of improved strains of the Durango variety, the work of acclimatising other varieties introduced by the Department was carried on.

It is pleasing to report the exhibition of much greater interest by the growers in varietal tests, fertiliser trials, and cultural demonstrations as carried out at the research station.

The incidence of pests and diseases, and the measures of control or eradication applied, are described in the report of the Cotton Specialist, which is incorporated herein.

#### DAIRYING.

Nearly every dairying district had a prosperous year. The output of butter for Queensland exceeded that of the previous peak year, 1928-29, by over one and a-half million pounds. Cheese production, however, fell short of that of the same year. The total quantity of butter manufactured during the term was 75,999,058 lb., and of cheese, 12,374,705 lb. In addition, 1,999,659 lb. of condensed milk was made; a large quantity of coffee and milk and "Bettabread" was also produced from milk supplied to the condensary.

Production was fairly regular from month to month. As a result of a succession of good years, the industry is expanding rapidly. In the Central and Northern Divisions development has been remarkable.

Herd improvement is extending in practice among dairy farmers to the general benefit of the industry.

The replacement of more or less depreciated plants with large modern factories was a notable feature of the year's progress.

Butter and cheese factories now in operation number respectively 51 and 64. A condensed milk factory is also working.

The amount of capital now invested in the industry in this State is estimated at £37,000,000. The value of the output for the year just ended was approximately £7,500,000.

Home consumption continues to steadily advance. Up to February the average selling price for butter was 214s. 8d. per cwt., and 116s. 8d. per cwt. for cheese. From then on local prices declined in sympathy with a weaker overseas market.

An analysis of grading results shows a considerable improvement in quality of dairy products. The condition, body, and texture of the butter examined was generally excellent, due to modernised factory equipment. The output of a few factories, however, was below the generally high standard of Queensland butter.

The quantity of second-grade butter is still too great, and corrective measures are being adopted.

Improvements in factory practice were observed, and much educational effort was directed towards ensuring the delivery of first-quality cream.

Second-grade cream is still coming forward in too great a volume, though this fact may be attributed in part to the bountiful growth of herbage on our pastures that give strong flavours to the product. This condition is largely corrected, however, in the process of pasteurisation and deodorisation at the factory; but it is obvious that greater efficiency in the production and handling of cream is required on those farms supplying the lower grades. Through its instructional services the Department is aiming to reduce the output of inferior cream to a minimum.

Cheese manufacture is confined chiefly to the Darling Downs, and, though last year's production was less, Queensland is still the largest exporter in the Commonwealth.

From a study of the market it would seem that a good overseas demand exists for first-grade cheddar cheese, and this suggests that our exporting position could be still further improved.

There was a noticeable improvement in quality, but there is room for still greater improvement, and this would follow if all the milk delivered were up to the standard of that supplied by the careful methodical producer.

An investigation into the causes of defects in cheese was made in the course of the year, and is being continued.

The co-operation of controlling bodies with the Department has been of great assistance in advancing the interests of the industry.

In attached summaries are some interesting tables setting out the extent and value of departmental efforts at herd improvement. Each year considerable progress is made in this direction, and last year 13,920 cows were submitted for testing.



It is pleasing to report that the efforts of the Department to extend a system of purebred herd recording have met with the approval of stud-masters generally, and increased activity in this important direction has resulted.

The benefits of the Dairy Cattle Improvement Subsidy Scheme have been availed of by dairy farmers in different parts of the State, and some high-class sires have been introduced from other States and New Zealand.

Better packing of butter has followed the recommendations of a Special Committee appointed to inquire into the causes of so-called "wood taint." As a result of experiments undertaken by this committee of investigation, it is possible that an important discovery will be revealed in regard to surface deterioration of boxed butter.

Until recent years Queensland butter was packed in a neat, well-made, uniform cube box, but, with advancing prices for timber, much cheaper containers have come into use. This change in "get-up" is of doubtful value, and a medley of butter boxes is no advertisement for either the timber or butter industries. It is suggested that there would be wisdom in a further consideration of this seemingly small but actually important point in our butter marketing.

#### PIG RAISING.

Though progress in the pig industry was not particularly rapid since my last report, production has increased with a widening of interest in all branches of the business. Quality has improved, though many farmers have not yet realised the commercial advantage of breeding and feeding pigs to the standard required by the bacon-curers. Particular attention has been given to market requirements and instructional programmes have been shaped accordingly.

Bacon factories have been modernised to meet the exactions of a growing trade. A demand for Queensland pork products continued throughout the year, and interstate business in these commodities is increasing in volume. Though no abnormal loss by disease is reported, investigational work as to its incidence and causes was continued. The appointment of a veterinary parasitologist has been of considerable assistance in this work.

Following a fall in values of other farm produce, prices of pigs were lower, and there is a probability of this condition continuing. This means, of course, that production costs will have to be considered more carefully. The domestic fresh pork trade continued to develop satisfactorily, and the need of extending this important local market is recognised. There is now a prospect of developing a bigger oversea trade in chilled pork, but, during the term now under review, market conditions abroad were not very attractive. Home and interstate markets are,

at present more constant and there is a wide scope for further trade expansion. The possibilities of the export trade are, however, being fostered with a view to its profitable development.

#### POULTRY RAISING.

Egg-production is now regarded as one of the more important of our minor industries. There are approximately 3,000 small farms in the State on which commercial poultry keeping is the sole source of income. Farms on which a fowl-run is regarded as a profitable side-line number about 10,000.

The industry some time ago reached the point of over-production in respect of home demands, and this condition has led to a closer study of the economics of poultry keeping. Results of this study, especially in its bearing on improved farm efficiency, are being applied to the advantage of all concerned.

The marketing problem was a perplexing factor in the year's experience. Increased egg-production was met by the quittance of large quantities through export channels. In one short period interstate sales increased by 100 per cent. In addition, many tons of egg-pulp were despatched for export disposal.

Overseas trade figures show a substantial business increase, and from July to December only 10 per cent. of the output handled by the Egg Board went into local consumption.

The retail trade in dressed poultry has expanded considerably, though breeding and feeding birds especially for the table, with the exception of ducks and turkeys are not practised to any appreciable extent.

The poultry farmer had to contend with a difficult situation created by a high price of foodstuffs for his flock, and at the same time a low price for his eggs. At one time the charges for feed wheat were actually much higher than the market rate for milling wheat, and a rectification of this extraordinary anomaly had to be sought.

Useful feeding tests were conducted in the course of the year at the experimental farm at Mount Gravatt. Though no definite conclusions can be drawn from a single series, some interesting results were obtained, and these are detailed in the Poultry Instructor's account of his year's work, which is among attached appendices.

It is intended to extend these experiments over a further period.

#### FRUIT CULTURE.

Conditions in the different fruit-growing districts, though variable, were generally favourable.

*Deciduous Fruits.*—Temperate fruit crops were large, though prices were much lower than they were last year.



Departmental effort was directed towards improving orchard practice, particularly in respect of the replacing of unsuitable varieties with those more adapted to local conditions. Scions of approved varieties from specially selected trees were collected and distributed as required.

The comparative absence of fruit-fly was a remarkable experience of the year at Stanthorpe, but the occurrence of codling moth developed into serious proportions. Its control, however, is in the hands of the growers, and instruction in prescribed methods was given systematically.

A small export trade, somewhat in the nature of trial shipments, was opened up with Singapore, and a consignment from the Summit of 2,500 bushels of apples last summer arrived there in good marketable order. A similar result accrued from a trial shipment of pears and stone fruits to the same market. The comparative success of these ventures will, it is hoped, lead to the establishment of a regular market in the East Indies. Test consignments were also sent to Colombo and Hamburg. At the Fruit Exhibition at Hobart this year Queensland products were awarded some of the principal prizes; while at the Sydney Royal Show, a Stanthorpe entry was awarded the honours in a special export apple class.

*Citriculture.*—The citrus season was not entirely satisfactory. Large supplies of Southern fruit had an unsettling market influence, and prices for average-quality products suffered in consequence.

Many coastal orchards are beginning to show evidence of deterioration. This is due, it is believed, to unsuitable climatic conditions. Away from the coast, in a drier atmosphere where the soil is suitable and water is available, citrus fruits are thriving. This is notably so in the Gayndah district and other parts of the Burnett, where orange groves are being extended rapidly and profitably.

In experimental plots established in different localities, the advantages of judicious fertilising has been demonstrated satisfactorily. Improvement in productivity, and assurance that stock is true to type by selection of budwood, have for years occupied the attention of officers of the Fruit Branch, and trees are now being propagated from stock possessing the required qualities. With the object of extending activities in this direction, an area of land has been leased at Gayndah for the purpose of growing suitable trees from which budwood may be supplied to the planter at reasonable cost.

*Pineapple Culture.*—Pineapples have given reasonable returns, but for some cause not yet determined the longevity of the plantations has

been much reduced. Fungi and nematodes are the suspected causes, and investigations are proceeding. A small experimental plot has been established at Elimbah for finding out the effect of soil treatment, but some years must elapse before definite conclusions may be deduced.

Pineapple-growing is confined mainly to Southern Queensland, and there is no particular reason why this should be so. Heavy yields of excellent fruit are produced in the Bowen district. Farther north good crops are also obtained. As a matter of fact, one disadvantage there, in regard to the smooth-leaf variety, is that the fruit is too large for market; consequently rough-leaved kinds receive most attention. There is much room for an extension of acreage in the North, especially around Cardwell, where the fruit matures rapidly. The Ripley variety is perhaps the best flavoured, and reaches maturity in the North at a favourable marketing season.

Tests of all varieties are being carried out at the Bartle Frere Experimental Station, where conditions for propagation by seed are most favourable. It is aimed to evolve new and improved varieties, and, so far as our information goes, there is no record of this work being attempted systematically in other pineapple-producing countries.

*Bananas.*—As a wealth winner the banana is our most important fruit, and it is unfortunate that it is subject to the ravages of introduced pests, notably the weevil borer, of which no efficient means of control have yet been devised. In the North, however, its damage is not so marked, and we may yet have to look to our tropical coastal region for our main supply.

The spread of Bunchy Top farther North has been retarded, and with the additional powers conferred by recent legislation more effective control can be expected.

To repeat what I said in my last report, many prospective growers have little regard for soil essentials, aspect, and other points of importance when selecting sites for new plantations. It is obvious that the percentage of inferior or otherwise unsuitable land selected for banana culture has a serious depreciating influence on average production.

Exports have been reasonably well maintained, though a stricter compliance with standard-size requirements is essential if we are to secure the best results.

*Other Fruits.*—It is pleasing to report an improved demand for our miscellaneous fruits, especially the custard apple. This is attributed in some measure to the application of maturity standards for fruit sent to market. Mangoes marketed locally were of better quality. In the



Southern capitals a ready and remunerative sale awaits supplies of this fruit, of first quality in season. Figs were plentiful, but low factory prices left little margin of profit to the producer. Increased and regular supplies of table grapes of excellent quality were maintained throughout the season at reasonable rates. Strawberries were rather plentiful, but sales to canners were difficult to effect. Tomatoes were in plentiful supply, but prices were below average. The quantity and quality of Bowen exports have been well maintained. Passion-fruit received more attention, and a good winter crop is assured.

*General.*—Areas are being increased for practically all varieties, more particularly in respect of bananas, citrus and deciduous fruits. There is still room for improvement, however, in grading and packing, and departmental officers continue to give much time to instructional work.

*Bartle Frere Experimental Station.*—An important advance, and one that should have a very beneficial influence on the extension of tropical fruit culture in Queensland, was made in the course of the year by the establishment of an experiment station at a suitable location near Bartle Frere in the North. Though the propagation and improvement of banana varieties are among the chief objects, other tropical fruits will be grown for the same purpose. Every variety of pineapple will be submitted to tests with a view of determining the most suitable for Northern tropical lands. At present there is on the station the best collection of Avocado pears in the State, and this will be extended. Varieties of onions and English potatoes will also be placed under trial, with a view to encouraging their cultivation in sufficient quantities for the Northern trade.

The importance of such a station cannot be over-estimated, for, in addition to the purposes cited, it should become a propagation centre for many tropical products of commercial value which must one day be considered as possible alternatives to sugar-cane, or as a means of bringing a greater area of our rich Northern lands into profitable production.

*Returns.*—The year's returns show that 715,942 cases of bananas, 230,708 cases of pineapples, 662,477 cases of tomatoes, 16,188 cases of citrus, 35,744 trays of strawberries, and 77,812 cases of various fruits were consigned to other States; and that 522,175 cases of fruit were imported. Other trans-border and seaborne trade figures are embodied in an appended report.

#### ECONOMIC BOTANY.

Included in the field work this year was an inquiry into the Queensland Nut family, which in view of its commercial possibilities is a matter of importance. Other field studies covered

observations on changes in the composition of native pastures in response to top-dressings of various fertilisers, and investigations in respect of plants suspected of being poisonous to stock.

An increasing public interest in economic botany has added considerably to the work of the Government Botanist, who in the course of the year is called on to identify many hundreds of plant specimens.

Many additions were made to the general herbarium and museum collections, and their value for reference and other purposes has greatly appreciated.

#### ENTOMOLOGY AND PLANT PATHOLOGY.

In the course of a year of general activity, measures for the combat and control of predatory and destructive insect pests were a main concern. A new field station was established at Nambour, where citrus and pineapple entomology are subjects of systematic investigation. Banana pests investigation continued to be one of the major interests of the branch, and the value of this and related work in respect of a long list of pests that have created problems for the producer may be estimated by a perusal of the report of the Chief Entomologist, which is appended.

Other important lines of investigation were followed by officers of the Pathological Section, particularly in regard to wheat and maize diseases. Leaf-spot in bananas also received close attention. Details of research work in relation to other plant diseases are incorporated in an accompanying report.

#### CHEMISTRY BRANCH.

Analytical work has greatly increased, and general analyses for the year totalled 6,902 as against 5,546 in the previous year and 4,656 in 1927-28. In addition, 3,336 samples of glassware were tested.

Routine soil analyses occupied much attention, as well as the usual testing of dipping fluids. The customary analyses of dairy produce were made on behalf of the Commonwealth and State authorities. Results are tabulated and attached hereto.

Samples of ginger were submitted for analysis, and results showed that the Queensland-grown product bears comparison favourably with the imported article. It was also demonstrated that good-quality ginger may be produced in many suitable localities. The importation of further varieties for trial has been arranged.

An invitation to pastoralists to submit samples of pasture for analysis met with a generous response. An interesting account of the work involved and the valuable results obtained are given by the Agricultural Chemist in his report, which is incorporated herein. Field investiga-



tions into the causes of malnutrition in stock were continued with useful results, chief of which was the fact that there is an appreciable mineral deficiency in many of our pastures, especially on some of our poorer cattle country.

The experiments in pasture renovation and improvement mentioned in my last report have been continued, and results then described have been confirmed.

The use of suitable stock-licks has been extended widely throughout the State with beneficial effects. In practice these licks have had a pronounced influence on lambing and wool yields. The Chemist's appended account of this practice, particularly in regard to the use of Nauru phosphate, contains some interesting comment and general information of value to stock-raisers.

Details of food grain experiments at Kingaroy, of some poultry-feeding trials, pest destroyer analyses, and other important tests carried out in the course of the year, are set out in attached tables.

#### SEEDS, STOCK FOODS, FERTILISERS, AND PEST DESTROYERS INVESTIGATION BRANCH.

A total of 2,287 seed samples were examined. The great bulk of these were taken officially, 281 were received from a small number of vendors, and 39 were sent in by farmers. It is, therefore, obvious that many dealers in agricultural seeds do not avail themselves of the facilities offered by this branch.

A comprehensive account of the year's work, together with complete tabulated results and relevant comment—all of which emphasise the value of this service to the producer—are included among accompanying summaries.

#### STOCK DIVISION.

Live-stock figures for the year show a further diminution in the numbers of horses and cattle, and a substantial increase in the number of sheep.

The present position is made clear in the following table:—

Year.	Horses.	Cattle.	Sheep.
1929 ..	522,490	5,128,341	18,509,201
1930 ..	493,101	5,122,063	19,975,752

Pastoral conditions have improved generally throughout the State, although some districts are still in need of rain. On the coast a bountiful season was enjoyed, and this pleasing condition extended, in some districts, far inland. Most of the stock routes are now open, and many mobs are moving along the main lanes of traffic, including those leading in from North Australia.

The prospects of the cattle industry are better than they have been for some years, and the trade outlook has brightened.

The increase of sheep is an indication of a steady recovery from the recent prolonged dry period in western parts of the State.

Most of the sheep country benefited by useful rains, from time to time, during the year. Lambings were fair to good in most of the breeding areas, and a steady increase was maintained throughout the year. More sheep are now running profitably on the Darling Downs, where diversified farming is becoming more extensively practised. Departmental activities covered instruction in all phases of land selection, pasture and flock management, shearing, clip classing, and marketing.

Although wool values were low for the whole of the season, exceptionally good clearances were effected at every sale. In all, 408,962 bales were received into store, of which 344,404 bales were sold. As the carry-over will find ready quittance at the July sales, the prospects of a firmer demand, with a possibility of price improvement, are promising.

The price level was lowest at the February sales, when the market for greasy bottomed at 8.84d. a lb.

The approximate market value of the wool produced for the year was £5,889,052.

Sheep values were erratic and store stock were priced unusually low, obviously in sympathy with lower wool values.

A greater quantity of wool was received for classification by the Department under the Farmers' Wool Scheme, and this is an indication of appreciation by the small grower of our efforts to place his wool to the best advantage. For the season, 108,380 lb. of greasy was received, as against 78,375 lb. last year. The clip was sold at an average price of just under 9d.



The number of horses shipped oversea was 649, as against 441 last year.

Queensland remains a remarkably healthy stock country. Insect and parasitical pests, however, continue to give cause for attention.

Blow-fly infestation was much lower in its incidence, and efforts are being made to reduce it still further.

So far the presence of the buffalo fly has not been observed in places other than those reported last year. Continued vigilance is needed to prevent the spread of infestation, and as a measure of control a natural insect enemy is being sought.

Routine measures for the prevention of stock diseases are fully described in an appended review of the veterinary work of the year.

The metropolitan fat stock sales returns show that 92,939 cattle, 546,042 sheep, 44,205 lambs, 10,644 calves, and 17,005 pigs were sold through the Newmarket yards. Average values were:—

*Cattle—*

Bullocks, per cental, 36s. = £10 7s. per head.

Cows, per cental, 33s. = £6 12s. per head.

Vealers, up to 80 lb., 32s. 6d.

*Sheep—*

Fats, 2½d. per lb. = 11s. 3d. per head.

Lambs, 4½d. per lb. = 9s. 6d. per head.

*Pigs—*

Porkers and baconers, average value per lb., 6¼d.

Porkers and baconers, average value per head, £2 7s. 6d.

Suckers, ships and stores, average value per head, 15s.

It is still necessary to maintain close supervision of country butcher shops and slaughter-houses, in order to ensure reasonable, not to say strict, compliance with statutory requirements. Forty-eight new shops and thirty-one new slaughter-houses were opened during the term. There has been no shortage of stock for the butchering trade. Metropolitan killings show a marked decrease in the number of cattle and sheep treated, but a small increase in lambs.

Only one case of diseased meat exposed for sale came under notice in the course of the year, and generally the health of slaughtered stock was equally as good as in former years. Continued improvements are reported in respect of pig-keeping, although it was found necessary to proceed against several offenders charged with objectionable feeding practices.

There was an increase in stud cattle received for immunisation against tick at the Yeerongpilly Stock Experiment Station. Losses from all causes after inoculation were phenomenally small, thus demonstrating the efficiency of methods employed.

A much appreciated service is the supply, at reasonable cost, of tested bleeders and immune blood for the inoculation of station and farm herds.

Specimens of dairy produce, and other substances submitted for bacteriological examination, numbered 927; 189 pure cultures of lactic acid bacteria were supplied to cheese factories; vaccine for 8,917 cows was prepared for curative and preventive treatment of contagious mammitis; blackleg vaccine for the protection of 3,840 calves; 83,362 doses of pleuro-pneumonia virus and 30,594 sterilised setons were distributed.

It is of especial interest to note that, although tuberculosis in poultry is considered to be a significant factor in the dissemination of the disease in pigs, no lesions of tuberculosis have been discovered in any birds submitted for bacteriological examination for several years.

An inquiry into the causes of "soft bacon" showed that the primary cause of this condition is the use of unsuitable food (excessive quantities of peanuts), in the cases that came under investigation.

The prevalence of tuberculosis among pigs as shown by official returns from the several bacon factories, together with the economic loss involved, was a matter to which serious consideration was given in the course of the year. Remedial and preventive measures were adopted and every effort is being made to reduce the incidence of this disease among our live stock. An account of experiments conducted at Yeerongpilly by the Government Bacteriologist is attached.

The value of scientific service and research in this and related activities was made manifest in many ways throughout the period under review.

Registrations of cattle and horse brands, cattle earmarks, and transfers show an increase compared with the figures for the previous year; but there has been a falling-off in the numbers of sheep brands and earmarks registered.

#### PROTECTION OF NATIVE FAUNA.

During the year under review total protection has been afforded the native bear and opossum. A number of new sanctuaries for native birds and animals has been proclaimed.



## DINGO AND MARSUPIAL DESTRUCTION.

FOLLOWING IS A TABLE OF OPERATIONS IN CONNECTION WITH DINGO AND MARSUPIAL DESTRUCTION SINCE THE INCEPTION OF LEGISLATION DEALING WITH THESE PESTS.

Board.	Assessment Collected.	Amount Expended on Bonus Payments.	Expenses of Administration.	Number of Scalps paid for.			
				Wallaby.	Smaller Marsupials	Fox.	Dingo.
	£ s. d.	£ s. d.	£ s. d.				
Adavale .. .. .	264 14 11	203 15 0	54 5 7	..	..	53	254
Aramac .. .. .	303 5 9	210 10 0	144 3 2	..	..	65	259
Barcoo .. .. .	344 15 3	149 0 0	130 13 9	..	..	80	172
Belyando .. .. .	793 17 1	683 15 0	94 19 1	..	..	5	910
Booringa .. .. .	584 16 1	825 0 0	231 16 8	..	..	249	1,017
Boulia .. .. .	249 15 1	260 5 0	106 0 3	..	..	..	349
Bowen .. .. .	1,119 12 11	1,294 10 0	300 7 9	..	..	..	1,726
Bulloo .. .. .	1,514 17 5	1,777 10 0	155 15 5	..	..	111	2,333
Bungil .. .. .	257 4 3	352 10 0	131 15 1	..	..	174	412
Burnett .. .. .	1,192 2 9	1,578 10 0	423 9 3	..	..	533	1,927
Burke .. .. .	468 13 11	210 0 0	101 5 9	..	..	..	280
Clermont .. .. .	419 1 1	358 0 0	95 18 7	..	..	39	445
Cloncurry .. .. .	1,595 0 10	1,802 5 0	287 10 10	..	..	..	2,403
Carpentaria .. .. .	397 11 7	357 0 0	140 16 3	..	..	..	476
Condamine .. .. .	562 13 8	525 15 0	133 9 4	..	..	69	662
Cook .. .. .	2,978 13 1	3,053 5 0	404 5 9	..	..	..	4,071
Dalrymple .. .. .	880 14 7	761 5 0	133 6 6	..	..	..	1,015
Darling Downs .. .. .	1,033 2 6	1,233 10 6	742 6 5	15,634	222	2,492	551
Dawson .. .. .	1,199 17 8	1,420 12 6	209 3 7	..	105	24	1,885
Diamantina .. .. .	228 10 7	214 10 0	90 15 11	..	..	..	286
East Moreton .. .. .	528 1 2	427 10 9	558 14 8	2,863	..	385	394
Gregory .. .. .	410 11 0	280 10 0	119 9 11	..	..	..	374
Gogango .. .. .	2,320 1 7	1,836 1 9	389 13 8	..	2,693	28	2,416
Hughenden .. .. .	457 3 0	645 15 0	172 9 0	..	..	..	861
Kennedy .. .. .	749 11 3	420 15 0	87 19 1	..	..	..	561
Leichhardt East .. .. .	1,208 14 4	977 15 0	163 13 7	..	..	2	1,303
Leichhardt South .. .. .	1,454 10 9	1,161 5 0	152 15 4	..	..	67	1,526
Mitchell West .. .. .	29 2 3	54 5 0	107 4 6	..	..	7	70
Paroo .. .. .	469 6 5	155 5 0	167 1 6	..	..	525	32
St. George .. .. .	1,711 14 10	1,877 9 6	794 13 8	2,098	..	5,641	588
Tambo .. .. .	271 9 3	245 9 9	66 10 9	2,219	..	52	273
Warrego .. .. .	1,271 9 10	795 10 0	165 16 6	..	..	341	947
Western Downs .. .. .	865 0 6	845 0 0	333 2 7	..	..	2,492	296
West Moreton .. .. .	1,074 5 7	685 14 4	701 15 0	8,380	206	724	531
Windorah .. .. .	1,353 3 4	704 10 0	238 0 4	..	..	16	934
Wide Bay .. .. .	1,917 17 5	988 10 0	787 10 7	..	..	114	1,281
Totals .. .. .	£32,481 3 6	£29,372 14 1	£9,118 15 7	31,194	3,226	14,288	33,820

## COMMODITY BOARDS.

Action was taken with respect to the following Commodity Boards in the course of the year:—

*Arrowroot.*—On the 5th June, 1930, an Order in Council was passed providing for a deputy appointed by the Minister to represent him on the Board in the absence of the Director of Marketing.

*Atherton Maize.*—On the 26th July, 1929, a regulation was passed fixing the period of time for payments by the Maize Board. On the 29th May, 1930, an Order in Council was issued empowering the Board to deal with any illicit trafficking in the commodity of Atherton maize, and on the 5th June an Order in Council was approved which allows a deputy appointed by the Minister to represent him on the Board in the absence of the Director of Marketing.

*Barley.*—On the 23rd January, 1930, notice of intention to constitute a Barley Board was given. A petition for a poll on the question of

whether the Board should be set up or not was handed in in the prescribed time, and the poll resulted as follows:—

For the setting up of a Barley Board, 117 votes;

Against the setting up of a Barley Board, 27 votes.

As the necessary 60 per cent. majority was obtained, an Order in Council dated the 24th April, 1930, created a Barley Pool for a period of seven years. The personnel of the Board is two elected representatives of the growers and the Director of Marketing or a deputy appointed by the Minister. A further Order in Council dated the 27th June, 1930, provided for finance for the Board under the same conditions as those granted to other Commodity Boards.

*Butter.*—By an Order in Council of the 5th June, 1930, the constitution of the Board was altered to allow of a deputy appointed by the Minister representing him on the Board in the absence of the Director of Marketing.



*Canary Seed.*—By an Order in Council dated the 9th January, 1930, it was approved that growers of canary seed eligible to vote at any election or referendum of the Board would be persons who had grown canary seed during the twenty-four months previous to such election or referendum. On the 16th January, 1930, notice was given of intention to extend the Board for three years. As no petition for a poll was received, an Order in Council was passed on the 27th March, 1930, extending the Board for three years until the 28th February, 1933. An Order in Council of the 5th June, 1930, provided that a deputy appointed by the Minister might represent him on the Canary Seed Board in the absence of the Director of Marketing.

*Cheese.*—An Order in Council dated the 22nd May, 1930, amended the constitution of the Cheese Board to allow of the election of members of the Board on the ward system, one member for each of five districts. This Order also altered the definition of persons who would be eligible to vote at any election or referendum held in connection with the Board, and provided for a deputy appointed by the Minister representing him on the Board in the absence of the Director of Marketing.

By an Order in Council dated the 29th May, 1930, notice was given of intention to extend the Cheese Board for three years. As no petition was received in the time stated, an Order in Council dated the 24th July, 1930, extended the operations of the Board until the 31st July, 1933.

*Cotton.*—An Order in Council of the 29th May, 1930, provided that the Cotton Board need not recognise orders given by cotton-growers to tradespeople, &c., on moneys due to them by the Board on account of seed cotton supplied. Another Order in Council, of the 5th June, 1930, approved that a deputy appointed by the Minister might represent him on the Cotton Board in the absence of the Director of Marketing.

*Honey.*—For the purpose of collecting statistics, regulations were passed on the 29th May, 1930, requiring wholesale merchants of honey to furnish returns giving the amounts of honey handled by them during the year. An Order in Council dated the 5th June, 1930, provided that a deputy appointed by the Minister might represent him on the Honey Board in the absence of the Director of Marketing.

*Peanuts.*—On the 29th May, 1930, notice was given that it was the intention of the Governor in Council to make an Order in Council creating a new Peanut Board. A petition for a ballot on the question was handed in, and the ballot is at present in progress. The new Board will apply

to all peanuts grown for sale, instead of only those from areas of half an acre and upwards as provided for in the existing pool.

*Wheat.*—On the 14th November, 1929, the Hail Insurance Reserve Fund Regulations were amended to provide for the fund to be increased from £10,000 to £20,000, and the Hail Insurance Scheme Regulations were also amended to provide that each grower should carry his own risk to the extent of 5 per cent. of the crop on the area damaged on each individual plot, instead of 10 per cent. of the crop on the area damaged, as provided for in the old regulations. On the 27th June, 1930, the old State Wheat Pool Election Regulations made in 1922 were rescinded and new ones substituted in lieu thereof, by which the length of tenure of office of members of the Board was increased from one year to two years. These new regulations also provided for preferential voting to be made compulsory instead of optional, that all elections were to be conducted by a returning officer appointed by the Minister, that each representative must be a bona fide grower of wheat, and that any election might be declared invalid by the Minister, and another election ordered.

#### THE FRUIT MARKETING ORGANISATION ACTS, 1923 TO 1928."

On the 26th September, 1929, an Order in Council was issued giving notice of intention to extend the operations of the Acts for five years as from the 1st January, 1930. A petition signed by more than 500 fruit-growers, asking for a poll on the question of whether the Acts should be extended or not, was handed in. A poll was accordingly held, resulting as follows:—

For the continuance, 3,240 votes;

Against the continuance, 476 votes.

As the necessary 60 per cent. majority was obtained, an Order in Council was passed on the 30th January, 1930, extending the operations of the Acts until the 31st December, 1934.

Regulations passed during the year provided for a Stanthorpe fruit levy, a fig levy, and a papaw levy, and for the continuance of the pineapple, banana, and citrus levies. Others provided for the election of sectional group committees, the marketing of tomatoes, the conducting of a ballot in connection with the continuance of the Acts, and also for the conducting of ballots in connection with the acquisition of tomatoes and strawberries.

In the case of the tomato ballot the required action was taken too late in the season, and the proposal for acquisition consequently lapsed. In the case of the acquisition of strawberries, however, the required 60 per cent. majority was obtained, and an Order in Council was accord-



ingly passed on the 19th June, 1930, empowering the Committee of Direction of Fruit Marketing to acquire all strawberries produced in Queensland for sale to factories or on a wholesale basis until the 14th May, 1931.

#### CO-OPERATIVE ASSOCIATIONS.

Since my last report eighteen additional co-operative associations were registered. Some amalgamations were effected, two registrations were cancelled, and three associations are being wound up voluntarily. There are now 142 associations registered under the Acts. Several associations have amended their rules to meet changing circumstances, and others are considering amalgamation as a means of more economical working and of securing greater co-operative efficiency.

#### MARKETING.

The year's work of the several Pools and Commodity Boards operating in Queensland is described in detail in my further report as Director of Marketing, which is incorporated herein.

#### PUBLICATIONS.

"The Queensland Agricultural Journal," which was established in July, 1897, has entered on its thirty-fourth year of publication. It has been published regularly ever since, and to date has gone into 63 volumes.

Essentially of a utilitarian character, the journal has been devoted mainly to the dissemination of information of practical value to the farmer and stock-breeder. A high standard has been established and maintained, the general policy of the publication being designed on positive lines in consonance with progressive agricultural thought, developments, and practice, and, therefore, to be of real use and value to the working farmer.

As a publication dealing with country life and the economics of rural industry, the journal is of definite value to those engaged in primary production, and there is evidence in its greatly increasing circulation that it is appreciated accordingly. This progress is due largely to the regularity and practical value of the contributions of officers engaged in directive, educative, and specialised work.

Numerous new and revised bulletins, pamphlets, and leaflets on many aspects of the

science and practice of agriculture and animal husbandry were issued in the course of the year. Over 140 of these publications, covering a very wide range of subjects, are at present available for distribution to farmers.

Co-operation with the Australian Broadcasting Company, in respect of regular radio talks by departmental officers on rural topics, has continued.

Information on the agricultural situation from time to time and on departmental activities, as well as seasonal notes on field practice and problems, was prepared and issued regularly to the metropolitan and country press.

#### LIBRARY.

Many additions were made to the Library, which now contains a wide range of scientific and technical literature. Cataloguing and indexing is now complete, and its usefulness for general reference purposes is appreciated more as its resources become better known. Monthly accession lists are circulated, and scientific workers are making increasing use of its facilities.

#### CONCLUSION.

The year generally was one of substantial progress, the dairying industry particularly making a notable advance, both as regards volume of output and quality of product. Other branches of rural industry, under altered seasonal circumstances, also improved their position. The activities of the Department were carried on with success, and a more detailed account of these activities will be found in the accompanying reports of the Director of Agriculture, the Supervisor of Dairying, the Chief Inspector of Stock, the Cotton Specialist, the Director of Fruit Culture, the Chief Entomologist, the Agricultural Chemist, the Officer in Charge of Seeds, Fertilisers, Pest Destroyers, and Stock Foods Investigation Branch, the Government Botanist, the Registrar of Co-operative Societies, and the Director of Marketing.

To this report are attached statistical tables compiled by the Registrar-General, and containing much interesting and useful information bearing on the position of agriculture and its allied industries in Queensland. All of which are respectfully submitted.

E. GRAHAM, Under Secretary.



## REPORT OF THE DIRECTOR OF AGRICULTURE.

I have the honour to present the Annual Reports submitted by the several officers on the Instructional Staff, together with the reports of the managers of State Farms, Roma, Gindie, Kairi, and Home Hill, a perusal of which will serve to indicate the more important activities of these respective sections of the Department.

It is satisfactory to note that during the past year there was unmistakable evidence that agriculture in Queensland has extended, and that producers generally were aiming at and attaining to a higher and gradually improving standard of efficiency both in production and marketing.

The opinion is advanced that this general improvement is attributable to the desire on the part of the individual to get down to fundamental facts in connection with his or her business. Undoubtedly the old order of things is passing. Agricultural education is playing its part, and with it more thought and a greater concentration are undoubtedly being given to each problem that arises. There is clear evidence of this alone in the large number of inquiries which are being daily dealt with by Departmental officers. In my own branch, service of this kind ordinarily calls for a good deal of personal attention, as the significance of providing sound information is fully realised.

*A New Factor in Production.*—To date, nothing in the history of settlement in the "pear belt" of Queensland is thought to be of greater importance than the work of the *Cactoblastis* insect in freeing country of the pest, which at its peak period overshadowed something like 50,000,000 acres of land. The necessity was realised of following up the progressive work of the insects, which have been widely distributed by the Prickly-pear Land Commission, and of finding a means of promptly bringing the immense areas of brigalow and belah "scrub" lands into a state of productivity. With this object in view, and setting the forest country aside for the time being, where grass and herbage soon show up after "ringbarking," experiments were initiated last October at Palardo, on the Western Line, where the use of a 70-acre section of country was secured. Here, as in other places, successive waves of *Cactoblastis* had literally flattened out the pear and reduced it to a mass of rotted and partially rotted vegetable matter, right in amongst a thick stand of trees, numbering between 200 and 400 per acre, mostly about 8 to 10 inches in diameter, with odd trees, in the case of the belah, up to 20 inches at the butt.

Other objectives aimed at in designing the experiments were—

- (a) To derive the fullest possible benefit from the large quantity of vegetable matter present.
- (b) To avoid the immediate use of fire in order to ensure the preservation of the humus and the various forms of insect life which had wrought the destruction of

the pear in the first place, so that successive generations of insects might more effectually deal with all the "following" growth of pear; and incidentally, to obviate the inevitable suckering which takes place if brigalow is prematurely fired.

- (c) To "frill" and poison the standing timber with arsenic pentoxide to ensure a more rapid and decisive "kill."
- (d) To broadcast summer-growing and winter-growing grass mixtures and cover crops to permit of stocking the country as quickly as possible, and making it productive in a matter of months rather than years; and in doing so, to bring about an appreciable increase in its carrying capacity.
- (e) To ascertain the most suitable and effective strength of arsenic pentoxide solution for timber destruction; and for killing "suckers"; and
- (f) To determine the best period of the year to destroy the timber so that any suckering of the brigalow would be obviated.

In the "summer" series, Rhodes was chosen as the principal grass (8 lb. per acre), a small quantity (1 lb. per acre) of *Paspalum dilatatum* being added. Individual cover crops on the respective 3-acre sectional areas being Sudan grass (8 lb. per acre); White Panicum (20 lb. per acre); Japanese Millet (20 lb. per acre); French Millet (14 lb. per acre); and Giant Panicum, *Setaria* (20 lb. per acre).

*Method.*—As it was out of season for timber destruction work, October to December (the usual period being from February to July), a strong solution, 30 per cent. of arsenic pentoxide, was used and applied immediately after "frilling," a fall of 2.57 inches of rain having induced a perceptible sap movement.

Seed was broadcasted by hand the first week in December, right on top of the rotting pear. At this time a small percentage of trees was still alive, but the major number were dead or dying. Sixty-five points of rain fell in November. A heavy storm, yielding 318 points, fell the first week in December. The resultant moisture induced a good germination of seed, but did not penetrate more than 3 inches of the pear mulch, the soil being still dry. In January 229 points were recorded. February was a dry, hot month, only 93 points being registered. Approximately 60 to 70 per cent. of the cover crops and young grass seedlings perished about the end of the month for want of moisture. The remainder, which had the benefit of a slight run off from the pear, carried on until the March rains. At this period all the cover crops bore seed which fell and germinated, only to be checked by frost in May and June. By this time Rhodes grass was well established, but the stand requires to be thickened up by natural and artificial reseedling.



Conclusions to date show that the factors which adversely affected the progress of this series of experiments were the lack of moisture in the soil and subsoil (which did not get a good soaking until May), accentuated by the heat wave in February at a time when an appreciable number of trees were not quite dead, contributory to which was the all too short a period between the time of "frilling" and poisoning the scrub trees and that of sowing the seed.

*Winter Series.*—In this set of experiments there were six plots, each 3 acres in area.

The conditions in respect to the pear itself were practically the same as for the summer series, viz.:—The rotted and partly-rotted mass ranged from 3 to 5 inches in thickness, with numerous clumps of old, dry, fibrous pear about 12 inches in height, rotting at the base, but which had not yet completely broken down and flattened out. Throughout, some small patches of soil were to be noted where no pear had grown, these being found more in the *belah*, and were either lightly covered with short moss or with thin tufts of grass, *Panicum gracile* principally; a little creeping salt-bush and roley poley (*Anasicantha*) were also showing up at intervals.

The period of frilling and poisoning the trees, October to December last year, was practically the same as for the summer series. A few trees still showed signs of life on 10th February this year, when the seed was sown, but by 20th March, the date it germinated, the trees were to all intents and purposes dead.

*Seed Mixture.*—To provide for a well-balanced ration, a standard mixture was made up for this particular experiment, subsequent to testing the germinating quality of the seed, comprising:—Prairie grass (10 lb. per acre); Lucerne (3 lb. per acre); Bokhara clover (2 lb. per acre); Rhodes grass (2 lb. per acre); Sheep's Burnet (1 lb. per acre); and *Phalaris bulbosa*, Too-woomba Canary grass ( $\frac{1}{2}$  lb. per acre). This mixture was sown with different cover crops for each plot, these latter being Currawa wheat (30 lb. per acre); Cape and Skinless barley (15 lb. each per acre); Algerian and Sunrise oats (15 lb. each per acre); Rye (30 lb. per acre); Canary Seed (10 lb. per acre), and Dwarf Essex Rape (7 lb. per acre) respectively.

*Germination of Seed and Plant Development.*—The seed lay on the surface at the mercy of birds and animals for a little over a month, an exceptionally good germination taking place on 20th March after the rain had carried the seed on to the rather loose but moist vegetable matter present in the interstices of the dried-out pear residues.

Aided by an exceptionally good season the growth was extraordinary, the tap-rooted plants, Lucerne, Bokhara clover, and Sheep's Burnet striking down through the decaying pear deeply into the soil, whilst all surface rooters revelled in this rich, decaying vegetable matter. Within three months there was an abundance of succulent fodder and grass in fit condition to carry stock. The Lucerne and Prairie by this time were 12 inches long, the cover crops being stronger and more luxuriant.

So far, no stocking has been undertaken in connection with this particular series, as it was

necessary to allow the cover crops and grasses to mature sufficiently to permit of the yields being assessed, and to determine also whether certain of the plants would bear viable seeds. The yield on the two most forward plots, where cover crops of rape and barley were grown, was taken on 9th July. The former gave a return of 14 tons of fodder to the acre and the latter, 10 tons. The rainfall from January to June was as follows, the number of wet days being shown in parentheses:—January, 2.29 (6); February, .93 (3); March, 1.89 (4); April, 1.62 (3); May, 5.29 (4); June, 2.88 (7).

*Conclusions.*—The season undoubtedly was an exceptionally favourable one and much superior to the average run of seasons experienced in the district. Conditions were fairly normal prior to the heavy fall of rain in May. Observations then made showed that every kind of plant was making sufficiently good progress to warrant light stocking with sheep, if it were necessary to do so. Aided, however, by the excellent rains in May, the resultant plant growth and development was extraordinary, which would have permitted fairly heavy stocking by cattle or sheep, if such were expedient.

Up to the present there is some justification to assume that the "frilling" and poisoning of the "scrub" trees, and the sowing subsequently of suitable grasses and fodders apparently, offer an efficient method of dealing with this class of country. Its practical application to the extensive tracts of pear country, now in process of clearing by biological means, should have a far reaching effect on production, which at a not too far distant date might be expected to find expression in the way of increases in the amount of beef, mutton, and lamb, wool, dairy produce and pork in direct proportion to the character of the development work undertaken and the kind and amount of food provided for the various classes of stock.

*Tobacco.*—Where new sources of wealth are matters of national concern, it is satisfactory to be able to refer to the progress made in the initial experiment work with this crop, more particularly in North Queensland in the Townsville and Mareeba districts, and to the encouraging remarks submitted by the Senior Instructor in Agriculture for the Northern Division, Mr. N. A. R. Pollock, in his annual report.

Queensland appears to be one of the most promising fields for the production of bright, flue-cured leaf of good texture and smoking quality, and this is borne out in a recent publication of the Australian Tobacco Investigation Bulletin No. 2 on "The Smoking Qualities of Australian Tobacco," presented by Mr. C. M. Slagg, M.Sc., Director of Tobacco Investigation, which showed that out of 136 samples of Queensland leaf tested, forty-four were of mild, agreeable aroma, and sixty of passable aroma; thirty were of indifferent to poor aroma, and only two proved to have bad aroma. These results are far ahead of those furnished in respect to tobacco grown in the other Commonwealth States, and lead one to infer that Queensland may be able in the future to supply an appreciable proportion of the tobacco leaf required for Australian consumption, the import value of which latter exceeds £2,000,000 sterling.



Negotiations are being carried on for an extension of the three years' agreement between the B.A.T. Co., the Commonwealth, and the respective States, which expired on 30th June this year. Expenditure in Queensland from the joint fund was £646 in 1927-28, £2,078 in 1928-29, and £1,500 in 1929-30.

The following extract of a letter from the Director, Australian Tobacco Investigations, Mr. C. M. Slagg, M.Sc., to the Under Secretary for Agriculture, Brisbane, explains the position in regard to the experiment work carried out under the old agreement:—

"In 1928 we grew approximately one half acre of tobacco, scattered over a large number of exploratory tests plots in North and Central Queensland. The Central Queensland plots were ruined by excessive rains. Leaf was harvested and cured from approximately twenty-three plots in North Queensland, from which a total of 183 lb. of cured leaf was secured. This leaf was harvested and cured from nine plots in the Mareeba district, three plots in the Chillagoe district, one plot at Almaden, one plot at Pentland, and four plots in the Bowen district.

"In 1929 both field tests and exploratory plot tests were carried out. The field tests were concentrated on 10 acres of newly cleared land at Mareeba. Small exploratory tests were also carried out at Chillagoe, Mareeba, and Atherton, also small samples of leaf were secured from plots grown by the Chamber of Commerce at Townsville and Charters Towers. An almost complete failure on most of the plots was experienced, due to excessive rains; 155 lb. of flue-cured leaf was secured.

"In 1930 the field tests were again concentrated at Mareeba. A few exploratory tests were carried out in the Northern districts in co-operation with Mr. Pollock. About fifteen exploratory test plots were carried out in co-operation with Mr. Brooks in Central Queensland, scattered from Bundaberg to Mackay. We expect about 1 cwt. of flue-cured leaf from the exploratory test plots in Central Queensland, and about 2 tons of flue-cured leaf from North Queensland, most of which was produced on 7 acres of field plot tests at Mareeba.

"The tobacco Investigation has constructed two regulation sized flue-curing kilns and a bulk shed at Mareeba, and a small test flue-curing kiln at Rockhampton. It is hoped to extend our activities in Queensland during the coming season."

*Wheat.*—Last year's wheat crop was a record for Queensland, approximately four and a-quarter million bushels, and the grain proved to be of good milling quality, the percentage of chick-wheat being reduced to a minimum.

Personal attention was given to the judging of the Toowoomba and Warwick Field Crop Competitions, and some splendid crops competed. Yields were good, the highest being estimated at 45 bushels per acre, this being obtained without the application of any fertiliser.

Mr. C. S. Clydesdale, Agricultural Instructor, assisted me in the inspection of a large number of crops on behalf of the Wheat Board, with the object of selecting commercially pure grain for seed purposes, for which latter a premium of 2d. per bushel was paid. Over 30,000 bushels were chosen. Crops reasonably pure to type were difficult to locate, as they also had to be free from disease. Approximately 70,000 bushels of grain were selected at delivery stations by the Wheat Board's classifiers for seed purposes. On the score of milling quality this latter grain was good, but from the standpoint of purity and of the possible presence of certain wheat diseases, this latter method of selection left much to be desired.

The consensus of opinion is that marketing arrangements have very much improved under the recent agreement made between the millers and the Wheat Board, and that it has also had a stabilising effect on prices. This year the area under wheat is expected to show an improvement of 12½ per cent. on last year's figures. If anything, the present crop has been too generously treated in the matter of rain. The early planted wheat is generally too far advanced for this time of the year; the soil has also been too wet to carry sheep. Hard, frosty conditions and fine weather are anxiously looked for to permit of feeding off the crops and checking the wheat from becoming winter proud.

Last season good progress was made in wheat-breeding at the Roma State Farm. A number of promising varieties were made available for trial this season at Pittsworth and Nobby, on the Darling Downs, in plots being conducted by officers of the field staff.

*Barley.*—The resuscitation of the barley industry appears to be within measurable distance. Upwards of 100,000 bushels of malting barley were grown last season on the Darling Downs. Yields were high and the quality equal to anything hitherto produced. About two-thirds of the crop was purchased for malting at Toowoomba shortly after last harvest by the Perkins-Castlemaine and Anderson Malting Companies prior to the formation of a Barley Pool Board. Since the latter Board accepted office the balance of the crop, approximately 30,000 bushels, was purchased by the Queensland Brewery Company. This company secured the use of "The Maltings" at Black Gully, Toowoomba, for the purpose of converting their grain into malt.

This year the barley crops got an excellent start, and growers are again looking forward to a good yield and improved marketing conditions.

The question of developing improved varieties is in hand. Field officers are testing some very promising harleys, including several new cross-breeds bred by the manager of the Roma State Farm.

*Oats.*—A choice collection has been brought together by officers of the field staff, who are conducting comparative trials again this season with a view to the introduction into general cultivation of any varieties proving superior to those commonly grown.

*State Stallions.*—In last year's report reference was made to the fact that a stage had been reached when it could be considered that these



horses had fulfilled the purpose for which they were purchased. Five stallions consequently were sold at the Royal National Show sales in August. Although brought out in excellent condition, low prices had to be accepted owing to the age of the animals. However, a four-year-old stallion bred by the Department at the Gindie State Farm realised the top price at the Exhibition sales.

*Royal National Show.*—The Departmental display at the Royal National Exhibition was quite up to the high standard attained at previous Shows. Officers of the Agricultural Branch contributed in no small measure to the excellence of the exhibit.

*Conclusion.*—A retrospective view of last year's work of officers of my branch shows that each and every one has rendered excellent service, for which my grateful acknowledgment is tendered.

H. C. QUODLING,  
Director of Agriculture.

### STATE FARMS.

#### HOME HILL.

The manager of the Home Hill State Farm, Mr. C. MUNRO, reports:—

Operations for the year ended 30th June last were as follows:—

The main objectives were:—(1) To induce a profitable crop of fruit in the orangery of 5 acres; (2) to secure an outside market for Cavendish bananas; and (3) to extend irrigation experiments on all the cane grown on the farm.

*Orangery.*—Although every effort was made to induce the fruit on the Washington Navel and Dunning's Seedless varieties to set by cincturing and judicious watering, followed by surface mulching, the bulk of the young fruit fell off before it reached the size of a pigeon's egg, the final results being 223½ dozen off 176 Dunning's Seedless trees and 288½ dozen off 61 Washington Navel trees. This yield, although disappointing, is twice as great as the first crop gathered last year; so if the same rate of improvement takes place in future the orchard may eventually prove a profitable investment, because the fruit matures two months earlier than other varieties, and consequently secures top market prices.

*Bananas* are in two plots, one containing 1¼ acre and the other ¾ acre. On the first plot the spacing is 14 ft. by 14 ft., the second 12 ft. by 12 ft., and, although the close-spaced plot at first promised the best results, yet during the dry period following the January rain the wider spaced stools have grown better and are much easier to cultivate.

Three trial lots were sent South to test the market. One lot went to Brisbane and one to Sydney during the summer months, but, although every care was taken to pack closely and nothing but prime quality fruit, it opened in an over-ripe condition. Since that date the local market has absorbed all the fruit that has matured. The total yield was 806 bunches. Rainfall for the twelve months ended 30th June, 1930, 24.79 in. per acre, and irrigation 43.8 inches per acre.

*Cane.*—All areas had an experimental objective as well as for revenue purposes. The main

objective was to further modify the Hawaiian system of irrigation to make it applicable to Queensland conditions. Briefly speaking, the true Hawaiian system gives phenomenal yields of cane, but as the whole of the work after planting has to be carried out without horse or tractor implements, the costs under Queensland conditions are prohibitive. Consequently, the aim has been to adjust Queensland conditions to the Hawaiian principle of watering *down* the rows in as short a flow as possible instead of *between* the rows in long flows of from 15 to 20 chains, which is the prevailing custom here. Under the short row Hawaiian method, the volume of water controlled per man is 10,000 gallons per hour, whereas under the long-row system usually employed here, one man controls from 30,000 to 50,000 gallons per hour, but with a wastage that is at times appalling through seepage and over-saturation at the inflow to the field. On these data it has been the aim to devise a method that will prevent waste and give a better saturation of the soil without increasing the cost of distribution. For that purpose most of our fields last year were laid out for watering *down* the rows in flows of from 3 to 5-chain lengths. By using implements for weeding and subsequent cultivation after watering the banks of soil between the rows, so essential in the true Hawaiian system, had to be sacrificed, but the principle of watering down the rows was maintained by throwing up a slight  $\Lambda$ -shaped ridge in the middle of each cane row with a one-horse scarifier fitted with the two-mould board attachments on the two outside arms. This was done just before the cane covered the rows. The results were recorded in a series of 5-chain flows of water over 20 acres of cane, the results being 40 tons 15 cwt. 2 qr. per acre off the cane irrigated by prevailing methods, and 42 tons 14 cwt. 2 qr. from the modified Hawaiian system. Although these data are not very pronounced, it must be remembered that the period of growth was one of the best in a climatic sense ever experienced in this district, namely 49.42 inches of rainfall, which required only 20.5½ inches of irrigation per acre, and if the figures had been reversed the results of irrigation would have been more pronounced.

The final figures for the whole of the cane operations were—

Total tons cane produced for milling and planting .. .. .	1405.0
Average tons per acre .. .. .	35.01
Average milling c.e.s. .. .. .	30.53
Inches of rain per acre during growth ..	49.42
Inches of rain per acre during wet season	35.54
Inches of irrigation .. .. .	20.51
Total rain and irrigation .. .. .	69.93
Proportion of plant cane to total tonnage (percentage) .. .. .	84.60
Cost per ton for cultivating plants and manure .. .. .	£0 9s. 8d.
Cost per ton for irrigation and water rates	£0 4s. 10½d.
Cost per ton for harvesting and burning penalties .. .. .	£0 10s. 10½d.
Total running costs per ton .. .. .	£1 5s. 4½d.
Realisation, per ton .. .. .	£1 15s. 9½d.
Balance to meet overhead charges ..	£0 10s. 4½d.
Average age of plant cane when cut—14 months.	
Average age of ratoons when cut—11½ months.	

*Lucerne* grown on 1½ acres was kept for home use, and yielded 1 ton 11 cwt. 1 qr. 3 lb. This



plot had 30.15 inches of irrigation, and 24.79 inches of rain during growth.

*Pines.*—On  $1\frac{1}{4}$  acre of the Ripley Queen, Smooth Leaf and Rough had 14.0 inches of irrigation in addition to a normal rainfall, and yielded a third-year crop of 1,468 fruit, the average weights being 3.6 lb. per Smooth Leaf, 2.75 Ripley Queen, and 1.75 Roughs.

*Sweet Potatoes.*—A small plot of the Mammoth Cattle variety was set for vines, and yielded at the rate of 4 tons 8 cwt. per acre after supplying a number of growers with healthy vines for planting. Bandicoots damaged a considerable portion of this plot, which had approximately 5 inches of irrigation and 20 inches of rainfall.

*Yams.*—Three varieties, the Millie and two New Guinea varieties, were planted in November, but have not matured yet.

*Miscellaneous Fruits.*—Hamburg, Wilder, Goethe, and Iona grapes were trained over fence supports instead of the stake system previously tried. The Hamburg fruited evenly and bore sweet grapes; the Wilder vine bunched too closely and the fruit was decidedly tart; the Goethe also bunched too closely but yielded sweet fruit; and the Iona failed to fruit again, and was late in starting to run.

*Peaches.*—A tree of Flat China attacked last year by white ants recovered after treatment by arsenate of lead, but the fruit was sparse, although of good quality.

*Bassia Latifolia.*—Both of these trees are in good condition, about 12 feet high.

In March last, when it was decided to sell this farm, all developmental and experimental work ceased, the main activities being centred in a general clean up and planting of cane for commercial purposes.

Mr. R. E. SOUTTER, Manager, Roma State Farm, reports:—

#### METEOROLOGY.

The period under review came in under dry conditions, the rainfall for May and June totalling 43 points. During July, August, and September another 27 points were registered, so that for the whole period the winter cereals occupied the ground only 70 points were recorded. As the heaviest fall was 23 points, practically none of it was of the slightest value, and any crops favoured obtained their moisture requirements from the rains experienced during February, March, and April. October was dry, 77 points falling. November and December were slightly better; in January useful rain fell, but February and March were dry, so the benefit was of short duration. April was better, 2 inches falling; then again in May another 2 inches were recorded, with the result that at time of furnishing this report the prospects are better so far as the winter cereals are concerned than they have been at the same period for some seasons past.

*Breeding Section Plots.*—In the breeding section of the farm, drills half a chain in length and 2 feet apart were laid out. These were sown by hand, 6 to 8 inches apart. Superphosphate

at the rate of  $\frac{1}{2}$  cwt. to the acre was applied. Results were tabulated and are included in routine records.

Variety tests were also carried out and the results were similarly recorded. Eleven varieties were received from the International Institute of Agriculture, Rome, for the purpose of making geographical wheat trials. A few of our own wheats were included in the test for comparison.

*Smut Experiments.*—This series of experiments was designed for the purpose of testing the five American varieties—Arditi, Hussa, Marquis-Turkey, Revit, and White Caesar—which, owing to their extreme slowness in growth and the exceptionally dry spell during the period of trial, failed to reach maturity.

The smutted grains of the several varieties were watered as sown to ensure an even germination. Results were also tabulated for record.

*Winter Cereals, 1930.*—The prospects at present of these are most encouraging, a good germination having taken place over both the early- and late-sown areas. Enough rain fell to keep all growing, with the soil at the time of writing holding sufficient moisture to carry the crops on for some time.

Due to unusually mild conditions, some of the early-sown areas are too advanced, although not more so than some of the early varieties were at this time last year. Details have also been recorded.

*Other Trial Crops.*—Trial plots of field peas, cowpeas, and peanuts were also laid out and planted and results placed on routine records.

#### VINEYARD.

A few new crosses fruited last season, one of which proved to be a very heavy cropper of large bunches of medium-sized fruit, but with not any distinctive flavour, black in colour. The weather was unfavourable for the development of our most common vine diseases.

The following varieties did well, viz.:—Muscat, Hamburgh, Chaouck, Henab Turki, Gordo Blanco, Grand Turk, and Doradillo.

#### ORCHARD.

In the deciduous section very little fruit was produced last season, due to dry weather and frosts.

*Apricots.*—With one exception these have been grubbed out.

*Peaches.*—These for the most part look well, but produced very little fruit last season, with the result that they made a great quantity of wood later on in the season.

*Almonds.*—The few trees set out two years ago have in most instances made wonderful growth.

*Citrus.*—Owing to the dry conditions spraying had again to be delayed until the young brood of scale had become well established, with the result that the fruit is not as clean as it should be.

*Navels.*—These have set fair crops in some instances, but the fruit is rather coarse; more particularly does this apply to that on trees showing chlorosis.



*Jaffas*.—These have cropped well in most cases, the fruit being of fair size and quality.

*Mandarins*.—Good crops were set by most varieties, but the absence of rain resulted in the fruit being small.

*Lemons*.—The two remaining lemons, Villa Franca, set heavy crops but of poor quality, the skins being coarse and thick, with very little juice. At the present time they are blossoming heavily.

*Grape Fruit*.—These trees have made little growth, due no doubt to the amount of fruit produced. Considering their size, they are now carrying heavy crops.

*Seedlings*.—Of the seedlings, only one has fruited to date, and it is carrying a bunch containing over twenty grape fruit. The borer is very troublesome and there is not a tree in the orchard which has not been attacked at one time or other.

*Dates*.—These have for the most part made poor headway. Though the females set fruit, it was not edible, being all fibre, due no doubt to the excessively dry conditions. As a number of the suckers are ready for removal, it is intended to plant a row along the northern fence of the orchard to see if they will prevent the couch grass encroaching on that side.

*Olives*.—These set heavy crops of fruit on the sandy soil in many instances, but sale could only be found for the large varieties. A few cases of these were disposed of at satisfactory prices.

*Algaroba Beans*.—A number of these were planted out early last summer and in many cases made wonderful growth, but the heavy frosts experienced on 8th and 9th June cut them to the ground.

#### COTTON.

Owing to the absence of spring rains it was not possible to sow this crop until the third week in November, but notwithstanding this a fair yield of fibre was obtained from the field crop of Durango and selections when the subsequent weather conditions are taken into consideration.

*Durango*.—Area  $1\frac{1}{2}$  acres, Fully a quarter of the area was very much affected by trees growing adjacent to the block.

Superphosphate at the rate of 1 cwt. to the acre was applied to half the block in August. In the early stages the difference was most marked in favour of the manured section. Owing to the adverse conditions and the influence of the trees, the blocks were not harvested separately.

*Yield*.—Five hundred pounds per acre.

#### PUMPKINS.

The adverse conditions in conjunction with the nematode resulted in a very poor crop being obtained. The work of crossing and selecting has been advanced another step, but that is all that can be said. It is essential that work in connection with this crop should be proceeded with, and would no doubt be facilitated and be of more value if carried out in the recognised pumpkin districts.

The following are under observation, viz.:—Beaudesert x Hubbard, Beaudesert x Japanese, Beaudesert x Beaudesert (sterile dwarf), Beaudesert Selfed, (Beaudesert x Japanese) x Japanese.

#### WATER MELONS.

These did fairly well and were a source of revenue. The following kinds were grown, viz.:—Tom Watson, Irish Grey, Florida Favourite. A few rock melons and cucumbers were grown.

#### SWEET POTATOES.

These again did very well, producing a fair crop of tubers of good quality. The following varieties were grown:—Rosella, Brookes' Gem, and Volkman's Yellow.

#### ASPARAGUS.

The row of this vegetable planted in 1928 has made wonderful progress, and notwithstanding the adverse conditions produced shoots of fair size and quality.

#### SOUDAN GRASS.

A sowing was made of a 1927 selection, individual seeds being sown 3 feet apart. Wonderful growth was made by the resulting plants, but birds prevented the seed from maturing.

#### SOYA BEANS.

Sown 30th January. Twenty-five rows were sown, thirteen of which were with seed treated with a solution containing nitrogenous bacteria. Like the many previous sowings made of this crop, the results were very disappointing, the plants not producing as much seed as was sown.

#### TREE LUCERNE (*Medicago arborea*).

Some two dozen plants were obtained from the seed sent by the Botanist. These were planted out when favourable conditions supervened and kept watered until established, but only one at present survives and it is a poor specimen.

#### GINDIE.

Mr. E. R. ASHBURN, Gindie State Farm, reports:—

*Rainfall*.—1st July, 1929, to 30th July, 1930—July nil, August 15 points, September nil, October 104 points, November 60 points, December 236 points—first half-year 415 points, January 683 points, February 85 points, March 318 points, April 40 points, May 376 points, June 161 points—second half-year 1,663 points. Total for year ending 30th July, 1930, 2,078 points.

*Remarks on Season*.—Following the long and severe winter of 1929, the rainfall of 415 points for the first half-year was far below requirements essential to account for a good spring and early summer season.

From December on, more beneficial conditions have prevailed, with the result that we are going through the winter under ideal conditions.

Unlike 1929, the summer just past has been mild, and up to the time of writing no frosts have been experienced.



*Pastures.*—As the rainfall over the past six months would indicate, the natural grasses are to one's liking, and a fair sprinkling of herbage is in evidence on the downs country.

The light and sheltered areas, the greater portion of which was burned off early this year, are in great order and should more than supply the wants of our stock throughout this winter.

*Water Supplies.*—This all-important department has received a fair amount of the attention it deserves.

Both wells in the sheep and ti-tree paddocks have been deepened, and the latter retimbered, with satisfactory results.

The storage capacity has been increased at the sheep paddock source by the installation there of a new 10,000 gallon tank.

The bore at the dip yards, which previously had been, as far as its water supply was concerned, a hindrance to progress, has been cleaned out and furnished with an additional 180 (approximately) of 5-inch casing, with the result that a dependable supply of water is now available and pumping may be carried on continuously without in any way overtaking the supply.

Minor repairs have been effected to all seven mills on the holding at a minimum cost.

*Fences.*—Considerable time has been spent in keeping in a fair state of repair the entire fencing of the holding, particularly on the lines situated on and surrounding the 10 square miles of country, viz., Mosquito and Ullathorne, which was recently surrendered to the Lands Department.

The relinquishment of this area necessitated the erection of 20 chains of new fence adjacent to the bore near Ullathorne.

This new fence, of heavy posts 13 ft. apart and carrying through them four No. 12 barbs, presents a formidable barrier to outside stock desirous of trespassing.

*Stud Cattle.*—The beef Shorthorns continue to increase in number and improve in quality generally. The improvement is best borne out by reference to the performance of the team exhibited at Brisbane last August, when they gained, among numerous other important awards, the championship honours for both male and female.

From inquiries received since last August, it is evident that more breeders are now aware of the fact that this stud is strong in the best blood to be had in Australia.

Having met a good market for the one stud bull sold at Brisbane Show sales last year, a further four youngsters have been prepared for offering at this year's Show sales, and it is safe to say that this quartette will sell well if they go forward. One of the four youngsters above mentioned—viz., Gindie Masterstroke—represents a highly satisfactory result of line breeding, being by a grandson of Masterkey, imp. (Coonong's Masterstroke) and from a granddaughter of Masterkey, imp. (Duchess of Gindie 13th, by Milton's Tribesman 3rd).

Sufficient proof is already to hand to satisfy one that the results of line breeding with the bulls Milton's Tribesman 3rd and Coonong's Masterstroke are going to be very pleasing.

For future breeding purposes, and with a view to retaining the desirable characteristics of our best families in the past, two young bulls—viz., Gindie Tribesman 9th and 11th—representing Milton's Tribesman 3rd on the sire's side and the Gem and Duchess family, respectively, on the dam's side, have been reserved.

The bull Gindie Tribesman, from the Rose family, has just completed his second season. So far he has sired really good sorts; in fact, a few of his heifer calves are the pick of the crop.

The studs, including calves, now number—Males 18, females 49.

*Appendix Females.*—This system continues to go along smoothly. Last season's progress was retarded through a high percentage of bull calves being dropped, especially from the few Appendix 1 females, whose calves, if heifers, would automatically have been eligible for entry as studs.

The relative strengths of the Appendix females are—No. 3's, 11; No. 2's, 19; and No. 1's, 10, making a total of 40 head.

*Herd Cattle.*—The 253 head on hand comprise 30 young bulls (including calves) and 46 bullocks and steers, while the balance of 177 is made up of females, including about 20 foster-mothers.

Some promising young bulls dropped in the spring of last year had an uphill fight for some months, and it is only during the past two months that they have shown appreciable improvement; calves dropped later have done well, and are destined to furnish into first-class sorts.

A little later, when an improvement in the market is hoped for, some 30 head of fats (mixed) could be made available for disposal.

*Horses.*—Our total of 77 head is made up of 37 Suffolks, 21 Clydesdales, 10 draughts (cross-breeds and unregistered animals), and 9 saddle horses.

Although 26 head of draughts were recently disposed of at a satisfactory figure, the opportunity for a further unloading is keenly looked for.

During the past season, as a result of mating Gindie Lad with a number of selected Suffolk mares, 10 good foals were dropped, and the opinion is held that if the best of the colt portion of this lot were advertised with their dams for sale at a reasonable figure, a market would be found for them.

As we had no Clyde sire here for the last season the mares of this stud have reared their foals, sired by Bold Wyllie, well, and a few of these dams by December next should be in good saleable condition.

*Farm Work.*—Since the beginning of this year the bulk of the staff's time has been spent in the production and harvesting of crops. Approximately 100 tons of silage have been stored, and ensilage-making is still going on.

The fact that twenty-eight wet days have been experienced during the past six months accounts for a lot of broken time and hampering of the farm work.

In addition to summer crops, an area of over 30 acres was put under wheat, and naturally this area is now most promising.



Small areas of wheat and skinless barley planted adjacent to exercise paddocks are also in great order and fit for grazing off.

The lucerne area has been added to, the planting of about a quarter-acre being effected in May with splendid results.

Given dry weather for the next three months, a harvest of not less than 40 tons of wheaten hay is anticipated.

#### SEED MAIZE IMPROVEMENT.

Mr. C. J. McKEON, Instructor in Agriculture, reports:—

The greater portion of the year was devoted to the Departmental Seed Maize Improvement scheme. General instruction and other duties were carried out during the balance of this period. Weather conditions during the early months of the maize-planting season were not generally favourable, with the result that the early crops as a whole were light. The rainfall during the early part of the season, more especially in some of the more inland districts, was of a very scattered nature, and as a result it was not possible for a general planting to be made. These conditions prevailed until late in November and early December, and consequently many of the crops were either light or practically failures for grain purposes. Good general rains, however, fell throughout the maize-growing districts during December, and conditions from then on were very favourable, with the result that the late-sown crop will be a good one generally.

The prices received for this season's maize have been very good, although they were higher earlier in the season owing to limited supplies coming on to the market, considering the large quantity of late deliveries.

Although a fairly large area was again planted on the Atherton Tableland, the yield will not be heavy owing to the abnormal conditions which prevailed during the early part of the season. During January and February over 40 inches of rain fell, and as a result rust appeared in many of the crops. Fortunately, weather conditions improved during February, otherwise many of the crops would have been very light. Caterpillars also caused considerable damage in some of the crops, many of these having the whole of the foliage destroyed.

#### SOUTHERN SEED MAIZE IMPROVEMENT WORK.

Propagation and stud plots were established in the Kingaroy, Mary Valley, Kilcoy, and Boonah districts. These totalled approximately 120 acres, the following varieties being used:—Improved Yellow Dent, Golden Beauty, Star Leaming, Reid's Yellow Dent, and Funk's 90-Day.

The fertiliser trials with Star Leaming, which were carried out at Kingaroy the previous season, were continued this season on the same farm.

The results of the plots as a whole were very good, and some very fine yields were obtained, and although some of the early crops suffered

from dry weather during tasselling, none were a failure. Weather conditions were much more favourable for the mid-season and late varieties, in fact the yields in some instances being reduced through too much rain. Good supplies of seed have been secured from the crops which have been harvested, the quality being excellent. Several crops of Golden Beauty and Improved Yellow Dent have yet to be harvested, and further supplies of very good seed will be available, particularly from the plots of Golden Beauty.

*Funk's 90-Day.*—Four plots of this variety were sown, and one was not used for seed selection owing to the fact that weevils attacked the grain in the field, and by the time the crop was harvested the ears were too badly damaged to be used for seed purposes. Two of the crops gave very good yields, particularly one at Imbil. The actual yield could not be secured owing to the limited barn space not permitting of the whole of the crop being kept separate after the seed selection work was completed, but from what was threshed the computed yield was 90 bushels per acre. This crop created a tremendous amount of interest amongst local farmers, and quite a number expressed their intention to grow this variety next season. The type and quality of the seed selected from this crop were excellent, and it is pleasing to note that the reddish-tinted grains which were so much in evidence when this variety was first introduced by this Department are fast being eliminated. The field characteristics have also shown a very decided improvement, the husk covering throughout the whole of these crops this season being particularly good. An ear to row test of this variety was sown, but was very badly damaged by hail when the plants were well above ground, and the stand was too irregular to be used for making comparisons of yield.

*Star Leaming.*—The results from these plots were on the whole very good, two of the five plots yielding particularly well, whilst very fair yields were obtained from the remaining three plots. An ear to row test plot was carried out at Kilcoy, the yields from which are shown on the attached list. In this plot the germination was very irregular, many of the rows being very thin. The uneven germination was caused through weather conditions being unfavourable at the time of planting. Although good soil moisture was present and the drills were covered as quickly as possible, a considerable amount of this was lost in opening up for planting, the weather conditions being hot and dry at the time and remaining so for some time afterwards. The propagation plot which surrounded the ear to row test plot was sown with a maize planter, and a very fine germination resulted. The type throughout the whole of the plots was particularly even, and the quality of the seed selected was splendid. This variety was again used in the fertiliser trials which were conducted on the same farm at Kingaroy as that on which the previous trials were carried out. In this season's trials the paddock was divided up into 144 plots, each measuring  $\frac{1}{100}$  of an acre, eleven different mixtures being used, and the plots being randomised; each mixture was replicated twelve times, the remaining twelve plots being unmanured and used as controls.



The land received a thorough preparation, and was in very fine order at the time of planting, with a fair amount of moisture present. Weather conditions for some weeks after planting were particularly hot and dry, and a considerable number of the young plants were burnt off before good rain fell. The stand was therefore thinner than was desired, but this was uniform throughout and did not materially affect the results for comparison purposes. Weather conditions, however, improved when the plants were 1 foot high, and favourable conditions were experienced during the remainder of the growing period. During growth no difference was noticeable in any of the plots. The particulars of the yields of the various plots which are given are only tentative, as the final figures and conclusions will be arrived at by the Agricultural Chemist.

The following mixtures were used; the quantities shown being the rate per acre:—

Series marked N—100 lb. sulphate of ammonia.

Series marked  $\frac{1}{2}$  Ps—75 lb. superphosphate.

Series marked Ps—150 lb. superphosphate.

Series marked K—100 lb. potassium sulphate.

Series marked NPs—100 lb. sulphate of ammonia, 150 lb. superphosphate.

Series marked NK—100 lb. sulphate of ammonia, 100 lb. potassium sulphate.

Series marked NPsK—100 lb. sulphate of ammonia, 150 lb. superphosphate, 100 lb. potassium sulphate.

Series marked PsK—150 lb. superphosphate, 100 lb. potassium sulphate.

Series marked NPnK—100 lb. sulphate of ammonia, 150 lb. Nauru, 100 lb. potassium sulphate.

Series marked Pn—150 lb. Nauru

Series marked S—50 lb. flowers of sulphur.

Series marked O—Unfertilised.

Average yield per acre of 12 plots of N series—42.9 bushels.

Average yield per acre of 12 plots of  $\frac{1}{2}$  Ps series—43.9 bushels.

Average yield per acre of 12 plots of Ps series—45.1 bushels.

Average yield per acre of 12 plots of K series—43.7 bushels.

Average yield per acre of 12 plots of NPs series—47 bushels.

Average yield per acre of 12 plots of NK series—42.6 bushels.

Average yield per acre of 12 plots of NPsK series—46.1 bushels.

Average yield per acre of 12 plots of PsK series—47.3 bushels.

Average yield per acre of 12 plots of NPnK series—45.7 bushels.

Average yield per acre of 12 plots of PN series—44.5 bushels.

Average yield per acre of 12 plots of S series—43.9 bushels.

Average yield per acre of 12 plots of O series—42.5 bushels.

The highest average yield was obtained from the plots treated with the PsK mixture—viz., 47.3 bushels per acre. Average yield from controls was 42.5 bushels per acre. The cost per acre of the PsK mixture was £1 15s.

#### STAR LEAMING.

##### Ear to Row Test.

Row No.	Yield per Acre. Bushels.
403 x 191	32.9
403 x 192	57.1
403 x 193	38.0
403 x 194	30.7
403 x 195	43.2
403 x 196	53.4
403 x 197	33.6
403 x 198	39.5
403 x 199	57.1
403 x 200	54.9
Check	42.4
403 x 201	46.1
403 x 202	50.5
403 x 203	54.9
403 x 204	46.1
403 x 205	60.0
403 x 206	54.9
403 x 207	58.5
403 x 208	55.6
403 x 209	60.0
403 x 210	46.1

NOTE.—Rows 403 x 191 to 403 x 200, also the check row, did not germinate as well as the balance of the plots.

*Reid's Yellow Dent.*—Two plots, one of 10 acres and the other of 7 acres, were planted, and the results were very disappointing. The former plot made wonderful growth and yielded very well, but unfortunately this could not be used for seed purposes owing to a crop of another variety being sown alongside at practically the same time. The other plot was sown early, and consequently had to contend with dry weather until after the tasselling was finished, and the crop was naturally a light one. Sufficient seed, however, was secured for further plot work.

*Golden Beauty.*—All plots sown with this variety did very well, one crop in particular being outstanding in every way. None of these have yet been harvested, but the yield and quality will be excellent. The field characteristics as usual were wonderfully good, particularly the husk covering and the direction of the ear on the plant when ripening. The height at which the ears are borne was also very regular, and is more noticeable probably in this variety than any of the others. Good supplies of seed of this variety will be available for distribution this season.

*Improved Yellow Dent.*—Arrangements were made for several plots of this variety, but only two of these were finally planted owing to the other growers being unable to get the land ready in time. Both crops made good growth, but one of these did not cob as well as is usual for this variety owing to excessively wet conditions. This, however, should give a fair yield. An ear to row test was sown with this crop, but was badly checked during early growth through water remaining on the surface of the land. Weeds also made great headway owing to the sodden nature of the ground not permitting of inter-row cultivation being carried out for several weeks after the crop was above ground. A few rows which were not subjected to flooding made good growth, but the remainder will be too poor for comparison purposes. The other crop made excellent growth, and although rather too much rain fell during the growth of the crop a good yield resulted. The ears on the whole were fairly large and were particularly well filled. The type throughout was excellent, and a large quantity of very nice quality seed was selected.



## NORTHERN SEED MAIZE IMPROVEMENT SCHEME.

This work was continued on the Departmental plot at Burnside, Tolga. Approximately 70 acres were sown, and the results from one portion (30 acres) were excellent, whilst the yield from the other portion sown at the same time and only about 2 chains away was very poor. Weather conditions during January and February were very unfavourable owing to lack of sunshine and the continuous rain, which amounted to over 40 inches for these two months. As a result of this rust appeared, one portion of the crop suffering very much more severely than the other. Weather conditions, fortunately, improved, and bright, warm weather followed, otherwise the damage not only to this crop but to a large percentage of those throughout the Tableland would have been very severe. The type and quality of the grain on the best portion of the Departmental plot were particularly good, and the percentage of grain affected with *Diplodia* was very small indeed, as was also the percentage of barren plants. The crop at the time of inspection was ready for harvesting, and some very fine selections of seed were made for further plot work in company with the Departmental officers stationed in that district. Three comparative trials with this variety and a selection from the local maize were conducted on Messrs. Finch, Bailey, and Plant's farms, and the results were as follows:—

*Finch's Farm.*—Local maize—Barren plants, 13 per cent.; *Diplodia*,  $9\frac{1}{2}$  per cent.; other moulds, 4 per cent. Yield per acre, 26.5 bushels. Durum—Barren plants, 13 per cent.; *Diplodia*, 11 per cent.; other moulds,  $4\frac{1}{2}$  per cent. Yield per acre, 21 bushels.

*Bailey's Farm.*—Local maize—Barren plants, 11.6 per cent.; *Diplodia*, 12 per cent.; other moulds, 5.6 per cent. Yield per acre, 54.7 bushels. Durum—Barren

plants, 7.6 per cent.; *Diplodia*, 13 per cent.; other moulds, 5 per cent. Yield per acre, 40.6 bushels.

*Plant's Farm.*—Local maize—Barren plants,  $2\frac{1}{2}$  per cent.; *Diplodia*, 13 per cent.; other moulds,  $13\frac{1}{2}$  per cent. Yield per acre, 81.9 bushels. Durum—Barren plants,  $5\frac{1}{2}$  per cent.; *Diplodia*,  $9\frac{1}{2}$  per cent.; other moulds, 11 per cent. Yield per acre, 63.8 bushels.

The plots on Finch's and Bailey's farms suffered from rust, and all were damaged during growth by leaf-eating caterpillars, the damage in the case of Finch's crop being very severe. In the crop sown on Plant's farm the damage to the Durum from this cause was much greater than in the portion sown with local seed. All of the farmers on whose properties these trials were conducted have expressed their willingness to have the trial again conducted on their farms next season.

*Soya Beans.*—One plot was sown in the Kilcoy district with seed of an unnamed variety which was received from overseas. This appears to be a rather short-growing variety but produced a very heavy crop of seed. Several different selections were made for further plot work next season.

Before sowing, the bulk of the seed was inoculated with nitrogen bacteria, the balance being untreated to be used in a control plot. During growth no difference was noticeable in either plot, but at the time of maturity the roots of the plants on the inoculated area appeared to be carrying more nitrogen nodules than those on the untreated area. The plots were carefully marked off, and it will be interesting to see the effect, if any, on the next crop sown on these areas. Samples of over twenty different varieties have since been received from China and America, and these will be tried out during the next season.



## EXTRACTS FROM STAFF REPORTS.

## SOUTHERN DIVISION.

The Instructor in Agriculture for the Southern Division, Mr. A. E. GIBSON, reports:—

The continuance of unfavourable weather conditions up to the end of June of last year was responsible for the late sowing of Departmental winter cereal tests. However, the opportune relief experienced during the last days of June was responsible for the hurried utilisation of all available officers of the Agricultural Branch for field work.

In the course of the term considerable time was devoted to the marketing activities of rural industry, and this involved service to the Arrowroot Board, as acting chairman.

In accordance with the provisions made in the agreement between the Wheat Board and the flourmillers for the adjustment of any difference regarding the classification of wheat between the grower and the Board or the millers and the Board—by reference to a qualified official of this Department—my services were made available for this purpose.

Inspections and reports have been made on lands situated at Archerfield, Redbank, Redcliffe, and Capalaba.

General instructional work for the year covered a wide field, and included the planting, harvesting, and conservation of fodders; silage construction and operation; farm engineering; care and use of farm implements and machinery; methods of cultivation; and economic husbandry.

In addition, the services of officers have been in demand as judges at district shows. A synchronisation of show dates with inspectional and instructional visits saved considerable time and expense.

The annual shows, especially in the older settled districts, were, without exception, a happy reflection of rural prosperity in Queensland. They also proved a reliable guide as to our general progress in agriculture and animal husbandry. Each year standards have, even where no marked improvement was manifest, at least been maintained.

They provide, as a rule, remarkable evidence of the wide range of Queensland's agricultural production. At the Brisbane Show, particularly—and it is rightly regarded as a microcosm of the whole State—temperate and tropical crops were displayed in profusion and undoubted quality and in a diversity that was extraordinary, yet which represented by no means the limit of agricultural extension in Queensland.

Mr. C. S. CLYDESDALE, Instructor in Agriculture, reports:—

During the season under review the wheat crops throughout the State surpassed all expectations and resulted in a record yield (approximately 4,250,000 bushels).

The summer rains were well up to the average, and where careful methods of cultivation were followed to trap and store the soil moisture the results proved most satisfactory.

## 1929 SEASON.

Excellent rain fell during April, followed by fair falls in May and June which gave the wheat crops a good start. From then onwards until September the rainfall was very light, and the outlook at that time was anything but promising. However, good rain fell in October, and the situation improved so much that a complete change was experienced over the major portion of the wheat belt, indicating that the harvest generally would be one of high yields.

The weather experienced during the greater portion of the harvesting period was ideal, and high bushel weights of grain were obtained, many of these ranging from 64 to 67 lb. per bushel for grain straight from the harvesting machines.

Again, the Roma Crossbred wheats have stood up to the tests as good yielders, and are becoming more favoured each season. Taking one of the latest introductions, "Duke of York" wheat, Messrs. Zeisemer Bros. of Bongeene, Oakey-Cecil Plains line, planted 300 acres, which gave an average yield of a little better than 30 bushels per acre of first quality grain.

In the wheat crop competition "Duke of York" gained first and second, respectively, in the Toowoomba district, second in the Warwick district, and was awarded first in the Grand Championship. Although "Flag Smut" was widely spread throughout the wheat belt during the 1928 season, it is interesting to record the fact that in the next succeeding wheat crop very few individual crops were affected, and where the disease did appear it was only in evidence then in a minor degree. This may be partly attributed to the precautionary measures advocated by this Department for checking the disease, also to the character of the season.

## STUD PLOTS, 1929.

Plots were established at three centres—viz., Inglewood, Southbrook, and Jandowae. These trials represent a continuity of the work that is being carried out each season. The system in vogue is the testing out of the new Roma Crossbred wheats under field conditions, and the elimination of any undesirable varieties from the small plots, and extending the propagation of those varieties which showed superiority to other kinds in cultivation.

Both Jandowae and Southbrook plots were adversely influenced by dry weather conditions and the lack of subsoil moisture at planting time. The germination of the seed at these centres was rather indifferent. Although the growth of straw was light, the grain was fair and good seed was obtained. Inglewood plots were very satisfactory and valuable data were recorded.

## CANARY SEED PLOTS.

Arrangements were made with Mr. J. McLellan, junr., Nobby, to plant up 2½ acres of special seed of the Giant Morocco variety, with the object of raising increased supplies of seed to extend the cultivation of this improved strain.



Although planted late in the season, the crop generally made excellent growth, and returned 2,530 lb. of seed.

#### STUD WHEAT PLOTS, SEASON 1930.

Arrangements were made for a continuation of the stud plots on farms owned by Messrs. G. Free, of Nobby, and G. J. Will, of Kincora, Pittsworth. Included in the trials are 240 new Roma Crossbreds and 40 Standard varieties. Pusa is being used every eighth row as a check. Extension work with the more promising varieties from last year has been initiated, and this includes the propagation of pure seed of thirty Standard varieties.

#### BARLEY AND OATS.

In conjunction with the wheat trials, selected varieties of oats and barley were also sown. Special attention is being given to small comparative tests of a number of promising varieties of malting barley in order that pure seed of improved kinds may be worked up to meet the requirements of growers who are now giving more attention to growing malting barley on the Darling Downs. Sowings were carried out at follows:—Nobby, May 6th, 7th, and 8th; and Kincora, 14th, 17th of May. As good rain had fallen in April, the soil was in excellent order, with good moisture present. On completion of sowing at Nobby, rain commenced to fall on the evening of the 8th May and continued until the 10th May, when 220 points were registered. This gave the wheat a splendid start. At Kincora good rains were also experienced, which ensured an equally good germination to that in the Nobby plots. An inspection on June 25th and 27th confirmed this.

A consignment of seed barley of the Californian brewing type recently imported from England was taken over by this Department; areas were selected for its propagation in the Nobby district with the object of trying it out under Queensland conditions and obtaining increased supplies of seed. Arrangements were made with the following farmers to plant seed:—G. Burton, Cambooya, 7 acres; F. W. Franke, Nobby, 10 acres; M. Coleman, Nobby, 8 acres; H. F. Langsdorf, Nobby, 6 acres; W. E. Jackson, Nobby, 7½ acres; J. Ryan, Mount Kent, 18½ acres; and J. Knecht, Mount Kent, 5 acres; and an inspection made immediately after planting showed that the germination was good in every instance, and the young plants were growing vigorously.

#### SEED WHEAT IMPROVEMENT SCHEME, 1929 AND 1930.

1929.—The scheme submitted by the Director of Agriculture at a conference with the members of the State Wheat Board for the purpose of raising increased supplies of pure seed for delivery to the Board by growers under the premium basis was given effect to.

The plots proved to be satisfactory, and the yields were good generally. Growers expressed themselves as being pleased with the behaviour and yield of these wheats and intend planting larger areas this season.

1930.—During the present season extension work was provided for embracing 12 plots, comprising 170 acres, with 11 varieties—viz., Beerwar, Waterman, Warrior, Pusa, Cedric, Pilot, Flora, Clarendon, Watchman, Bunge, B.I.P. x Manitoba 2603.

#### PASPALUM PASTURE IMPROVEMENT.

The paspalum renovation trials initiated in 1928 were continued on the property of Mr. Alex. Hunt, Maleny. Here the area concerned, comprising 2½ acres, was divided into three sections, viz.:—

No. 1—Control plot. No treatment.

No. 2—Plot ploughed, then harrowed, followed by an application of fertiliser at the rate of 1½ cwt. per acre (¾ cwt. each of Nauru phosphate and superphosphate).

No. 3—Plot ploughed and harrowed.

This season (1929-1930) the hurdles on the original areas were transferred to new sites. The work was done during September. After erecting the hurdles the old grass was cut. In addition to the above, two sections of Kikuyu grass were enclosed in hurdles for the purpose of making monthly cuttings for analytical purposes.

Plot No. 1.—This area was planted with grass rootlets three years ago, having previously been used as a cultivation paddock for twenty years.

Plot No. 2.—Planted five years ago on virgin soil.

#### Rainfall—

Month.			Wet Days.	Points.
1929—				
September	..	..	2	12
October	..	..	7	664
November	..	..	6	298
December	..	..	5	811
1930—				
January	..	..	24	2,573
February	..	..	14	943
March	..	..	15	650
April	..	..	7	382
May	..	..	13	1,650

The following list gives details of the individual and aggregate weights of green grass from the Paspalum and Kikuyu grass plots respectively:—

1929-1930—Plot No. 1. Dates of Cutting, 5th November, 1929, 10th December, 1929, 13th January, 1930, 12th February, 1930, 18th March, 1930, 30th April, 1930, and 28th May, 1930.

—			Aggregate Weight per Cutting per Acre.	Total Weight of Grass.
			Tons.	Tons.
			<i>Paspalum.</i>	
1 N.	..	..	1.64	11.48
1 S.	..	..	1.43	10.04
2 N.	..	..	1.73	12.10
2 S.	..	..	1.72	12.02
3 N.	..	..	1.09	7.61
3 S.	..	..	1.47	10.33
			<i>Kikuyu Grass.</i>	
No. 1	..	..	1.44	10.10
No. 2	..	..	1.39	9.72



#### PALARDO EXPERIMENTS—AREA 70 ACRES.

Assistance was rendered by me during the season in connection with the experiment work designed by the Director of Agriculture for the purpose of utilising prickly-pear infested Belar and Brigalow scrub lands which have just been cleared of pear by *cactoblastis*.

Thirty-four acres were divided up into eleven plots and sown down with summer and winter growing grasses, each plot having a separate cover crop. The summer series sown the first week in December showed good promise in the early stages of growth, but dry weather and lack of subsoil moisture checked the development of the young seedlings. The seed germinated well, but only about 25 per cent. of the plants survived the dry hot weather, but the Rhodes grass is now well established.

Seed of the winter series, although planted early in the season, 10th February this year, was more favoured in respect to rain, which brought up the seed on 20th March.

This method of frilling and poisoning the timber and sowing the land down with winter and summer growing grass mixtures and cover crops specially selected for Western district conditions, offers a practical means of turning this class of country to account as a stock proposition. The experiments are being continued during next season.

#### GENERAL DUTIES.

The wheat improvement work, which absorbed the major portion of my time, is showing good progress. Instructional and general duties were of a varied character necessitating a good deal of travelling. Assistance was also given in seed maize selection and silage work.

#### CENTRAL DIVISION.

Mr. G. B. BROOKS, Senior Instructor in Agriculture, reports:—

##### SEASONAL CONDITIONS.

In the coastal division, the rainfall for the year was considerably over the average. The annual rainfall registered at Rockhampton for a period of fifty-nine years averages 39.13 inches. The precipitation for the year ending 30th June, 1930, amounted to 56.88 inches. January was responsible for 26.59 inches, while June followed with a record for that month of 10.47 inches.

The rainfall in the agricultural area embracing the Dawson and Callide country was slightly over the average, the official gauge at Jambin recording 30.67 inches. July to September are invariably dry months, and last season was no exception, for practically no rain fell during the first quarter, which delayed the early planting of several crops such as cotton, maize, broom millet, &c.

This dry period also affected the yield of winter crops which suffered to a considerable extent, more particularly on areas where the preparation of the land had only been carried out shortly before sowing. On fallowed lands the moisture conserved, together with the June rains, was sufficient to grow a payable crop.

As a result of the dry spring and early summer, feed was somewhat scarce in many

localities. Stock, however, kept in fair condition. From December to June pastures were exceptionally good, which was reflected in the butter factories establishing records.

The present winter has been remarkable for its mildness, on one occasion only has the thermometer registered frost.

Conditions have improved very considerably in the more western areas during the year. Useful rains have fallen over practically all the pastoral districts, but unfortunately in many places, as a result of the prolonged drought, the more valuable grasses have almost disappeared. It will probably take several favourable seasons to bring these pastures back to normal.

#### ACTIVITIES.

In addition to instructional duties and personal visits to farms, a good deal of attention was given to demonstration, experimental, variety, and stud crop work. Demonstration work was confined mainly to co-operating with farmers in various districts in the growing of heavy-yielding selected varieties of crops—fodder and grain—for stock-feeding purposes.

Experimental trials were carried out on a rather extensive scale with wheats, sorghums, onions, and grasses, while exploratory test plots were arranged for, mainly to determine the suitability of the soils for tobacco-growing.

A good deal of time was taken up in inspecting and reporting upon certain lands in the Mackay and Dawson districts for closer settlement purposes.

I also visited several districts with Professor Prescott of the Waite Institute, South Australia, and, at a later date, Mr. J. K. Taylor, chemist in charge of the Commonwealth Soils Division, who were making investigations in regard to the carrying out of a soil survey.

Assistance was given in the judging of various sections at the Wowan, Miriam Vale, Gladstone, Mount Larcom, Rockhampton, and Mackay agricultural shows.

A comprehensive display was made by this branch at the Rockhampton show of the wheats grown in the trials carried out at Dululu and Retro, together with an exhibit of tobacco from the exploratory plots showing the varieties experimented with, grade of leaf, and soils upon which the different qualities were produced.

#### WHEAT.

Prior to the time that Rockhampton was connected to the South by rail a number of farmers in the Central-West—Emerald, Barcaldine—area made an attempt to grow wheat on a commercial scale. The absence of milling facilities, difficulty in transport of the grain to the South, combined with the irregularity of the seasons, militated against the establishing of the industry, which, in a short time, was abandoned.

During recent years, however, payable crops have been grown in the Dawson Valley, more particularly around Dululu. The acreage under crop is gradually expanding—quite a number of farmers have recently sown areas of from 100 to 300 acres—in the Dululu, Callide, and Theodore districts. As a result of the early June rains an excellent germination has been secured. The



moist mild weather at present existing has, however, induced a somewhat rank growth, so that unless drier conditions accompanied by lower temperatures supervene shortly rust may make its unwelcome appearance.

That the Department of Agriculture is alive to the possibilities of wheat-growing in Central Queensland is evident from the fact that trials with some 53 varieties have been carried out in various districts during the past two years, while during the present season the number of varieties has been increased to 94.

The trials last season were carried out on the farm of Mr. W. Llewellyn, Dululu, and also at

Retro, Capella district. The rainfall at both places did not exceed 3 inches during the growing period. The thorough cultivation given to the land prior to the sowing had conserved, with the little additional rain in June, sufficient moisture for the production of very satisfactory crops. At Dululu, from over 200 acres, an average of over 6 bags to the acre of first quality grain was secured.

Wheat for fodder purposes has been grown at Retro for several years, over 500 tons being stored since the last drought. Particulars in regard to the variety trials carried out at both Dululu and Retro are as follows:—

### WHEAT VARIETY TRIALS, SEASON 1929.

W. LLEWELLYN, Dululu.  
Planted 1st May, 1929.

RETRO STATION, Capella.  
Planted 8th May, 1929.

Varieties.	Length of Straw.		Size of Ear.		Rust Infection.				Quality of Grain.	
			L.—Large. M.—Medium. S.—Small.		1 to 10.				P.—Pinched. F.—Fair. G.—Good. V.G.—Very good.	
	Dululu.	Retro.	Dululu.	Retro.	Dululu.		Retro.		Dululu.	Retro.
	Inches.	Inches.			Stem.	Flag.	Stem.	Flag.		
1. Amby .. ..	36	34	L.M.	L.	..	..	..	..	V.G.	G.
2. Beewar .. ..	37	34	M.	S.M.	..	..	..	..	G.	G.
3. Boolaroo .. ..	33	30	S.	S.M.	..	..	..	..	G.	F.
4. Budd's Early ..	40	33	M.	M.	..	..	..	1	G.	F. slight P.
5. Bunge No. 1 ..	42	38	L.M.	M.	..	..	..	..	V.G.	G.
6. Caliph .. ..	34	..	L.	..	..	..	..	..	G.	F. slight P.
7. Barwang .. ..	38	36	M.	L.	..	..	..	..	V.G.	G.
8. Cedric .. ..	39	40	M.	S.M.	..	..	..	..	G.	F.
9. Clarendon .. ..	37	33	M.	M.	..	1	..	..	V.G.	G.
10. Cleveland .. ..	38	33	M.	M.	..	1	..	..	G. slight P.	..
11. Currawa .. ..	36	..	S.	..	..	1	..	..	F.	F. slight P.
12. Flora .. ..	31	34	S.	S.	..	..	..	..	V.G.	G.
13. Florida .. ..	30	29	M.	M.	..	..	..	..	G.	G.
14. Gem .. ..	32	34	S.	S.	..	..	..	..	V.G.	G.
15. Gluyas .. ..	34	29	S.	M.	..	..	..	..	V.G.	G.
16. Meridan .. ..	33	33	S.	S.M.	..	..	1	1	F.	G.
17. Novo .. ..	39	35	M.	M.	..	..	..	1	G.	P.
18. Pinto .. ..	38	36	S.M.	S.	..	..	..	..	V.G.	V.G.
19. Pusa 4 .. ..	32	36	M.	M.	..	..	..	1	V.G.	G.
20. Roma Red 7 ..	41	39	M.	L.M.	..	..	..	..	V.G.	V.G.
21. Union S. Africa ..	33	38	L.	L.M.	..	..	..	..	F.	F.
22. Waterman .. ..	33	37	M.	L.M.	..	1	..	..	V.G.	G.
23. Canberra .. ..	36	32	M.	M.	..	1	1	1	F. slight P.	F.
24. Florence, N.S.W. ..	37	39	M.	S.M.	..	..	..	..	V.G.	G.
25. Florence, Q. ..	39	40	M.	S.M.	..	..	..	..	V.G.	G.
26. Warrior .. ..	30	35	M.	M.	..	..	..	..	G.	F.
27. Watchman .. ..	26	33	S.	S.	..	..	..	1	V.G.	G.
28. Warchief .. ..	29	39	S.	S.M.	..	..	..	..	G.	G.
29. Warren .. ..	29	39	L.M.	M.	..	..	..	..	F.	G.
30. B x Emmer 19 ..	29	33	S.	S.	..	..	..	..	V.G.	V.G.
31. C.C.C. 2611 .. ..	31	35	S.M.	S.	..	..	..	..	V.G.	V.G.
32. C.C.C. 2613 .. ..	31	36	S.	M.	..	..	..	..	G.	G.
33. C.C.C. 2614 .. ..	30	35	S.	S.	..	..	..	..	V.G.	G.
34. C.C.C. 2615 .. ..	31	33	S.	S.	..	..	..	..	V.G.	G.
35. C.C.C. 2701 .. ..	34	36	S.	S.	..	..	..	..	G.	G.
36. C.C.C. 2702 .. ..	33	31	S.	S.M.	..	..	..	1	V.G.	G.
37. C.C.C. 2703 .. ..	26	28	S.	S.	..	..	..	..	V.G.	F. slight P.
38. C.C.C. 2705 .. ..	32	30	M.	S.M.	..	..	..	1	V.G.	G.
39. C.C.C. 2706 .. ..	31	29	S.	S.	..	..	..	..	V.G.	F.
40. C.C.C. 2707 .. ..	30	35	S.	S.	..	..	..	..	V.G.	V.G.
41. C.C.C. 2708 .. ..	31	33	S.	S.	..	..	..	..	V.G.	V.G.
42. C.C.C. 2709 .. ..	30	32	S.	S.M.	..	..	..	..	V.G.	F.
43. Bo. x F. x G. 2604	31	32	S.	S.	..	..	..	1	G.	F.
44. Bo. x F. x G. 2606	34	36	S.	S.	..	..	..	..	V.G.	G.
45. Bo. x F. x G. 2610	34	35	S.	S.	..	..	..	..	G.	F.
46. Bo. x F. x G. 2611	30	34	S.	S.	..	..	..	..	V.G.	F.
47. Bo. x F. x G. 2613	34	39	S.	S.	..	..	..	..	V.G.	G.
48. B.I.P. x M. 2604..	25	31	S.	S.	..	..	..	1	V.G.	G.
49. B.I.P. x M. 2608..	25	30	S.	S.	..	..	..	1	V.G.	G.
50. B.I.P. x M. 2609..	26	21	V.S.	S.	..	..	..	..	V.G.	G.
51. B.I.P. x M. 2610..	25	31	S.	S.	..	..	..	1	V.G.	G.
52. B.I.P. x M. 2612..	25	31	S.	S.	..	..	..	..	V.G.	F.
53. B.I.P. x M. 2615..	25	31	S.	S.	..	..	..	..	V.G.	G.



## WINTER FODDERS.

Although the growing of green material for winter use is becoming a recognised practice in most districts, there are some dairymen who fail to recognise the importance of making the necessary provision for their herds, in consequence of which the average production per cow is unnecessarily low.

The boom of a few years ago in cotton-growing, more particularly in the coastal areas, was the means of inducing many dairymen to clear a portion of their holdings for cotton. The decline of the cotton industry has indirectly benefited the dairy farmer, in that these cultivated areas are now being utilised for the growing of useful fodder crops for his herd.

The comparative trials at present being carried out with 94 varieties of wheat will be of value in determining those most suitable for both grain and fodder purposes under Central Queensland conditions.

The very necessary provision for a supply of pig feed is not given the attention it deserves. The growing of a variety of crops maturing at widely different periods has been demonstrated by this Department for several years as the best means of obtaining satisfactory results.

During the 1929 winter demonstrations were arranged for in the following localities:—Ambrose, Mount Larcom, Miriam Vale, Marlborough, Thangool, Wowan, Boyne Valley, and Jambin.

The respective plots were planted during the latter part of May and early June. As already mentioned, practically no rain fell during the period from July to September, in consequence of which growth was so irregular that only in two instances were the yields computed. These are as follows:—

YIELDS—ROOT CROP TRIALS—SEASON 1929.

Crop.	C. King, Ambrose.	S. Larsen, Miriam Vale.
	Tons per Acre.	Tons per Acre.
Rape .. .. .	12.15	37.5
Silver Beet .. .. .	10.25	33.75
Chou Moullier .. .. .	18.5	34.25
Thousand-headed Kale .. .. .	18.15	32.15
Green-top yellow Aberdeen .. .. .	25.75	29.25
Mammoth swede .. .. .	25.2	36.75
Purple-top swede .. .. .	28.6	35.5
Field carrots .. .. .	Not harvested	23.55
Cabbage .. .. .	Not harvested	Destroyed by rats
Sugar beet .. .. .	Not harvested	38.25
Long red mangel .. .. .	Not harvested	31.86
Yellow Globe mangel .. .. .	Not harvested	31.86
Planted .. .. .	20th May, 1929.	24th May, 1929.

NOTE.—Harvested rape end of July, other varieties in succession until December.

A further series of plots corresponding to the above have been arranged for during the present winter in the following districts:—Marlborough, Ambrose, Biloela, Thangool, Theodore, Mount Larcom, Miriam Vale, Wowan, and Buneru.

A good germination has been secured, conditions being favourable to growth in the respective districts.

## SORGHUMS.

The work undertaken by this branch of the Department in demonstrating the value of the sorghum crop, both as a summer and winter fodder crop, has undoubtedly been of very great value to the dairying industry. With the exception of some of the more recently settled localities, sorghum growing has become established to the extent that it is proposed to discontinue the trials in the older districts and devote more attention to pasture improvement work.

The raising of specially selected high-yielding strains of both fodder and grain types was carried out in the following localities:—Rose-dale, Mount Larcom, Ambrose, Bracewell, Biloela, Thangool, Buneru, Wowan.

Very satisfactory yields were obtained from both grain and fodder varieties.

Owing to pressure of other work, and to the fact that only limited supplies of seed were required for next season's operations, the yields of only four of the plots were secured. Fodder varieties gave 17 to 21 tons of green material per acre, while Egyptian corn returned 23½ and 82 bushels per acre respectively.

The Nigerian varieties planted three years ago on the farm of Mr. J. Edminston, Rockhampton, have yielded two excellent ratoon crops. As they do not mature seed until June, their propagation is necessarily carried out with a considerable amount of difficulty.

## TOBACCO.

Approval was given by the Australian Tobacco Investigation Committee to arrange for some 12 exploratory plots in order to ascertain the suitability of Central Queensland soils for the production of a high quality tobacco. Some difficulty was experienced in establishing these trials on the kind of soil considered to be most suitable for this crop. This was not, however, due to the lack of promising types, but rather to the fact that the class of soil required is not generally utilised for cultivation purposes.

As will be noted from the following list, the trials embraced some 400 miles of coastal country, extending from Mackay to Bundaberg:—

District.	Grower.	Soil.
Sarina ..	A. E. Atherton	Light-grey sand
Rockhampton ..	J. F. Coates ..	Fine-textured sandy loam
Gracemere ..	W. Beard ..	Brown sandy loam overlying granite
Stanwell ..	J. Beck..	Brown sandy alluvial loam
Wowan ..	G. Paine ..	Brown alluvial loam
Miriam Vale ..	P. Dahl ..	Grey sandy soil
Bundaberg ..	H. Norgrove ..	Grey sand on fringe of country.
Bundaberg ..	R. Blaik ..	
Bundaberg ..	J. Stephenson ..	

The arrangements made for trials in the Duaringa, Boyne Valley, and Bororen districts were not proceeded with, mainly on account of the growers failing to raise the necessary plants. This failure was in a large measure due to the



hot drying winds experienced after the seed was sown, the cheesecloth covering not being sufficient protection.

The precaution was taken to establish a central propagating bed at Rockhampton from which seedlings were supplied to a number of the growers.

In addition to the abovementioned plots, several farmers who were desirous of trying out the crop in a small way were furnished with a limited number of plants. The varieties under trial were—White Stem Orinoco, Warne, Hickory Pryor, White Burley.

Somewhat adverse climatic conditions were experienced during the period of growth, January to May. Exceptionally heavy rains fell immediately the plots were planted and before the seedlings had time to become established. In some districts, losses occurred necessitating replacements. The excessive wet was followed by about two months without any useful rains, a most unusual occurrence at this time of the year. During the latter stage of growth matters improved, and, with one or two exceptions, the crops were very good.

A flue-curing kiln was erected in the railway station yard, Rockhampton, in which the leaf from the respective districts was dried. Four curings were made during the season, but the long distances the leaf had to be transported to the kiln, together with variations of the soil upon which it was grown, is not conducive to the obtaining of the best results. The harvesting and curing of the respective crops were undertaken by Mr. L. Gerry, an officer sent from the south by the Australian Tobacco Investigation.

Although most of the cured leaf would appear to be satisfactory both in regard to texture and colour, &c., some time must necessarily elapse before it is sufficiently mature to determine its smoking qualities.

A considerable amount of enquiry is being made both personally and by letter in regard to the possibilities of growing tobacco in Central Queensland.

#### ONION GROWING.

Increased attention is being given to the raising of onions on a scale sufficient to meet Central and Northern requirements at least during several months of the year, and more particularly when the local market is bare of Southern supplies.

To achieve the latter objective would necessitate the growing of an early-maturing crop, and as to whether this can be attained by early sowing or the utilisation of a quick-maturing sort is being investigated. Seed of the earliest varieties was procured from the Southern States, and also from the United States of America, and is being grown in different localities to test its maturing habits.

There are seasons where early sowing cannot be practised on account of the lack of moisture. It will be possible, however, to determine the effect of such at Theodore and other places where facilities for irrigation exist.

Six variety trial plots were arranged for during 1929 in the following districts:—Wowan, Dululu, Jambin, Ambrose, Biloela, and Archer. The results obtained were of an indifferent

nature owing to the total absence of useful rains during growth. Only a small proportion of the crop was of marketable size, the bulk being disposed of for pickling purposes.

During the present season there has been a considerable extension both in regard to number of trial plots established and the area of country covered by the experiments.

The location of the plots are as follows:—Dululu, E. A. MacMillan; Thangool, R. M. Ellis; Raglan, C. Collins; Wowan, G. Paine; Eungella, P. Willet; Ambrose, R. Sinclair; Theodore, J. A. Bowman; Theodore, R. E. Willmott; Theodore, R. A. Leas; Theodore, J. A. Freeman; Bundaberg, E. Noakes; and Archer, Brown Brothers.

The varieties embraced in the trials are—Long-keeping Brown Spanish, Brown Globe (American), Extra Early Golden Globe, Sweet Spanish (American), Early Barletta, Odourless, and Silver King.

The respective districts were favoured with useful rains during the planting period, consequently with the exception of Odourless a good germination was secured, while the growth made to date has also been satisfactory.

#### PASTURE IMPROVEMENT.

A considerable amount of correspondence has been received, and personal enquiry made in regard to the treatment and laying down of pastures. The 2-acre trial plot established at Archer, in which there are some fifty varieties of grasses and clovers, &c., was given a good deal of care and attention. During the year a supply of seed of the famous marine grass, *Spartina Townsendii*, came to hand from Kew, England.

Although sown on specially selected marine flats along the coast, the seed failed to germinate. This was not altogether unexpected, as the seed of this grass, in common with other marine plants, invariably germinates and forms rootlets before shedding, so that it can immediately establish itself in the soft mud in which it luxuriates.

A further quantity of seed has recently come to hand together with the pleasing information that, if infertile, a supply of roots will be procured.

Should *Spartina* prove suitable to Queensland conditions enormous areas of marine flat country could be converted into valuable grazing areas which would have the added advantage of being absolutely drought-proof.

Roots of another promising water or swamp grass, *Poa aquatica*, were procured from the South and propagated for distribution. It is making very good growth in the various localities in which it has been planted out.

#### PASTURE IMPROVEMENT PLOT, ARCHER.

The perennial grasses, both indigenous and introduced, planted during 1928-29 have now become well established. Several of the winter grasses, together with most of the legumes, clovers, trefoils, and mellilots, died down during the hot summer months. As several of the grasses, clovers, &c., matured seed, the land was again worked up and the respective plots sown with the same variety on 20th May. An excellent germination has been secured, while subsequent growth has also been satisfactory.



Several valuable Western grasses, embracing the Mitchell, Red Flinders, Andropogons, and Panicums, are being tried out, and so far have done remarkably well. It is hoped that during the coming year time will permit of comparisons being made as to their feeding qualities with similar material raised under the different conditions of soil, moisture, and climate obtaining in the West.

The following is a list of the pasture plants at present under observation, together with brief particulars in regard to growth:—

#### SUMMER GROWING VARIETIES.

- Kikuyu (*Pennisetum clandestinum*)—Made excellent growth.
- Russell River Grass (*Paspalum galmanii*)—Becoming well established.
- Paspalum dilatatum*—So far has made very scanty growth.
- Carpet Grass (*Paspalum compressum*)—Further sowings failed to germinate.
- Buffel Grass (*Pennisetum cenchroides*)—Cut twice for seed purposes; subsequent growth rather poor.
- Rhodes Grass (*Chloris gayana*)—Satisfactory growth.
- White-top Rhodes (*Chloris virgata*)—Very aggressive grower, but not so succulent as the *gayana*.
- Red-top Rhodes (*Chloris barbata*)—Comes away early in spring, but more or less an annual.
- Giant Couch (*Panicum muticum*)—Very luxuriant grower, but susceptible to frost.
- Blue Couch (*Panicum didactylum*)—Rapid grower, more succulent than ordinary couch. Reputation of being poisonous.
- Common Couch (*Cyanodon dactylon*)—Nice green sward during summer, but dries off in winter.
- Giant Blue (*Andropogon nodosus*). Mr. Hubbard, an authority on grasses, advises that the name of this variety under the new nomenclature would be *Dichanthum nodosum*. It has a most robust habit of growth, reaching a height of 9 feet. So far it has not been tried out under ordinary grazing conditions. It is a very free seeder.

#### WINTER GROWING VARIETIES.

- Perennial Veldt (*Ehrharta calycina*)—Possibly owing to dry winter, made poor growth.
- Canary (*Phalaris minor*)—Growth fairly good.
- Canary (*Phalaris bulbosa*)—Growth fairly good.
- Prairie (*Bromus unioloides*)—Growth fairly good.
- Wimmera Rye (*Lolium subulatum*)—Did remarkably well considering the dry winter.
- Lucerne (*Medicago sativa*)—Good stand, fair growth.
- Berseem Clover (*Trifolium alexandrinum*)—Good stand, fair growth.
- Burcess Trefoil (*Medicago orbicularis*)—Good stand, fair growth.
- King Island Mellilot (*Melilotus indica*)—Good stand, fair growth.
- Yellow Trefoil (*Medicago lupulina*)—Thin stand, fair growth.
- Subterranean Clover (*Trifolium subterranean*)—Very good stand; made the best growth of the legumes planted; seeded.
- Alysike Clover (*Trifolium hybridum*)—Fair stand and growth.
- White Dutch Clover (*Trifolium repens*)—Fair stand and growth.
- Perennial Red Clover (*Trifolium pratense perenne*)—Fair stand; made best growth during early summer; was the last to succumb to the heat of summer; growing well into February.
- Crimson Clover (*Trifolium incarnatum*)—Fair stand, rather poor growth.
- M. Birdsfoot Trefoil (*Lotus corniculatus*)—Fair stand and growth.
- Birdsfoot Trefoil (*Lotus major*)—Fair stand and growth.
- Strawberry Clover (*Trifolium fragiferum*)—Poor stand and growth.

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#### INDIGENOUS VARIETIES.

- Curly Mitchell (*Astrelba*, var. *curvifolia*)—Good growth; seeded freely.
- Weeping Mitchell (*Astrelba pectinata*)—Scanty growth compared with the Curly variety.
- Wheat-eared Mitchell (var. *triticoideus*)—First sowing turned out to be the Curly variety. A second sowing is now becoming established.
- Satin Top (*Andropogon erianthoides*)—Made excellent growth.
- True Blue (*Andropogon sericeus*)—Dense growth; dwarf habit.
- Coolah Grass (*Panicum prolatum*)—Excellent growth.
- Texas (*Panicum bulbosum*)—Excellent growth.
- Shot (*Panicum globidum*)—Fair growth.
- Early Spring Grass (*Eriochloa punctata*)—Very early grass, making a growth of some six inches before other summer varieties had commenced to shoot.
- Paramatta (*Sporobolus indicus*, var. *elongatus*)—This variety also made a satisfactory growth.

Seeds and cuttings of promising varieties grown at the above plot are being utilised for the carrying out of experimental trials in other districts.

#### MISCELLANEOUS CROPS.

**Rice.**—Two Upland varieties were sown on the farm of Mr. Lloyd Jones, Rosedale, the yields of grain per acre being, Kirishima 46 bushels, and Owari 36 bushels per acre.

**Cassava.**—In order to keep the 18 varieties introduced from Java true to type, arrangements were made with Mr. J. Edminston, Pink Lily, Rockhampton, for the use of an acre of land in which to grow the respective sorts. Dry conditions accompanied by high temperatures were experienced subsequent to planting, in consequence of which a somewhat irregular germination resulted. Negotiations are at present in progress for a further planting in the spring.

The National Power Alcohol Company, Sarina, arranged with farmers to plant out several acres of cassava so that a supply of propagating material would be available when the distilling required a starch-producing crop to supplement the local supply of molasses.

**Broom Millet.**—Increased areas are being planted with broom millet in the Wowan and Callide districts. A factory for the manufacture of brooms is now operating in Rockhampton.

**Peanuts.**—Peanuts were planted fairly extensively in the Rossmoya-Caves localities. The floods in January and later when harvesting, however, did a good deal of damage to the crops, reducing the acreage very considerably. Peanuts are still the main crop in the Keppel Sands area.

**Maize.**—When the Mount Larcom, Barmoya, Wowan, and other scrub-timbered districts were being opened up, maize (together with Rhodes grass) was invariably the crop planted following the burn-off. In the Callide-Thangool areas cotton has largely taken the place of maize as a first crop prior to being laid down in grass.

It may be mentioned that expansion of the cotton industry is seriously retarded through the damage done by the cotton ear-worm. This pest has been mainly responsible for the abandonment of the cotton growing in the coastal districts.

**Potatoes.**—This crop is generally raised where they can be irrigated if necessary. The area under this crop in the Central district is on the increase. A number of farmers at Theodore are



giving attention to potato growing, and very satisfactory results are being obtained.

The tubers displayed at the various agricultural shows held recently have been of excellent quality; in fact, the best I have judged for several years.

*Sweet Potatoes.*—Although propagation of the sweet potato has been discontinued for years, numerous applications for cuttings are still being received.

#### OUTLOOK FOR THE COMING YEAR.

The outlook at the time of compiling this report—9th July—is, on the whole, promising. Stock are in good condition, both feed and water being plentiful. The managers of the respective butter factories report that the cream supply for the past three months is a good deal over the average of that of recent years.

The butter factory erected recently at Mackay is now in operation, the output being much in excess of expectations. As a large number of dairy animals have recently been introduced into this district from the South, an appreciable increase in production may be looked for during the coming season.

The Port Curtis Dairying Company have recently remodelled their factories, the Gladstone unit being rebuilt at a cost of some £25,000.

In conclusion, it is pleasing to report that the past year has been one of general progress.

#### NORTHERN DIVISION.

Mr. N. A. R. POLLOCK, Senior Instructor in Agriculture, reports:—

##### SEASONAL.

A review of the monthly rainfall reports from official recording stations in the Northern Division shows as follows:—

1929.—July, August, and September: Rainless most stations, others much under average; October: Generally dry and much under average; November: Serviceable rains; slightly over average in much of the West; slightly under average elsewhere; December: Under average, but use-rain in most parts.

1930.—January: Heavy rainfall, above average except in the far West; February: Heavy rainfall, above average in the far West and peninsula; good rainfall elsewhere; March: Light rainfall, well below average; April: Rainless in most of the West, much below average elsewhere; May: Excellent rains, above average most stations; June: Above average rains on coast and coastal slopes south of Townsville and portion of rolling downs; below average elsewhere.

##### PASTORAL.

The good rainfall in April the previous year, which was well above the average over all pastoral districts except the far West, assured a sufficiency of water and pasturage to carry stock over the usual dry months from July to November in all districts except the coastal slopes imme-

diately west of Bowen. Here an over-average precipitation in June was followed by heavy frosts at intervals to September, which so lowered the nutritive value of the pasturage as to cause loss on several of the large holdings there. Serviceable storms in November, followed by the excellent rains of succeeding months and the exceptionally good falls in May and June of this year, without any heavy frost, combined to enable the past year to be regarded as a most favourable one, while the rainfall as mentioned in the two concluding months will provide abundant pasturage and water for the coming months of light rainfall in that ensuing.

The improved price offering for fat cattle earlier in the year by Northern meatworks was not maintained. Consequently a lesser number will be treated than in the previous year. The estimated approximate killings supplied by the District Stock Inspector for this season are:—Bergl-Australia Ltd., Bowen: 13,000; Swifts Ltd., Alligator Creek, Townsville: 30,000; Q.M.E. Co., Ross River, Townsville: 24,000—a total of approximately 67,000 head. The brisk demand for breeders, stores, and young stock when the improved price was operating has ceased, only occasional sales being effected lately at lower prices.

Sheepowners have experienced an excellent year with their sheep, the lambing percentage in general being remarkably good.

The lowering of wool prices has resulted in a large number of sheep, mainly wethers and aged ewes, being offered for sale, but beyond butchers' requirements few sales are being made.

The excellent winter rains experienced in the West should result in a very satisfactory growth in the lambs dropped during the past year and, by lengthening the period when succulent feed is available, do much to promote a high lambing percentage in that coming.

##### AGRICULTURAL.

Seasonal conditions during the year, though not the most favourable for agricultural operations through the over-average precipitations in January and February being followed by the much under-average falls of March and April cannot be regarded as adverse. Crop yields from sowings where growth was anticipated during March and April have been low, but compensation for such has been given, especially in maize on the Tableland, in the increased yield and better quality of the crops earlier sown. The sowings of crops usual in March and April, which would mature in the winter months, also being delayed have experienced the excellent rainfall of May and June, and give promise of over-average yields later on.

*Maize.*—The maize crops sown on the Tableland with the early rains in late November and December have given excellent returns, the quality of the grain through the absence of moulds engendered by the usually humid conditions of March and April being very much superior to that of average years.

Maize crops, later sown, suffered from the compaction of the soil under the excessively heavy falls of rain in early growth and the lack of cultivation, which could not be effected during



the period when it was most needed. The dry conditions prevailing in March and April also had a detrimental effect, rendering yields through that combination disappointingly low. The acreage sown on the Tableland during the past year was on a par with that of the previous year, but is expected to give a rather better total yield through a lesser damage from the moulds and other fungi which so decreased that of the previous year.

The following figures supplied by the Tableland Maize Pool Board give an indication of the value of the crop on the Tableland:—

Year.	Crop, in Tons.	Price per Ton.	Total Distributed
1927-28 ..	23,217	£ s. d. 5 10 4½	£ s. d. 128,121 13 6
1928-29 ..	14,253	7 5 5	103,620 0 0

With a view to encourage growers to supply a better graded article, it is understood the Pool Board is paying this year an extra 5s. per ton for all deliveries that may be graded as super-fine. This extra payment suggests an increased attention to varieties of a more flinty type, such as Durum, which the Department has introduced.

*Broom Millet.*—Attention has been directed to this crop during the past two years at Carbeen and Mareeba, the area under crop during the year under review being calculated as 60 acres, which would be an increase of 40 acres over that previous.

Due to the extra heavy rainfall which washed out a considerable area, and to inundation of other portions, the total yield is low and quality inferior to that of the previous year.

With the advent of bright tobacco as a staple crop, the growth of broom millet will merit consideration with other crops in a rotation therewith.

*Arrowroot.*—Very heavy yields of arrowroot have been reported from the Tableland, where a much increased acreage has been planted.

Attention has also been given to the crop in coastal districts.

Growth is considered solely as a stock food, especially for pigs.

*Potatoes.*—Comparative trials, of which the result of all tests over the past few years with the average yield of each variety were included in the report of the previous year, proved so definitely the superiority of the white-skinned varieties, readily obtainable in the market, that further trials were not deemed necessary or advisable.

As a result of these trials the particular varieties recommended are becoming more favoured amongst growers, though the more ready supply of seed of Tasmanian Brownells from Tasmania induces a greater cropping with this variety than would be the case if seed of white-skinned varieties was as easily obtainable.

A slight decrease in the area under crop has been noted on the Tableland, while there are

indications of an increase on the coastal lands, attention being given to the crop in the South Johnstone area by several farmers as a result of Departmental trials in that direction.

Though most of the coastal crops were planted a little late, potatoes of very good quality were marketed towards the end of June, crops being stated to be on the whole returning average yields. At Woodstock, the crops this year are expected to total a yield in the vicinity of 300 tons, each grower in that locality having extended his area.

On the Tableland fair yields only were obtained from the main crop planting, due probably to excessive rains in early growth, while the late planted crops suffered much damage from a visitation of late blight, which also affected tomatoes.

*Peanuts.*—Very satisfactory yields, many up to a ton of nuts per acre, have been reported by farmers on the Tableland, where the area under crop is estimated to have increased by 100 acres over that of the previous year.

Tableland growers are considering the advisability of erecting an oil mill from which the by-product of oil cake or meal would meet a ready sale as a protein concentrate for feeding with ensilage to provide a better balanced ration for dairy cattle in the dry months of the year.

The Cooktown district, which is outside the jurisdiction of the Peanut Pool, produces a limited amount of peanuts, most of which is marketed in Sydney.

*Sweet Potatoes.*—With the extension in pig-raising increased attention has been devoted to this crop on many Tableland farms, where yields have been very satisfactory during the year.

As a marketable commodity, the sweet potato does not find the popularity it merits, yet with the present necessity for economy it is expected that more attention will be attracted from thrifty housewives, and possibly a better market built up.

*Tobacco.*—In last report mention was made of small crops of bright tobacco being grown at Hervey's Range, Charters Towers, and Pentland, respectively, the leaf of which was to be submitted to the manufacturers for sale. The following prices were realised for each grade:—

*Hervey's Range.*—Souths Improved Hester Variety, per lb.: Lemon long 1A, 3s. 6d.; Lemon short 1A, 3s. 3d.; Lemon 1B, 3s. 8d.; Lemon scrap, 3s. 3d.; Orange long, 2s. 2d.; Orange short, 1s. 6d.; Orange lugs, 2s.; Mahogany 1A, 3s. 1d.; Mahogany 1B, 3s. White Stem Orinoco Variety, per lb.: Lemon, 3s. 7d.; Orange A, 3s. 4d.; Orange B, 2s. 2d.; Orange lugs, 3s.; Mahogany A, 2s. 1d.; Mahogany B, 1s. 4d.

*Charters Towers.*—South's Improved Hester Variety, per lb.: Lemon, long, 3s. 6d.; Lemon, short, 2s. 2d.; Bright Mahogany A, 3s. 4d.; Bright Mahogany B, 3s. 1d.; Short Bright Mahogany, 2s. 2d.; Long Mahogany A, 3s.; Short Mahogany A, 1s. 7d.; Long Mahogany B, 2s.; Short Mahogany B, 1s. 8d. White Stem Orinoco Variety, per lb.: Lemon, 3s. 6½d.; Lemon



scrap, 3s.; Long Bright Mahogany A, 3s. 3d.; Long Bright Mahogany B, 3s. 1½d.; Short Bright Mahogany B, 2s. 2d.; Long Mahogany C, 2s. 1d.; Short Mahogany C, 2s.

*Pentland.*—South's Improved Hester Variety, per lb.: Lemon, 3s. 5d.; Bright Mahogany, 3s.; Mahogany lugs, 2s. 2d.

Owing to damage from frost to each crop through being planted so late in the season, a percentage of the leaf was not marketed, so that the yields per acre were not calculated. On the prices received, however, the growers are satisfied that the production of bright tobacco in the proper season will be most profitable. When rendering the account sales an intimation was given by the management of the B.A.T. Pty. Co. Ltd. that further supplies of leaf of similar and better quality would be readily purchased.

During the past season crops were again grown at Hervey's Range and Pentland, while a new grower has a crop at Bowen. All these crops were set out late in the season, the curing of leaf being not yet completed.

At Hervey's Range growth was made on much richer land, approximately 3½ acres being under crops, which is expected to yield over 1,000 lb. of cured leaf per acre.

At Pentland one curing has been made, quite 99 per cent. of the leaf curing "bright."

Curing from the Bowen crop will be made during July.

#### AUSTRALIAN TOBACCO INVESTIGATION.

Considerable work has been done at the Australian Tobacco Investigation's experimental area at Mareeba, some 7 acres being under crop, inclusive of experimental trials of some thirty varieties.

It is understood the yields have been regarded as satisfactory, and indications given of the greater suitability of some varieties over others. In this connection it is to be noted that on trials supervised by officers of this Department the varieties "Hickory Prior" and "South's Improved Hester" proved their superiority over "Yellow Prior" and "White Stem Orinoco," the other varieties tested.

The report of the Director of the investigation on the variety tests at Mareeba will be awaited with interest, as it is calculated to be of great value to prospective growers in the North.

*White Burley Tobacco.*—This variety, which is grown on rich soil to enable large leaf development, and air or fire cured, is being tested on soils on which cigar leaf was originally produced. Small crops have been harvested by three growers in the Bowen district and by one in the Townsville district.

The leaf from these crops will be graded and marketed in the near future in anticipation of such a favourable price as will allow growers to enter on the production of such leaf with the certainty of a remunerative return.

*Tobacco Lands.*—The soils most suited for the production of bright tobacco are such as do not prove inviting for other crops, and of which little or none is available for selection, that

previously open at Mareeba having been largely taken up during the past year.

At present prospective tobacco-growers, unless by purchase, can only secure land for their purpose as miners' homestead leases or by special lease from the Crown. Viewing the strong indications that tobacco production will become a staple industry in North Queensland, it is suggested that consideration to the survey and opening of Crown lands to selection for that purpose should not be further delayed.

#### COW PEAS.

Due to the demand for seed by canegrowers on the coast, increased attention has been paid to seed production by farmers on the Tableland, chiefly on the forest soils, where harvesting can be better effected in fine weather.

It is estimated that the area under crop during the past year was in the neighbourhood of 100 acres, being an increase of approximately 70 acres over the year previous.

In order to be able to harvest when weather conditions are most favourable, as is usual in May and June, crops are sown in late January and February.

The unusually dry months of March and April previously noted had a detrimental effect on growth of crops, resulting in low yields, an average of around 3 bushels being obtained in place of the 12 to 15 bushels per acre which is usual.

#### FODDER CONSERVATION.

Fodder conservation trials on the rolling downs and desert sandstone soils of the West during the year were on the whole devoid of satisfactory results. On this occasion the rainfall was very heavy, falling, for the most part, within a fortnight. In one case all seed sown was washed away as the result of a heavy down-pour before germination. On reseeded the area, though a satisfactory germination took place, the absence of further rain disallowed any result. In other cases most of the water from the rain ran off after consolidating the soil to some extent. Omission to cultivate after the rain allowed excessive evaporation of moisture with consequent failure of crop. In one instance a grower, having no cultivating implement, hand-weeded a portion which thereon showed to advantage by remaining green and healthy, while the balance of the crop drooped and withered. This evidence suggests that if, after rain, the surface is kept well stirred, sufficient growth will be made to be worth harvesting.

As a rule, in the Western districts in a normal season the falls of rain are spread over a sufficiently long period to allow of sorghum varieties being grown with profit.

At Stanley Downs, in the Stamford district, a crop of 3 acres of sudan grass, which germinated under a fall of rain some three weeks before the general fall occurred, gave the excellent estimated yield of 9 tons of hay or 3 tons to the acre.

On this holding some of the grain varieties grew to maturity, yielding a much larger grain, especially the Feterita variety, than is usual in districts nearer the coast; also, some of the honey



sorghum plot which received a little irrigation in the overflow from a tank at the windmill on the bore made an excellent growth, which suggested a yield at the rate of over 20 tons of greenstuff per acre.

So far from being discouraged by the past year's results, growers are showing a stronger interest, being confident that crop cultivation will, in the absence of further rain, ensure a yield worth harvesting, while inquiries have been received from other prospective growers. The trials were carried out on rolling downs soil in the Stamford, Richmond, and MacKinlay districts, and at Colane and Wantalanya on desert soil in the Winton district.

*Ensilage.*—An increase of approximately 1,000 tons of fodder conserved as ensilage has been noted by officers of this branch on the Tableland during the year, every original pit being filled, as well as several newly excavated.

In other districts the tonnage ensiled is equal to that of previous years, no fresh silos having been constructed.

*Cow Cane.*—The acreage under cow cane, especially of the 90 stalk variety, has shown a slight increase in Tableland districts, where heavy yields have been reported.

As a stand-by crop for pigs and for cattle in the dry period of the year the crop is appreciated by many dairymen, yet the wearing action of the cane on the cows' teeth is causing attention in many instances to be diverted to maize ensilage, as has been noted in the increased tonnage conserved.

#### PASTURE IMPROVEMENT.

Regular cuttings were made during the past year on the paspalum renovation experiment at Atherton, the results being a repetition of those of the previous year, tending to prove conclusively that on the Tableland volcanic soils the thorough breaking up of the root-bound sod after the wet season has set in is all that is necessary to renew such pasture.

The growths at each cutting were despatched to the Agricultural Chemist, in whose report full details will doubtless be found.

In trials of some exotic grasses near Townsville the Woolly Finger Grass (*digitaria eryantha*) and a species of *Urochloa* have shown very great promise, while several others give encouragement for further propagation. While the plots of these grasses grown from a very little seed were necessarily small, there is sufficient growth to allow of planting a larger area by division of the roots in the coming year, when more accurate observations can be made on growth and general behaviour.

*Lucerne.*—Increased attention, due to departmental advice and demonstration plots, is being given to this crop, especially by Tableland farmers, many new areas being sown, while existing areas have been added to. Yields are reported as very satisfactory, and profits from feeding to milking cows and pigs remarkable.

*Green Fodders.*—The demonstration plots of various feeders for growth in summer and winter

arranged each year with dairy farmers in different centres in order to afford a practical illustration of the benefit of the feeding of such crops in their immature growth in increasing the milk yield has proved most satisfactory.

In Tableland centres reports from many dairymen are to the effect that the increased flow of milk has been very gratifying, and that the return from such increased flow has resulted in considerable profit after deducting costs of growing.

The practice of growing these crops, especially those for feeding in winter and the succeeding dry months, has so increased as to suggest it becoming practically universal in the near future.

The yield of crops has been well maintained, extra heavy yields in winter-grown crops being promised in the coming year, due to the very satisfactory falls of rain during May and June.

It is satisfactory to note that the varieties of crops now grown for fodder purposes in all districts are those proved to be most suitable by departmental experiment.

Appended to this report will be found a summary of trials over the past five years in all districts, giving the total number of tests with each variety, the average yield of all trials, and the heaviest recorded in each instance.

Extracts from this summary show the following very satisfactory performances of those now recommended:—

VARIETY OF CROP.

—	No. of Trials	Heaviest Yield per acre.			Average of all Tests per Acre.		
		t.	c.	q. lb.	t.	c.	q. lb.
Florence wheat ..	26	9	3	0 24	5	9	3 12
Sunrise oats ..	6	12	10	2 24	7	5	2 25
Skinless barley ..	13	9	3	0 24	5	3	1 1
Dun field peas ..	11	18	18	3 20	9	15	1 22
Rape ..	4	15	14	2 20	28	12	0 16
Groit cowpeas ..	15	12	0	0 5	22	10	0 0
Early Georgia velvet beans	7	14	9	0 0	7	14	2 0
Pearl millet ..	26	38	11	1 20	13	12	1 19
White panicum ..	24	20	14	2 6	11	16	1 2
Teosinte ..	10	24	16	2 10	13	5	0 12
Honey sorghum ..	6	34	9	1 24	29	15	2 21

#### DAIRYING.

The year under review has been considered generally favourable from a dairying point of view, the production of butter from Tableland factories showing an increase over that of the previous year.

The total output of these factories from approximately 637 suppliers was 1,357 tons of butter, the amount distributed amongst suppliers being £177,460.

In June a co-operative butter factory came into operation at Millaa Millaa, the output for that month being 17 tons of manufactured butter. The returns from the butter factories at Julatten, Daintree River, and Silkwood are not available.

The establishment of a butter factory during the year at Mackay has allowed attention being paid to dairying in the Proserpine district, where



the number of suppliers is expected to increase during the coming year.

Attention to the manufacture of cheese in the Northern Division is given only on the Tableland, where, during the year, a total of 227,387 lb. was manufactured and valued at £7,757, being an increase of 13,255 lb. over the previous year and £152 in value.

#### PIG RAISING.

The increased attention to pig raising noted in the last report has been maintained, each month showing a greater supply than in the corresponding one of the previous year.

#### WEED CONTROL.

As a result of departmental experiments in the control of inkweed at Millaa Millaa, previously reported, the use of a 5 per cent. solution of arsenic pentoxide has become more or less general in spraying to eradicate the young inkweed plants appearing shortly after the first rains on newly burnt fallings of scrub, preparatory to sowing grass seed.

Treatment such as this is calculated to allow of the land being grassed earlier and more economically than by other methods.

It is estimated that some 800 acres have been so treated during the past year on the Tableland.

The statement made that plants sprayed with solutions of arsenic pentoxide are not injurious to stock eating them, while perhaps true where the solution has been applied in extremely small quantity, as by an atomiser, should be viewed with very great caution, since, during the year, weeds sprayed with such a solution applied by an ordinary spray pump caused the death on the Tableland of a number of cattle consuming them.

#### CONCLUSION.

In reviewing the work accomplished during the year, appreciation must be expressed of the co-operation and assistance rendered by the instructors on the Northern staff and gratification at the many expressions of approval of departmental activities from settlers who have benefited therefrom.

#### WINTER GREEN FEEDS.

Crop.	Average Yield per Acre.				No. of Trials.	Highest Yield.			
	t.	c.	q.	lb.		t.	c.	q.	lb.
Wheat—									
Florence .. ..	5	9	3	12	26	9	3	0	24
C.C.C. .. ..	4	15	3	3	9	6	10	0	0
S. E. x W8 .. ..	4	1	0	0	5	7	7	3	12
Warrior .. ..	5	4	0	22	4	7	9	1	24
Warden .. ..	6	4	2	10	4	8	10	1	12
Souter's Early x Warren	4	19	2	27	3	7	7	3	12
Bunge .. ..	7	2	2	20	2	8	0	0	0
Warren .. ..	8	5	2	24	2	9	10	0	0
Watchman .. ..	3	1	0	16	1	..			
Amby .. ..	6	10	0	0	1	..			
Firbank .. ..	9	6	1	20	1	..			
Pacific .. ..	2	17	3	12	1	..			
Oats—									
Sunrise .. ..	7	5	2	25	6	12	10	2	24
Algerian .. ..	7	11	2	20	4	13	0	1	12
Ruakura .. ..	9	12	1	3	2	13	19	2	16
Tartarian .. ..	7	5	3	20	2	11	17	3	12
Mulga .. ..	10	17	0	6	1	..			
Barley—									
Skinless .. ..	5	3	1	1	13	9	3	0	24
Cape .. ..	6	3	3	22	3	10	12	0	24
Field Peas—									
Dun .. ..	9	15	1	22	11	18	18	3	20
Blue .. ..	9	13	1	21	2	11	6	3	14
Partridge .. ..	7	11	0	8	2	10	2	2	0
Wheat and Peas ..	4	0	3	24	8	7	1	1	20
Oats and Peas ..	5	6	0	8	1	..			
Barley and Peas ..	8	0	2	18	3	10	18	2	8
Barley, Peas, and Vetches	6	18	2	21	2	5	6	3	5
Wheat and Vetches ..	6	18	2	21	5	14	10	0	0
Rape .. ..	15	14	2	20	4	28	12	0	16

#### SUMMER GREEN FEEDS.

Crop.	Average Yield per Acre.				No. of Trials.	Highest Yield.			
	t.	c.	q.	lb.		t.	c.	q.	lb.
Cowpeas—									
Groit .. ..	12	0	0	5	15	22	10	0	0
Brabham .. ..	12	10	0	4	6	18	19	1	4
Victor .. ..	11	3	0	9	4	19	5	2	24
Black .. ..	6	5	0	0	2	6	6	0	0
Clay .. ..	6	0	0	0	1	..			
Velvet Beans—									
Early Georgia ..	7	14	2	0	7	14	9	0	0
Mauritius .. ..	6	14	3	7	3	11	5	0	0
Early Black .. ..	15	1	0	0	2	18	0	0	0
Pearl millet .. ..	13	12	1	19	26	38	11	1	20
White panicum ..	11	16	1	2	24	20	14	2	6
Teosinte .. ..	13	5	0	12	10	24	16	2	10
Honey sorghum ..	29	15	2	21	6	34	9	1	24
Millets—									
Liberty .. ..	4	12	2	16	3	6	8	2	20
Japanese .. ..	3	4	1	4	2	3	17	0	16
Sudan grass .. ..	6	14	2	16	2	8	0	0	0
Horse gram .. ..	9	19	0	0	1	..			



## REPORT OF SENIOR INSTRUCTOR IN PIG RAISING.

Occupying, as it does, a very important position in its association with dairying, mixed farming, and general agriculture, the breeding and marketing of pigs as porkers, baconers, and stud stock is a profitable undertaking, and one in which the majority of Queensland farmers are interested, particularly those resident along the eastern slopes of the Great Dividing Range and on the tablelands of the North and Central Queensland.

Though it cannot be claimed that the industry has made marked or very rapid progress during the past year, there certainly has been increased production and a very definite increase in the interest taken in all phases of the business, with the result that an all-round improvement in quality is noted, even although, as yet, many farmers have not brought themselves to up date in regard to the marketing of their animals in the most desirable and profitable form. Departmental instructors have been busy throughout the year in the endeavour to secure the marketing of the stock to greater advantage. The whole subject of marketing has been prominently before the farmers of this State.

### BACON FACTORIES.

We are fortunate in that our bacon factories and pork butchering establishments have been modernised to meet the exacting requirements of a growing trade. Another factory is in course of erection at Doboy, seven miles south of Brisbane. This new plant will be controlled by the Darling Downs Co-operative Bacon Company, Limited, who have, in addition to the extensive plant at Willowburn, recently opened up a distributing centre at Redfern, near Sydney, New South Wales. A movement is also afoot to establish another bacon factory at Rockhampton or Gladstone to serve the Central and Upper Burnett and Central districts generally.

### THE NORTHERN PIG BOARD.

The industry has made good progress in the areas which the Northern Pig Board serves, and the North Queensland Co-operative Bacon Factory at Floreat Siding, Mareeba, is now a successful business proposition, and a very important factor in the progress of the industry in that portion of the State.

### DEMAND FOR QUEENSLAND PORK PRODUCTS.

Queensland's pork products have been in continuous demand throughout the year. The State has found outlets for very large quantities of her surplus production in the markets of the South, but, in general, prices received have not been quite so profitable as in former months, even although there has been a steady improvement in quality and better organisation in the handling of the goods in transit.

### EMPLOYMENT.

From the standpoint of finding employment for many men, women, boys, and girls, the

industry is important, and at both the production and manufacturing, as well as the distributing end of the business, employment is found for a very large number of people.

### COSTS OF PRODUCTION.

Much remains to be attempted in the reduction of costs of production, and the securing for the producer a more liberal margin over actual costs of producing and marketing quality lines of stock that strictly conform to the requirements of the trade.

### MARKETING FINISHED PRODUCTS.

There is room for better organisation in the marketing of the finished products (hams, bacon, and small goods), for, in general, there is a fairly wide margin between the price the producer receives for the raw products and that which the consumer pays for the finished commodity, though, in fairness to all concerned, it must be admitted that the margin has been narrowed down considerably in recent years. The city consumer has a great advantage over the country customer when it comes to cheap pork products.

This branch of departmental activity is, of course, more directly interested in emphasising the necessity for reduction in costs of production, and in endeavouring to focus attention on the marketing of better types of pigs in the most desirable and profitable form possible, and it is along these lines that the Instructors in Pig Raising are working, at the same time keeping in close contact with the manufacturing and retailing ends of the industry.

It is realised the producer cannot expect to receive maximum value for stock the manufacturer cannot profitably dispose of, or for which there is a variable or uncertain demand.

### MARKET REQUIREMENTS.

Market demands have changed so much during recent years that many farmers have not yet realised the position. Twenty years ago the pig that scaled the heaviest and that carried the greatest proportion of fat realised the highest price, and it was difficult to fatten the animals sufficiently to meet the demand, and for many decades prior to that period the position was similar. Nowadays, throughout the world there is an insistent demand for lean meat and for light to medium weight, early-maturing animals. Baby beef, spring lamb, and prime dairy-fed porkers and baconers are the lines for which there is the maximum demand, and the position is so acute that bacon factories report they cannot dispose of fat meat at any price, and even in the markets of the old world there is no inquiry for the fat pig.

### HEALTH OF STOCK.

Where handled along modern lines and given free range and clean, succulent pastures, pigs are very healthy in this State, and we have not



suffered any very serious losses during the period under review; but each year the industry suffers a heavy loss through condemnation in part or whole of carcasses, otherwise normal and well developed, that show evidence of infection by the bacillus of tuberculosis. Details of the condemnations and statistics dealing with this phase of the industry will be found appended to the report of the Chief Inspector of Stock. Figures showing the numbers of pigs in various districts throughout the State will also be found in the live-stock tables on the concluding pages of this report.

#### INVESTIGATIONAL WORK.

As opportunity offers, it is proposed to arrange itineraries, in company with officers of the Stock and Dairy Branches, to pay particular attention to instructional work among those farmers who are erecting new piggeries and are otherwise carrying out departmental recommendations. The appointment of a veterinary parasitologist has been of considerable value in the work in which we are engaged, and, in co-operation with the Entomological Branch, an investigation has been undertaken with a view to ascertaining the original source of infection in livers and other organs that are condemned by the meat inspectors. The investigation also aims at ascertaining the extent of infestation of pork products by the bacon fly and weevil and other parasites. Infestation of pigs by kidney worms appears to be on the increase; hence this phase of the work will receive special attention. Hog lice and other external parasites come within the scope of the Parasitologist's work.

#### PUBLICATIONS.

A brochure on the "Incidence of Tuberculosis in Pigs" is about to be issued, while pamphlets dealing with diseases of the pig and with other important phases (accommodation, &c.), are in course of preparation. The distribution of pig pamphlets and lecturettes to the farming community has been much appreciated and has been largely availed of. Many articles have been contributed to the "Queensland Agricultural Journal" and the agricultural Press generally.

#### LANTERN LECTURES, SCHOOL VISITS.

The Instructor in Pig Raising has been engaged throughout the year on itineraries, during which lantern lectures have been given in numerous centres; many visits have been paid to State schools, and addresses and practical talks on subjects of interest delivered to the children. Some time has been spent in judging at agricultural shows and on preparation of exhibits for display at the Brisbane Exhibition. The Annual School of Instruction to Pig Farmers at Gatton College commenced on the last day of the financial year. Such schools have a place in the building up of the industry and provide the opportunity for farmers and their sons to come together at a convenient centre for both theoretical and practical instruction in all phases of pig raising. The visits to bacon factories, which form part of the course, are of special value. The fees have been reduced to a minimum, and, at future schools, it is hoped larger numbers will be present.

During the year several parties of farmers visited the metropolitan bacon factories, and on these occasions the Instructors in Pig Raising have been present to assist.

#### PIG CLUBS.

In co-operation with officers of the Department of Public Instruction, much time has been devoted to extension of pig club activities, and officers of this branch have attended numbers of club contests. More than 1,200 enthusiastic boys and girls have become actively interested in these schemes, which show evidence of their value in the interest displayed and in improved types of stock and in methods of management.

The series of radio talks on pig raising broadcast from station 4QG Brisbane has been continued, and a number of lecturettes delivered.

#### FARM BOYS' CAMPS.

The scheme providing for Farm Boys' Camps was extended during the year to allow of a party of ten Queensland boys to attend the Sydney Show at Easter. This has led to a return visit being arranged, and the camp at the Exhibition in August will provide for thirty or more Queensland club members and ten boys from New South Wales clubs. Members of pig clubs are largely interested in these camps. Young judges' competitions have also been carried through at Brisbane and other shows.

The course of instruction to the migrant lads at the Salvation Army Farm Home for Boys at Riverview has been continued, and arrangements have been made for visits to the Marsden Home for Boys at Petrie.

#### PIGS AT GOVERNMENT INSTITUTIONS.

##### GATTON COLLEGE EXPERIMENTS.

The Senior Instructor in Pig Raising now has a general oversight over the pig studs at the various Government hospitals and asylums, at the Dalby Sanatorium, and at the Farm Home for Boys at Westbrook. A standardised system of stock records has been suggested, and in other directions attention has been given to placing these studs on a more profitable footing.

At the close of the year the extensive series of experiments in cross-breeding at the College piggery were in full swing, and several batches of bacon pigs have been marketed. The Senior Instructor attends at the factory when these pigs are being slaughtered, and again when the bacon is being judged, and is following this matter up closely. It is hoped eventually to institute record of performance schemes on similar lines to those in operation at research institutes elsewhere. The establishment of breeding centres on farms where similar experiments could be carried out would be distinctly advantageous. Efforts are being made to compile statistical data of value to the industry, while an investigation into costs of production of pigs at various weights and ages will be commenced as early as possible. Consideration is being given to the advisability of initiating herd competitions for pig farmers along similar lines to wheat crop competitions



and other contests of a like character. Several competitions have been tried, notably bacon pig carcase competitions at the Royal National Show, ton litter contests, &c. These activities all create interest and bring good results.

The display of a model farm piggery is being arranged for at the Brisbane Show in August, after which this model will be available for display at other shows. Other exhibits will also be available, focussing attention upon the necessity of the careful handling of pigs in transit to avoid losses consequent upon bruising and other forms of injury.

#### PIG PRICES.

As was to be expected, following the fall in value of other farm produce, pig prices have been lower than usual, particularly during the autumn and early winter months, when lessened supplies of pigs and increased consumption of pork products encourages higher prices for the raw products. It would seem that for the coming year a lower range of values will have to be accepted, and, in consequence, greater emphasis than ever will have to be laid on lowering the cost of production.

The fresh pork trade has greatly strengthened the industry this year.

#### EXTENDING LOCAL MARKETS.

There is a pressing need for the extension of local markets with a view to increasing the consumption of pork products. The overseas market has not been an attractive one during the year, although some thousands of carcasses of frozen pork have been consigned. Local and interstate markets are, at present, our best proposition.

#### KAIRI STATE FARM.

The pig section at the Kairi State Farm is now the only stud of pigs under the control of this Department; at this stud both Berkshire and Tamworth pigs are kept, and a good inquiry for all available stock has been noted. It is proposed to strengthen the Berkshire stud and later on to introduce further strains of imported pigs.

E. J. SHELTON,  
Senior Instructor in Pig Raising.



## REPORT OF THE POULTRY INSTRUCTOR.

The poultry industry is one of the more important minor industries in Queensland. It is estimated that there are approximately 3,000 commercial poultry farms on which poultry are kept as a sole source of income, and another 10,000 farms where they are kept as an adjunct to other farming pursuits. Outside of town areas fowls are kept in varying numbers by practically every householder.

During the past year the industry continued on the upward trend. It is difficult, however, to estimate the extent of the increase. During the past few years, as the average value of eggs decreased the farmer increased his flocks, so that a reasonable return could be obtained. This procedure, in conjunction with improved flocks and methods of feeding, has brought about the present situation of over-production of eggs in comparison to the local consumption. This position is a source of concern to the poultry farmers, who, judging from reports received, will not increase their flocks during the coming breeding season.

It is realised that the situation has to be dealt with by the production of eggs at a lower cost, and, for this purpose, the trapnest has been introduced by many farmers for culling the non-producers, and the selection of breeding stock. The adoption of this method will mean lower production costs and increased average production per unit.

### MARKETING.

The marketing of eggs during the past record year was the cause of considerable concern to those engaged in this business. The increased production was met by the disposal of eggs in large quantities interstate and overseas. During 1928 there were 487,984 dozen eggs sold interstate, and during 1929 this was increased to over 1,000,000 dozen. The interstate sales for the first five months of 1929 were 162,000 dozen, and of 1930, 373,270 dozen. These quantities show over a 100 per cent. increase during the latter period. In addition many tons of egg pulp were despatched from Queensland.

The overseas trade was increased, 919,410 dozen eggs being shipped. This is a record, and to comply with the new English regulations each individual egg exported was stamped with the word "Australia." During the export period of July to December only 10 per cent. of the eggs handled by the Egg Board were sold for local consumption. The market value of eggs during the past year varied between 1s. 4d. and 2s. 4d. per dozen.

During the year the poultry farmers on the Atherton Tableland formed the "North Queensland Egg Producers' Co-operative Association Limited." The object of so doing was to overcome the haphazard methods of marketing of eggs that previously existed. This is of considerable importance to poultry men on the Tableland, for by the regular marketing of clean, fresh eggs higher values will be obtained. The Association has arranged with the Atherton Tableland Co-

operative Butter Association Limited for their Cairns branch to act as distributing agents for the marketing and cool-storing of eggs if necessary.

### TABLE POULTRY.

Breeding and feeding of poultry for table purposes is not being practised, with the exception of ducks and turkeys, as there are large numbers of discarded stock always available at the markets. This class of bird is not fattened, or even graded with regard to weight and condition, prior to marketing. This method of marketing results in lower values and, at the same time, materially affects the value of prime cockerels that have been carefully graded. During the year the retail trade of dressed poultry has expanded considerably, and has resulted in keeping the markets fairly clear.

### EGG-LAYING COMPETITIONS.

There are now nine egg-laying competitions being conducted throughout the State. This year three were started, one each at Rockhampton, Maryborough, and Childers. These are conducted by local poultry clubs. The competition conducted under the management of the National United Poultry Breeders' Association at Nundah was transferred to the Poultry Experimental Farm, Mount Gravatt, and is conducted by officers of this Department.

In August last year a conference was held of representatives of the several competition managements with the object of creating uniform rules to govern all tests, and much was accomplished in this respect.

### FOODSTUFFS.

The poultry farmer had to contend with high values of maize, wheat, and mill offals, as well as the low price of eggs. For a time there was an acute shortage of pollard. At present there is, however, a surplus of wheat, and representatives of the farmers are endeavouring to have this made available to poultry farmers, who, for a time, were charged more for feed wheat than the market rate of milling wheat.

### EXPERIMENTS.

*Feeding.*—A feeding experiment which was conducted at the established Poultry Experimental Farm at Mount Gravatt was finalised on the 30th March. The object was to make a comparison of wheat and wheat by-products with maize and maize by-products for egg production. The birds used in the experiment were lent for this purpose by farmers, and were divided equally into three pens—A, B, and C. The birds were trapnested and records of performances, including the weight and value of each egg, were supplied to the respective owners. The duration of the experiment was eleven months.

The following is a brief summary of the findings. It must be pointed out, however, that no definite conclusions can be drawn from one test of this nature:—



*Food Consumption.*—The average food consumption per bird was low in each pen—A 3.4 oz., B 3.7 oz., C 3.4 oz. being consumed daily, whereas the consumption should have been at least 4 oz. per bird daily. The highest consumption took place in the wheat and wheat by-products pen. Between 6 lb. and 6½ lb. of food were consumed to each dozen eggs produced.

*Production.*—The production of the birds was not of a high standard. This could only be attributed to—(1) Changed housing conditions; (2) sudden change of diet; or (3) change of environment. These sudden changes caused the majority of the birds to moult. The following table is the analysis of eggs laid in each pen from 1st May, 1929, to 22nd March, 1930.

	PEN A.		PEN B.		PEN C.	
	Eggs Laid.	Percentage.	Eggs Laid.	Percentage.	Eggs Laid.	Percentage.
First Grade .. .. .	6,371	55.8	5,239	44.0	6,285	57.0
Second Grade .. .. .	4,180	36.6	5,354	45.5	4,012	36.4
Under weight .. .. .	870	7.6	1,305	10.5	719	6.6
	11,421	..	11,989	..	11,016	..
Out of trapnests .. .. .	211	1.8	245	2.0	262	2.3
Average number of eggs laid per bird .. .. .	Pen A. 137.3		Pen B. 145.7		Pen C. 129.0	

The best production was obtained in B pen (wheat fed), while a greater proportion of first-grade eggs, and also fewer small eggs, were obtained from A and C pens (maize fed) in comparison with B pen. It is considered that maize could therefore be more extensively used in the feeding of poultry, and if the price justifies it, could be fed practically to the exclusion of wheat and wheat by-products. The general belief is that the continual feeding of large quantities of maize caused the birds to become unduly fat. The birds in this test were weighed each month, and the results obtained showed no increase in weight.

*Egg Values.*—The average net value of eggs over the period was 13.6 pence per dozen.

*Mortality.*—At the commencement of the experiment a large number of birds developed roup. In an effort to overcome this trouble, affected birds were inoculated with roup vaccine. The results of this experiment were not satisfactory. This was due, mainly, to the advanced stages of the trouble at the time of using the vaccine.

A similar experiment was commenced on the 1st April, 1930, and with the object of further experimenting with the use of roup vaccine, all birds entered were treated a month prior to being penned. The response to treatment was most rapid and satisfactory without mortality.

*Cockerels and Capons.*—A small experiment was conducted with 12 cockerels and 12 capons with the object, mainly, of obtaining comparative data with regard to increase in weights. All were hatched on 29th September, 1929, penned on 2nd December, 1929, and were of the same breed. The capons were caponised on the same date they were penned. There was practically no difference in either consumption of food or the weight gained at the conclusion of the experiment on the 23rd March, 1930.

*Pellet Feeding.*—Pellets are largely used in America for feeding poultry for egg production. An experiment with this form of feeding was commenced on the 16th March, and will terminate on the 28th February, 1931.

#### INSTRUCTION.

*Juvenile Clubs.*—During the year as many Juvenile Poultry Clubs as possible were visited. At each club the members were given lessons on poultry subjects, and, in many cases, lectures were delivered at night. These were well attended by the farmers.

*Lectures.*—Throughout the year many lectures were given in various parts of the State, and regular radio talks broadcast from 4QG.

*Literature.*—Regular contributions have been published in the "Queensland Agricultural Journal," and have been distributed in pamphlet form.

#### DISEASE.

There was an outbreak of disease in the districts of Wynnum and Aspley. In many cases the mortality was very heavy, and the loss in egg production was considerable, particularly as birds that recovered did not lay for some time. The symptoms were that the birds' combs and skin became very dark, they developed a fever and were convulsive. Everything possible was done with the object of preventing further outbreak by the adoption of sanitary methods. The complaint not being identified, treatment with the object of reducing the fever was adopted, to which the birds readily responded.

During the year other seasonal complaints such as roup and chickenpox were not so prevalent.

J. J. McLACHLAN,  
Acting Poultry Expert.



## REPORT OF THE COTTON SPECIALIST.

The season under review has been one of most trying fluctuations, both as regards the development of the crop and of the possibility of successfully establishing the future of the cotton-growing and spinning industries.

As stated in my last annual report, the announcement which the Premier made at the end of last season, that the State Government would guarantee an average price of 5d. per lb., provided a loss of not over £30,000 was incurred in meeting the guarantee, created a most optimistic view of the possibilities in growing cotton during the present season. Not only did growers expand their acreage of the previous crop, but considerable numbers of old growers tried growing cotton again after a lapse of several seasons. Exceedingly variable climatic conditions existed through most of the season, with the result that crop prospects fluctuated in a most disconcerting way. Likewise, considerable uncertainty existed during practically the whole season regarding the legislation granting bounties to cotton growers and spinners. It is pleasing to be able to advise, however, that it appears the total yield which will finally be obtained will be around 75 per cent. greater than that of last season. Likewise, the legislation of the Federal Government for the future development of both industries has been successfully passed.

The Cotton Board has again been able to finance the payment to the growers through the Commonwealth Bank. Owing to the establishment of increased tariff duties, the whole of the crop has been taken by the Australian spinners. This has allowed of a higher first advance being paid to the growers on all grades than was the case last season. The following schedule sets

out the prices for the staple length of each grade of seed cotton—the Commonwealth bounty being included in each case:—

TABLE OF FIRST ADVANCE PER LB. OF SEED COTTON.

Grade.				Staple I.	Staple II.	Staple III.
				d.	d.	d.
A	..	..	..	4	4 $\frac{1}{8}$	4 $\frac{1}{2}$
B	..	..	..	3 $\frac{7}{8}$	4	4 $\frac{1}{8}$
C	..	..	..	3 $\frac{3}{4}$	3 $\frac{7}{8}$	4
D	..	..	..	2 $\frac{3}{4}$	2 $\frac{7}{8}$	3
X	..	..	..	3 $\frac{1}{4}$	4	4 $\frac{1}{8}$
XX	..	..	..	3 $\frac{5}{8}$	3 $\frac{7}{8}$	4
XXX	..	..	..	2 $\frac{1}{2}$	2 $\frac{5}{8}$	2 $\frac{7}{8}$

Unfortunately, the world's prices for cotton have dropped very badly during the latter part of this crop. As the Australian prices are based on these, it may be that somewhat lower final returns will be paid than was the case last season.

### SEASONAL CONDITIONS.

The seasonal conditions over most of the cotton-growing districts have been most erratic. Planting rains were exceedingly variable; in many districts one portion was able to plant early, while within a few miles planting rains did not fall for a fortnight to three weeks later. Eventually, however, a considerably increased acreage over that of last season was planted. Somewhat dry conditions existed generally until the end of January—in some of the areas in the Central District plant growth being rather severely retarded from lack of moisture during the latter part. Good rainfall was experienced, however, during the last week of January over the whole of the cotton areas. This was of a most unusual soaking nature, and really made the bulk of the crop. Excellent conditions for harvesting existed until the 1st May, when a most unseasonal storm of a week's duration occurred in a greater portion of the cotton districts. Contrary to expectations, frosts did not follow this visitation, and at the end of June the crops in most districts were still green. This is very unusual, the end of April generally being the period of first killing frosts in nearly all of the main sections of the cotton belt. Showery conditions existed through most of June, particularly in the southern areas.

The following table shows the monthly totals of rainfall which were experienced at the various representative centres in the cotton areas:—

### MONTHLY RAINFALL.

1ST JULY, 1929, TO 30TH JUNE, 1930. (IN 100THS OF AN INCH.)

Location.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	Total.
Boonah .. ..	0.56	0.90	0.37	3.95	3.53	5.67	5.93	2.87	2.54	1.97	5.65	5.89	39.83
Laidley .. ..	0.42	0.79	0.15	1.95	2.20	3.30	6.58	2.59	1.64	2.10	4.48	6.22	32.42
Lowood .. ..	0.61	1.16	0.14	5.88	1.37	3.57	6.00	3.42	2.57	1.73	4.33	6.85	37.63
Murgon .. ..	0.54	0.80	0.05	3.30	2.06	4.99	8.66	3.96	0.76	0.34	5.66	4.72	35.84
Gayndah .. ..	0.05	0.69	0.08	3.77	2.52	2.04	9.29	3.51	0.77	1.20	5.90	4.04	33.86
Eidsvold .. ..	0.23	1.11	..	3.09	2.17	2.23	7.78	2.59	1.08	0.12	4.21	3.54	28.15
Many Peaks ..	0.45	..	..	3.59	2.54	2.57	18.58	2.57	0.66	0.87	6.46	7.48	45.77
Rockhampton ..	..	0.05	0.03	2.07	3.15	2.40	26.59	4.39	1.02	1.93	4.78	10.47	56.88
Westwood .. ..	..	..	..	1.60	1.39	1.28	12.82	2.93	0.43	2.07	4.44	4.85	31.81
Wowan .. ..	..	..	..	2.93	4.37	1.75	7.55	2.72	0.89	1.03	4.42	3.88	29.54
Biloela .. ..	0.28	0.16	..	1.36	2.56	3.40	8.02	2.40	0.58	0.59	6.34	3.53	29.22



#### DIVISIONAL RESULTS.

Considering the climatic conditions, the total yield of crop has been exceptionally good. In such a widespread area variable conditions naturally existed. The following brief reviews of each of the main districts are therefore given to enable a better idea to be formed of the results which were obtained.

An appreciable increase of interest in cotton growing was noticed in many parts of the Southern District, following upon the announcement of the Government's guaranteed price. This was shown particularly in regard to conducting varietal tests. Mostly small areas were tried out, however, so that the increased number of growers did not greatly enlarge the acreage for this section. Unfortunately, severe hailstorms destroyed considerable acreage in the Brisbane Valley. The results obtained over nearly the whole of the district from both experimental and commercial plots were highly satisfactory. Those have greatly heartened the growers, and it is anticipated that a substantial increase in acreage will occur in the coming season.

The acreage planted in the Lower Burnett again showed but little change owing to somewhat unfavourable conditions during the early spring, which is when the growers in this district like to plant. Good yields, as a rule, were obtained, however, and it appears that a substantial increase will also take place in this district during the coming crop.

In spite of only moderate yields being obtained in the previous season along the Gayndah line, an appreciable increase in acreage occurred through most of the Central Burnett. The returns from the majority of these crops have been very gratifying. This has greatly stimulated further interest in cotton growing, and indications point to a splendid increase in acreage along the whole of this line.

The Mundubbera district has again suffered from an erratic season. Prospects which were extremely promising at mid-January failed to realise, due to continuous cloudy and showery weather during the rest of the month. The average yields were about equal to last season, however, and the prospects for a permanent Australian market are causing a decided expansion in acreage for the coming crop.

The Upper Burnett has experienced the worst yields of any in its existence. Somewhat late planting rains, cool night temperatures, and light rainfall until the end of December greatly retarded growth. A severe attack of corn-ear worm was then experienced during showery weather in January. The result was nearly complete loss of crop in all plantings on the fertile alluvial flats. Fortunately, dry conditions were experienced after that, so that a light crop was set in some portions. The dry conditions reacted against the large areas of cotton in the scrub soils, however, reducing their yield below the average usually obtained on those soils. Under the conditions it will be satisfactory if this season's acreage is maintained in the next crop.

The Callide Valley experienced the most variable conditions of any season of its existence.

Good early-planting rains fell over most of the district, with the exception of around the Cotton Research Station. Rather dry and cool conditions set in after that, which greatly retarded plant growth in all districts except in the northern end, where unusually favourable early rainfall was experienced. During the first half of January the worst corn-ear worm attack ever experienced in the district nearly devastated the crops in the central portion of the Valley. Exceedingly heavy rainfall followed this occurrence, and it appeared that practically no crop would again be obtained by many of the growers who received poor returns in late-planted crops of the previous season. A most unusually long, dry spell set in after that, however, with the result that very good yields have been obtained over most of the Valley. It is anticipated that the estimated 13,000 acres of this season will be substantially increased during the coming season.

The Dawson Valley experienced generally the best returns for some seasons. Early planting conditions were good, and frequent showers brought the crop into mid-season with good prospects. Many sections were somewhat dry by the end of January, but an occurrence of 7 inches of steady soaking rain over a five-day period supplied ample rainfall to bring the crop through with excellent yields. A good increase over the estimated 7,000 acres of this season will also take place in this district.

The Dawson Valley irrigation scheme at Theodore has again produced good yields of cotton. Very severe attacks by the corn-ear worm in mid-December caused considerable alarm to many growers, but remarkable recovery of crop was effected in most cases. It is anticipated that the high average yields of the last crop will be nearly equalled by the increased area of this season, which totalled around 1,200 acres.

The rest of the cotton-growing areas in Central Queensland experienced rather unfavourable climatic conditions. Very heavy rainfall occurred at different periods, which affected the crops in the few districts where cotton was grown. It appears, however, that the prospects of a permanent Australian market will again bring this district into growing a fair acreage of cotton.

In summarising the divisional results it can be stated that the yields have been fairly satisfactory considering the seasonal conditions. This and the possibility of an established Australian market for increased amounts of lint, along with the splendid rains which have fallen at the end of the season, have greatly increased interest in cotton growing. Many farmers who have not grown this crop for years have already signified their intention to try cotton again. It appears that a very substantial acreage may be expected during the coming season.

#### STANDARD OF CULTIVATION.

The standard of cultivation has again been below what it should be, especially in some of the areas where dry conditions were experienced. This may have been due to the feeling of depression existing, following upon the severe damages caused by the attack of the corn-ear worm, when many fields appeared to have little possibility of producing a crop. The growers who gave proper



cultivation to such crops, however, demonstrated the full value of such a practice. It is believed that considerable improvement in cultivation methods could be effected in some districts with very profitable results.

#### CROP YIELD FOR THE SEASON.

The yield for the season will be greatly increased over that of the previous one. In mid-July a total of 13,349,945 lb. of seed cotton had been received at the ginneries. As the lack of early frosts of any consequence allowed of the development of a very good top crop, it is anticipated that considerably more cotton will be received if the frosts which occurred at the end of June were just sufficient to open the bolls. This compares with 7,965,339 lb. of seed cotton for the previous crop. Up to this date 2,038 growers reporting on their cotton crops advised that 32,781 acres were planted this season.\*

#### QUALITY OF THE CROP.

The general quality of the crop of this season would probably have been better than any for several seasons but for the unfortunate occurrence of the prolonged period of rainfall during the first week of May. At the commencement of the ginning season a certain amount of wasty immature cotton was received, but from then on the bulk of the cotton was of a good character. As the cotton had mostly opened in bright, dry weather, the colour was excellent and an appreciably less amount of "spot" was present than has been the case in recent seasons. The dry weather tended to make the leaf and bracts brittle, however, so that a rather high amount of "pepper" leaf was present in much of the cotton received.

The occurrence of the above-mentioned prolonged rains in May completely changed the character of most of the cotton which was exposed to it. The staple was not only shortened but the strength was weakened and the colour greatly lowered. This necessitated putting an appreciable amount of cotton into lower grades and staples than would have ordinarily been done at that period of the season. The further occurrence of showery conditions during June when the top crop was opening likewise affected the quality of the crop. This cotton from the upper bolls is often of a wasty nature and usually shorter fibred than that of the middle and lower crops. The continuous exposure to rains greatly weakened this class of cotton and necessitated putting much of it into the immature grades.

#### CALLIDE COTTON RESEARCH STATION.

The Research Station has again been unfortunate in experiencing an unfavourable season, although appreciably better yields have been obtained than was the case last season.

Delayed planting, dry spring conditions, and attacks by both wire worms and corn-ear worms greatly affected the experimental work. Eventually, however, it was possible to arrange for many of the experiments, and, considering the unfavourable seasonal conditions, a considerable proportion of them have been brought through in a fairly satisfactory manner.

\* These figures were kindly supplied by the Manager of the Cotton Board.

The harvesting and analysing of the data obtained has not been completed for all of the experiments at the time of writing. When compiled they will be submitted for publication as an annual report of the Station. Some generalisations can be made at present, however. Early planting has again been of decided advantage; late summer fallowing has given most outstanding benefits; annually sown plants of a toughened growth do not appear to be attractive to corn-ear worms, even if not early planted; crops grown on newly broken virgin soils appear to have less tendency to make rank growth than do crops on old cultivation, even when they are adjacently located.

#### PURE SEED OPERATIONS.

Satisfactory progress has been made in increasing the supplies of planting seed which have originated on the Research Station. Sufficient seed was obtained last season to plant 580 acres during this present one. While a considerable proportion of this acreage experienced rather unsatisfactory conditions, it appears that at least 235,000 lb. of seed suitable for planting purposes will be obtained. As this will be insufficient to meet the whole of the Central Queensland requirements for the coming season, a stock of 600,000 lb. of seed from the higher grades of the crop grown in the Callide Valley has also been saved. The seed used in sowing these crops came from the increased stocks of last season, so the whole of the Central District will be planting seed of a higher quality than has ever been the case before.

The development of a supply of acclimatised Durango seed in the Upper Burnett has been greatly retarded this season through adverse seasonal conditions and losses from attacks by the corn-ear worm. In common with the rest of the crops of the district, very low yields will be obtained from the pure-seed plots. It is anticipated, however, that sufficient seed will be obtained to enable approximately 400 acres of improved seed to be planted in the district during the coming season. Portions of the district in which the seed grown in the increase plots of last season was sown, produced in a more normal manner, so it will be possible to supply the whole of the southern districts with improved seed which has originated from the Departmental breeding plots.

In addition to the development of improved strains of the Durango variety, substantial progress has been effected in acclimatising the various varieties which have been introduced by the Department. In a number of varietal tests which were conducted during the season the behaviour of one of these cottons on the rich soil flats was so promising as to warrant testing it out on a large scale with growers in the districts where Durango has shown a tendency to make excessive growth at the expense of crop. Accordingly, during the coming season, some 350 to 400 acres of the Lightning Express variety will be put out with isolated growers. Satisfactory progress was also made in obtaining improved strains within this variety, as was also the case in some of the large-bolled varieties, which may be more suitable than is the Durango on the droughty soils of the upper slopes of the Southern District.



### EXPERIMENTAL PLOTS.

The increased interest in conducting experimental plots which has been shown by the growers this season has been most gratifying. Each season a large number of experiments dealing with varietal tests, fertiliser trials, and cultural methods are arranged for with grower co-operators. Much information has been obtained from these plots which has been of decided value to the field staff in assisting the growers in the different districts. Considerable loss of efficiency in this work has been experienced in the past, however, through a large percentage of the plots failing to come through to maturity in a satisfactory manner, due to various causes. During this past season decided improvement in this feature has been effected, and much valuable information has been obtained. I wish to acknowledge the assistance which many growers gave to the members of the field staff in carrying out the various experiments. The accumulated data which is being obtained from such plots is providing a most helpful amount of information for use in attacking the various problems connected with cotton growing in this State.

### GRADING.

The grading of both the seed cotton and lint has again been performed by the staff of Government graders. As in previous seasons, sets of type samples of Queensland lint based on the World's Universal Standards for American cotton were made up for use in disposing of the crop to Australian spinners. Likewise, sets of type samples of the different grades and qualities of Queensland cotton were made up for requests for the same received by the Manager of the Cotton Board.

### INSECT PESTS AND DISEASES.

The attacks of various insect pests have again affected the cotton crop to an appreciable economic extent.

There was very little damage caused by cutworms (*Euxoa radians* Guen.) although maize on the Research Station was attacked by this pest early in December.

Severe damage was caused by the corn-ear worm (*Heliothis obsoleta* Fab.) in nearly all of the districts. The irrigation district at Theodore was the first to experience an attack, which occurred around Christmas week. This was most widespread and attacked crops on all classes of soils with the exception of the most advanced ones. Many fields were nearly defoliated, especially on the heavy soils where the plant growth was somewhat late and of a succulent nature. Fortunately, the losses were mostly confined to this attack, as very heavy crops developed from mid-January onwards. In many of the fields where the plants were badly mutilated, a vigorous development of vegetative branches occurred after the attack. These formed a splendid fruiting structure, with the result that crops which once appeared practically worthless yielded up to 1,200 to 1,500 lb. of seed cotton. The Callide and Wowan districts were the next to experience an attack, which

commenced around the 1st January. On the Research Station and many adjacent farms not more than 5 per cent. of the terminals of the main stalks were left, and often even the vegetative branches were badly mutilated. The development of such attacked crops following the rains at the end of January at first gave little promise of any crop being formed. The setting-in of a long, dry spell hardened the plants, however, and while they still appeared sufficiently succulent to attract corn-ear worm, it cannot be stated with certainty that much damage was experienced from the March and April broods of this pest. The attacks in the Upper Burnett and Mundubbera districts apparently did not commence until the middle of January. In the former district the damage done in the crops on the alluvial flats was the most severe of any ever experienced in that section. Much of the crops on the scrub soils escaped with very little damage. In the Mundubbera district the early-developed crops on all types of soils escaped with little damage, but late crops were rather badly attacked.

Very little damage was experienced along the Gayndah or Kingaroy lines. Rather severe attacks occurred in mid-January in parts of the Southern District, especially in rank-growing crops. Fortunately, little further damage was done after this with the result that heavy late middle and top crops developed. It has undoubtedly been the worst season for this pest for several years as regards the damage done by the December and January broods. The February and March broods did not cause so much damage, with the exception of the rich, alluvial flats around Monto, in the Upper Burnett. Here a heavy attack was maintained until the end of April.

The explanation of such a heavy attack is not clear. The past results obtained from time-of-planting experiments and in commercial crops have indicated that early-planted crops, provided they make good development during the early stages of their growth, usually experience little loss from attacks by the corn-ear worm. During this past spring the early-planted crops generally were backward in their growth, except where local showers occurred. In such favoured localities the corn-ear worm attacks were not severe. This may explain the severe attack experienced in the irrigated district at Theodore. Much of the soil there is of a heavy clay type, and under the cool night temperatures during the early season very retarded plant development took place. This was in marked contrast to the crops on the sandy loams, where nearly normal cotton existed through the season. The late-developed crops on the clay soils were badly attacked, and at one period gave little promise of producing a crop. However, the absence of damage by the late broods of corn-ear worm allowed of the setting of a heavy top crop, which mostly was harvested through the freedom from early frosts.

The pink boll worm (*Platyedra gossypiella* Saunders) was not noticed in such large numbers in the seed cotton arriving at the Glenmore Ginnery as in previous years.



Likewise, there was a marked reduction observed in the numbers of stainers (*Dysdercus sidae* Montr.). The seed cotton reflected this absence of stainer attacks by the much smaller amount of diseased locks occurring throughout the season. *Tectacoris lineola* F. was again practically absent throughout all districts. The False Stainer (*Aulacosternum nigrorubrum* Dall.) was present in all districts through most of the season. Several opportunities occurred during the season, at both the Research Station and in the Southern district, to observe this insect alighting on a green boll and feeding on it for some time. It can be definitely stated for the first time, therefore, that this insect feeds on the green bolls. This may account for much of the damage from boll roots which has been difficult to explain in past seasons when *Dysdercus* and *Tectaroris* were nearly completely absent for certain periods of the year.

#### ACKNOWLEDGMENTS.

Mr. Brännich and his staff have again given a large amount of assistance relating to soil problems. This is especially true of the work conducted at the Cotton Research Station, in which a large number of soil moisture determinations were made.

Mr. Coleman and his staff have again tested a large number of seed samples for germination.

The section has unfortunately been without the services of a full-time entomologist during the year. Mr. Veitch and his staff have assisted, however, in whatever ways possible.

I am also indebted to the Principal of the Gatton Agricultural High School and College for several pure-seed plots which were grown at the Institution, and for much student assistance in the sowing operations carried out in these plots.

W. G. WELLS, Cotton Specialist.



## REPORT OF THE DIRECTOR OF FRUIT CULTURE.

Prevailing conditions in the different fruit districts during the year have been variable, but on the whole reasonably favourable for fruit production.

### THE GRANITE BELT.

Temperate fruits from the Stanthorpe district have shown to much advantage.

Mr. H. ST. J. PRATT, District Instructor in Fruit Culture, in his report states:—

This season the growers of early stone fruits did exceptionally well up to new year, subsequently prices were disappointing for all classes of fruit and also vegetables. Crops of all kinds were large. Although prices, generally speaking, have been much lower than last year, many growers have done equally well, especially those who have established private markets.

Although there is still room for improvement a better class of fruit is, each year, being marketed from Stanthorpe; more thinning out was done than previously, and the large crop just experienced has brought home to many growers the absolute necessity of only growing and marketing the very best. A large number of poorer varieties are being gradually eliminated, but the process is necessarily slow.

The Department's officers serve quite a useful purpose in collecting and distributing scions of approved varieties from specially selected trees.

An outstanding feature of the year has been the remarkable absence of the fruit-fly, which has been considerably less than at any period during the last ten years. The same cannot be said of the codlin moth, and this problem must be taken very seriously. It is a pest that can be controlled, and any grower who is more or less free from moth can take all the credit to himself and, conversely, a grower who has suffered severely must take most of the blame. There has been a very large crop of grapes harvested due to a great extent to the weather being so favourable to grape production.

The export of fruit from the Summit district is a feature of last season; 2,500 bushels of apples during late January and February were supplied to the Receivers Ltd., Singapore. The fruit arrived in good condition as did also a trial shipment of pears, peaches, and plums, thereby demonstrating that each of these classes can be exported to the East provided that sufficient care is taken in handling, grading, and packing, also due regard to picking at the right time. Two hundred cases of apples were sent

to Colombo and 100 to Hamburg to test the markets. Brief reference should be made to the exhibits by Mr. Donald Gow, who so successfully competed in the Fruit Exhibition held at Hobart this year, and also won the special export apple class associated with the Sydney Royal Show. It is expected that further heavy planting will be effected in the season.

### CITRICULTURE.

The citrus season is not entirely satisfactory. Large quantities of Southern fruit on the markets has its influence on all local productions, and the prices for average quality oranges and mandarins have suffered in consequence, though really first-class fruit commands high rates. The excessive presence of mould has caused serious losses which cannot, with the information available, be economically and effectively prevented. Its presence is mainly attributable to coastal conditions. In fruit produced in a drier atmosphere it is almost or entirely absent. The persistent attack of fruit-fly was responsible for appreciable losses early in the season; there not appearing to be any attempt at general effort towards its control or reduction.

Concerning citrus production generally, Instructor Prest reports:—

Along the Coastal Belt many orchards are deteriorating, and with few exceptions commercial areas will gradually become non-existent. The industry must move further west to centres with suitable soils and ample and suitable water for irrigation, such as the Burnett and part of the Roma district, with possibilities in the Dawson and Callide Valley.

In the Gayndah district a steady improvement is noted in the trees and quality and quantity of their product. From Byrnestown most excellent exhibits of citrus were staged at the Hobart Fruit Show from Mr. W. Benham's orchard. It was generally admitted that no finer specimens, particularly of Lisbon lemons, could be produced in any part of the world. With the gradual elimination of undesirable orchards and improvement continued in others, the Blackall Range can ensure for this district a small but remunerative industry.

Howard and Burrum are similarly situated, though it is noted that despite repeated warnings orchards are still being planted in unsuitable soils.

In experimental plots which have been established in different centres the advantages of



judicious fertilising improvement of soil conditions and green manuring have been satisfactorily demonstrated. The improvement in trees will be gauged from the following details (from two plots):—

*Gayndah Plot.*—1928 yield, 1½ cases small fruit per tree; 1929 yield, 1 case large fruit per tree; 1930 yield, 5 cases large even fruit per tree.

*Mapleton Plot.*—1928 yield, 1 case per tree small fruit; 1929 yield, 3 cases per tree medium fruit; 1930 (estimated), 6 cases per tree large fruit.

Improvement in productivity and ensuring stock being true to type by selection of budwood has been under consideration for some years, and as a result trees are being propagated from parents possessing ideal qualities. An area of land has been leased near Gayndah, where these will be grown for the purpose of supplying the requisite budwood to nurserymen for propagation, whereby it is anticipated that young trees fulfilling necessary requirements will be available to planters at reasonable cost.

#### PINEAPPLE CULTURE.

Pineapples have given reasonable returns, but from obscure reasons the longevity of plantations has been very much reduced, plants showing more or less decay after a few years.

Fungi and nematodes are considered to be mainly responsible and await further investigation. A small experimental plot has been established at Elimbah for determining the effect of soil treatment, but this will not offer conclusive deductions under four or five years, possibly longer. During the first year the most noticeable effect is that attributable to a liberal application of potash to the soil. Though pineapple culture is practically confined to Southern Queensland, it does not follow that the best results are there obtained. The Bowen district produces heavy crops of excellent fruit, as does also the more tropical North, where some disadvantage occurs with the smooth-leaf variety through the fruit being too large for market; consequently the rough leaved kinds receive most attention. Instructor Stephens advises "that there is much room for further planting in the Cardwell district. Though the crop matures rapidly, the Ripley variety is recognised as being the best flavoured, and in the Northern districts matures at a favourable season for marketing."

A collection of all varieties available, including those raised in the State, has been planted in the Northern Experimental Station, where conditions for propagation by seeds are most favourable. It is confidently anticipated that by taking advantage of these conditions new and improved kinds will be evolved. There are no available records of this being attempted systematically in other pineapple-producing countries.

#### BANANAS.

Bananas are our most important fruit product, and it is unfortunate that introduced pests have exercised such a serious influence on production, and in respect to the weevil borer that no efficient means of control have been devised. Fortunately its presence in the North is not attended

by nearly the same amount of injury as in the Southern and Central districts, and it is very probable that we may again have to look to North Queensland for our main supplies. The spread of "Bunchy Top" further north has been very limited, and with the additional powers conferred by recent legislation more effective control can be expected. It could also be suggested that much more consideration be given by potential planters in the selection of land. Unfortunately the high percentage of inferior land devoted to attempts at banana culture has a serious influence on the average production.

Exports have been reasonably well maintained, though the size of the fruit has not been invariably up to required standard.

In collaboration with New South Wales representatives agreement upon slightly reduced size grades were adopted. This is not complimentary to our supplies. The Advisory Board under the Banana Industry Protection Act is not yet beyond the temporary stage, but it has advised the Minister upon a planting policy since adopted and calculated to prevent the further spread of "Bunchy Top" northward, and attempt control in districts where it is already established.

#### MISCELLANEOUS FRUITS.

Amongst miscellaneous fruits the cherrimolia or custard apple receives most attention, and though the market last year was much depressed, it has this season materially improved, attributable in some measure to the application of maturity standards on market fruit.

Mangoes on local market have shown a higher percentage of better quality fruit. Many suppliers have awakened to the fact that the common Batavia variety is not worth marketing. A ready and remunerative sale in Southern capitals still awaits supplies of first-class mangoes.

Figs have been rather plentiful, but factory price, 2½d. per lb., does not leave a very wide margin of profit. Increased and regular supplies of table grapes of excellent quality were maintained throughout the season at reasonable rates.

Coastal peaches were also fairly plentiful and free from fruit-fly, which suggests that if the pest can be controlled in suburban peach gardens by systematic luring and dealing with fallen fruit, the same measures would be efficacious in citrus orchards.

Strawberries were rather plentiful and canning prices satisfactory. Tomatoes have been plentiful and local prices below the average. The season has been favourable for this crop without much loss from disease, but towards the end of the season under less congenial conditions blight has affected an appreciable quantity. The quantity and quality of Bowen exports has been well maintained. The desirability of bringing new land under crop is being recognised and given effect to.

#### GENERAL.

With practically all varieties areas are being increased, more particularly in respect of bananas, citrus and deciduous fruits. Local nurseries report a heavy demand for trees, except figs, coastal peaches, and plums. Lemon trees



were exported to New South Wales. As almost the whole of plants for Stanthorpe district are imported from the Southern States, and these are not always of even fair quality, it is desirable that standards for fruit trees for planting either introduced or locally produced be prescribed. This feature is considered in several countries, but unfortunately was omitted when "*The Diseases in Plants Act of 1929*" was compiled.

Regarding the far Northern district, Senior Instructor Ross reports:—

Generally the quality of fruit marketed showed improvement over that of the previous year. There is still room for improvement in grading and packing; citrus fruits have been reasonably free from scale insects. Amongst bananas rust (thrip injury) has not been so persistent, but with leaf spot continues to be a cause of anxiety. Though the bananas are not in most places equal to the dimensions of those produced in former years, the area planted is being appreciably extended. Apathy still exists amongst Chinese growers in respect of the condition of their plantations, but improved methods are noted in those conducted by Europeans. The Cavendish variety prevails, but Gros Michel is now receiving more attention than formerly. (NOTE.—A private correspondent from Bellenden, Tully River, advises having maintained a price of 36s. per case in Sydney for Gros Michel bananas 12 inches by 5½ inches in girth.—G.W.)

Expansion in citrus areas has taken place over a wide field, which is in part responsible to restrictions against further planting of sugarcane. Present production is equal to Northern

requirements. Isolation and expensive transport have been responsible for the Cook district practically ceasing production. Seedling trees formerly predominated, but worked trees are now most in demand.

In tropical fruits papaws and granadillas predominate from the market aspect, but with improved varieties, oranges would undoubtedly command most attention. The Java mangosteen is represented by a single developed specimen, which has been successfully transferred from Kamerunga to Bartle Frere, where it will be turned to account for providing material for propagating.

#### TEMPERATE FRUITS.

The absence of rainfall during the season of growth and its superabundance about the ripening period is not conducive to the best results being obtained. Passion-fruit are receiving more attention and a good winter crop is now available.

#### STAFF.

The work of the various field and port officers has been satisfactorily performed, and where unpleasant duties were involved these were conducted with a minimum of friction. In several instances prosecutions were reluctantly conducted both for breaches of the Diseases in Plants Act in the field, and under the Fruit and Vegetables Act, for topping fruit in the town.

Exports and imports to and from the Southern States, also overseas, during the year are as follows, and from which it will be noted that the balance is much in favour of this State:—

#### EXPORTS AND IMPORTS FOR QUEENSLAND FOR YEAR ENDED 30TH JUNE, 1930.

##### EXPORTS.

District.	Bananas.	Arrowroot.	Pines.	Tomatoes.	Potatoes.	Vegetables.	Bird and Grass Seed.	Pumpkins.	Maize.	Peanuts.
	Cases.	Cases.	Cases.	Cases.	Bags.	Packages.	Bags.	Bags.	Bags.	Bags.
Brisbane .. ..	13,225	8,437	6,477	1,454	6,456	3,433	3,827	59,308	72,272	30,475
Wallangarra .. ..	702,687	..	224,231	661,023	4,403	33,933	..	21,300	..	..
Rockhampton .. ..	..	..	..	..	..	..	..	..	..	..
Bowen .. ..	1,180	..	97,590	300,407	..	79	..	7,241	..	..
Townsville .. ..	..	..	..	..	..	..	..	1,459	..	..
Innisfail .. ..	2,137	..	1,532	2,970	..	..	..	..	..	..
Cairns .. ..	..	..	..	..	..	..	..	..	80,872	..
Totals .. ..	715,942	8,437	230,708	662,477	10,859	37,366	3,827	80,608	153,144	30,475

District.	Plants.	Ginger.	Various Fruits.	Cucumbers.	Passions.	Mangoes.	Citrus.	Strawberries.	Egg Fruit.	Chillies.
	Packages.	Bags.	Cases.	Cases.	Cases.	Cases.	Cases.	Trays.	Cases.	Cases.
Brisbane .. ..	4	72	265	2,299	320	7	196	..	..	..
Wallangarra .. ..	144	..	77,547	..	..	..	15,992	35,744	..	..
Rockhampton .. ..	..	..	..	..	..	..	..	..	..	..
Bowen .. ..	..	..	224	8,259	..	3,168	..	..	924	207
Townsville .. ..	..	..	162	..	..	..	..	..	..	..
Innisfail .. ..	..	..	1,181	385	..	..	50	..	..	..
Cairns .. ..	..	..	..	..	..	..	9	..	..	..
Totals .. ..	148	72	77,812	37,429	320	7	16,188	35,744	*	*

\* Included in Wallangarra Miscellaneous.

NOTE.—Export totals are made up of Brisbane and Wallangarra totals, the intervening ports being included in the Wallangarra returns, with the exception of Cairns maize, which is by sea.



IMPORTS.

District.	Fruit.	Potatoes.	Vegetables.	Onions.	Turnips.	Plants.	Seeds and Bulbs.
	Cases.	Bags.	Bags.	Bags.	Bags.	Packages.	Packages.
Brisbane .. .. .	240,376	233,253	8,162	45,332	6,538	290	31
Wallangarra .. .. .	252,104	47,286	4,246	..	..	599	1,771
Rockhampton .. .. .	..	17,291	748	8,468	..	56	..
Bowen .. .. .	1,064	3,380	120	1,275	..	4	..
Townsville .. .. .	20,766	28,636	507	13,464	..	28	..
Innisfail .. .. .	..	..	..	..	..	..	..
Cairns .. .. .	7,865	22,598	991	6,777	297	33	107
Totals .. .. .	522,175	350,804	14,774	75,316	6,835	1,010	1,909

IMPORTATIONS UNDER THE QUARANTINE ACT.

Timber.

Cigar Box Timber.	Bamboo Poles.	Staves.	Rattans.	Logs.	Sea Grass.	Super. Ft.	Miscellaneous Timbers.	Pieces.	Willows.
5 cases	5 bundles	280,375	2,793 bundles	916	50 bundles	9,805,499	8,308 bundles	123,285	127 bundles

General Food Goods.

Brisbane, 51,603 ; Rockhampton, 1,872 ; Townsville, 12,694 ; Cairns, 10,367.

IMPORTS BY PARCEL POST AND COMMERCE ACT FOR BRISBANE.

Parcel Post Quarantine Act.

606 packages seeds and bulbs.

Commerce Act.

1,523 packages.

NOTE.—Commerce inspection taken over by Commonwealth Meat Export Branch on January, 1930.

GEORGE WILLIAMS,  
Director of Fruit Culture.



## REPORT OF THE SUPERVISOR OF DAIRYING.

The year 1929-30 has generally been characterised by favourable weather conditions over the major portion of the State where the dairying industry is established. In portions of the South-west dairy district the climatic conditions were not favourable, nevertheless the output of butter for Queensland was in excess of that of the previous peak year, 1928-29, by over one and a-half million pounds. Cheese production fell short of that of the same year. The liberal rainfall experienced spread over the year produced a good supply of native pasturage and fodder crops, ensuring a fairly regular production from month to month.

As the result of a succession of favourable years the industry has shown a marked expansion.

In the Central and Northern sections the expansion has been marked, and as large areas of fertile land will in the near future be available for settlement, a continuance of activity in the dairying division can be looked for. It is gratifying to note that the dairy farmers are becoming alive to the necessity of improving their herds, as is evidenced from the increasing number of cows tested and the introduction of better-class dairy sires to the herds.

The erection of large modern factories in place of the existing ones was a feature of the year's work.

The number of butter and cheese factories in operation during the year was 51 and 64 respectively, while one condensory operated.

The amount of capital invested in the industry in the State is approximately £37,000,000.

The value of the output of dairy produce for the year 1929-30 is approximately £7,500,000.

The following table shows the amount of butter produced and how marketed during the period under review.

1929-30—SALES.

Production.	Local.	Interstate.	Overseas.
lb.	lb.	lb.	lb.
75,999,058	23,541,784	4,743,872	47,249,328

### INCREASE IN HOME CONSUMPTION.

It is gratifying to note an increase in the consumption of dairy products. Industrial conditions have a direct influence on the quantity of dairy produce used as food, and with a return of prosperity further increase in the consumption of dairy products can be looked for.

To meet the demand of consumers throughout the Commonwealth, dairy products of first-grade quality are marketed.

*Markets.*—When the season opened the market was firm and maintained a uniform high level for butter up to 20th February, 1930, the aver-

age selling price being 214s. 8d. per cwt. for butter and 116s. 8d. per cwt. for cheese, which was considered satisfactory for those engaged in the industry.

From February, the local price of butter declined in sympathy with the weak market ruling overseas. From the beginning of June the local market firmed to 205s. 4d. per cwt.

The overseas market showed only a slight recovery over this later period, the price at the close of June being still low.

*Quality of Butter.*—The co-operation of the Federal and State grading officers gives the officers of the State an opportunity of forming a reliable opinion of the quality of butter exported and supplied to other States as well as that marketed within the State from year to year, as practically all such products are examined by State officers. From the information derived from the grading records a comparison can be made of the quality of the output of the butter factories, and also of the effect of seasonal variations on the quality of the butter.

From an analysis of the grading results it is ascertained that progress has been made during the year, and that a considerable improvement has taken place in the quality of the butter produced.

All the factories that had previously produced butter of a high quality maintained or improved the standard of their output during the year, while quite a number of brands have been considerably improved.

The condition, body, and texture of the butter examined were generally excellent, due to the provision of ample modern refrigeration and manufacturing units in butter factory equipment. While there has been a general improvement in the quality of the butter, the output from a few factories did not reach the uniform high standard of quality desired.

The quantity of second-grade butter manufactured is much too great, and every endeavour must be made with a view of reducing its output to a minimum.

The marketing overseas of large quantities of butter defective in flavour and generally low in quality has a depressing effect on the market.

### PASTEURISATION—DEODORISATION.

The system of pasteurisation is generally applied to cream used in the manufacture of butter, and the extension of the system of deodorisation of cream has taken place.

Where deodorisation of cream has been adopted, an improvement in the quality of the product has been obtained. The process removes volatile and volatible food flavours and odours from the cream, and in many cases improves the flavour of the butter by one and a-half to two points.



*Quality of Cream.*—The installation of modern equipment and the introduction of improved methods of processing the cream do not allow of any relaxation in effort on the part of the producers to deliver a high-grade cream to the factory.

The expansion of the industry will increase the exportable quantity of butter, and it is imperative that every effort be made to produce a butter of a uniform high quality that can compete successfully with the product of the dairying countries of the world on the overseas markets.

There was a small increase in the amount of first-grade cream supplied to the factories, but the quantity of secondary grades received at factories contributes a heavy loss to the producers and detrimentally affects the industry generally.

The cost of manufacturing and packing the product of a low-grade cream exceeds that of a first-grade product. As the market within the Commonwealth for butter below first grade is limited to the small quantity used in cooking, all second-grade products have to bear the export charges, freight, wharfage, storage, &c., on an equal basis with the first-grade product. As the price realised for butters below first quality is much less than that obtained for first grade, the loss to the industry is considerable.

The defects met with in cream delivered to the factory are varied and may be classified as—

- (1) Defects in flavour and odour arising from the dairy cow consuming foods that impart an undesirable pungent odour or flavour to the milk and its products; and
- (2) Various defects of a bacterial origin due to laxity in the production and handling of the milk and cream.

Seasonal conditions favourable to the bountiful growth of herbage are reflected in the strong feed odours and flavours in the cream.

Such defects are eliminated or are decreased by the process of pasteurisation and deodorisation of the cream.

Pasteurisation and deodorisation will not, however, raise the quality of a cream bacteriologically affected to a first-grade product.

Efficient methods in production and handling of the milk and cream on the farm eliminate the many sources of bacterial contamination, and assure the production of a high-quality product.

The extension of the service of power vehicles on rail and road serves the best interest of the industry, conducing to more frequent deliveries and quicker despatch of cream from farm to factory.

#### MANUFACTURE.

A general improvement was in evidence in the quality of the butter produced. The majority of the brands of butter were more uniform in quality, indicating care in the grading and processing of the cream and its manufacture into butter.

Efficiency in methods of manufacture and improved facilities for the storing and despatch

of butter from the factories to grading floors was reflected in the excellent body, texture, and condition of the greater proportion of the butter examined.

A few brands of butter did not attain the desired standard, being irregular in quality and wanting generally in the characteristics that are essential to a high-grade butter. Attention to the grading of the cream, and the discontinuance of the practice of adding border cream to the first-grade product, will raise and standardise the quality.

*Moisture in Butter.*—Examination of butters throughout the year disclose that the moisture content of the majority of the leading brands of butter was more uniform. In a few instances the maximum allowed was exceeded, and the butter was held and reworked or was disposed of for cooking purposes. Departmental instructors visited a number of factories to advise on the methods of manufacture to be adopted in standardising the moisture content of the butter.

*Weights.*—While the weights generally were satisfactory, some brands of butter were packed short weight, while others had excess weights up to as much as 1 lb. All the scales used in factories should be regularly checked.

*Packing, Finish, and Branding.*—The packing and finish of the butter was generally satisfactory, adding to the attractiveness of the product, while the uniformity of marking assists the grading officers in carrying out their duties.

The placing of an additional strip of butter parchment paper horizontally in the box completely envelops the butter in the parchment and tends to prevent contamination from outside sources. This system of papering the butter boxes has been adopted by most of the butter factories, and its general adoption is strongly recommended.

#### CHEESE.

During the past year the amount of cheese manufactured did not reach that of the previous year.

The following are the particulars of manufacture and disposal of cheese during the period:—

##### 1929-30—SALES.

Production.	Local.	Interstate.	Overseas.
lb.	lb.	lb.	lb.
12,374,705	3,141,738	4,644,908	3,427,631

From year to year the production of cheese fluctuates, the quantities made showing but slight increase.

A number of producers supplying cheese plants make a practice of giving their patronage to butter factories when the latter pay higher prices for butter fat than that paid by the cheese factories, owing to the difference in the overseas market prices for cheese and butter.

Amongst producers there is some difference of opinion as to whether the conversion of milk into cheese or butter is the more profitable.



In order to arrive at a definite conclusion it is necessary to make a comparison over a number of years and not on one or two years only.

The wide fluctuations in the prices of cheese and butter during the period under review were responsible for abrupt swings over from cheese to butter, and vice versa, by a number of suppliers.

Frequent and material alteration in the quantity of milk supplied to cheese plants disorganise their operations, increase cost, diminish efficiency, and unduly tax the producers.

From an analysis of the position for the past few years, and judging by the favourable outlook at present, it would seem that the producers of the State are assured of a good overseas market for first-grade Cheddar cheese.

The manufacture of cheese is confined chiefly to the Darling Downs portion of the State, and as far as can be seen the dairy farmers who decide to give their wholehearted support to the cheesemaking branch of the industry will incur no risk whatever, and should receive as remunerative a price for their milk as their fellow dairymen who supply butter factories.

Queensland is the largest cheese-exporting State of the Commonwealth, and there is an opportunity of building up a much larger connection in the cheese business than we possess at present.

Some 50 per cent. of the cheese manufactured is the product of pasteurised milk, and pasteurising plants are being gradually installed. During the past year a number of cheese factory premises have been enlarged and improved and equipment modernised.

A number of companies are considering the matter of carrying out extensive improvements, which have been delayed owing to the stringency of the money market. There is every prospect, however, of activity in carrying out necessary improvements.

*Quality.*—The quality of the cheese supplied to State and interstate markets and that exported during the period reviewed exhibited a slight improvement as compared with 1928-29 season.

The cheese forwarded at that time from the larger factories was clean in flavour, with good body and texture.

During the warmer weather the flavour and make of the cheese was irregular, owing no doubt to the flavour and quality of the milk being faulty.

Weak, loose, open body and condition is considered a serious fault in cheese, both on the Commonwealth and overseas markets, and the importance of making a cheese with a uniform close body and a smooth, silky texture must be strongly emphasised.

The cheese made from pasteurised milk was more uniform and generally of a higher quality than that produced from raw milk.

Where pasteurising plants were installed, there was a striking improvement in the quality

of the pasteurised cheese compared with that manufactured previously from raw milk.

Where defects occurred in the output of factories, instructors and field officers of the Dairy Division made a visit to as many factories as possible in order to assist cheesemakers to overcome their difficulties, and considerable improvement in the quality of the milk and the cheese resulted from their efforts.

It is evident that the cheesemakers could manufacture a higher-quality cheese provided all the milk was up to the standard of that supplied by the careful methodical producer.

*Cheese Transport Facilities.*—The co-operation of the Railway Department has given an improved service generally, and an extension of facilities will be available for the coming season by the provision of iced cars.

Such provision will allow of the cheese reaching the grading floors in a suitable condition for grading.

*Cheese Investigation.*—Investigations into defects in cheese are being carried out by a committee consisting of Professor Murray, Mr. C. J. Pound, and myself. In connection with this work all the cheese factories in the State, exclusive of three small factories operating in North Queensland, have been visited and data collected.

The colour defect known as mottled conditions was not in evidence during that period, and will be the subject of observation and investigation in the coming season.

Officers have been engaged in the capacity of judges of dairy products at various shows and at the Dairy Factory Managers' Annual Competitions.

As Departmental representative, meetings of the butter and cheese boards were attended, and the co-operation of the controlling bodies and the Department has been of great assistance in furthering the interests of the industry.

#### HERD RECORDING.

*Grades.*—The work in this division has been estimated, and some interesting figures will be found in the report compiled from the records of the testing officers by Mr. Andersen, who has charge of this section.

Herd recording enables the dairyman to reject unprofitable animals from his herd and to breed from the best. It also enables him to use high-grade dairy sires bred on production lines to the best advantage. The work is being carried out over a wide area extending from as far north on the Daintree River and to the border. The testing officers have been fully employed throughout the year, and favourable seasonal conditions point to increased activities in the coming year.

While realising that much remains to be done, it is satisfactory to realise that progress is being made year by year.

The number of cows tested amounted to 13,920.

*Purebred Herd Recording.*—It is pleasing to record that the efforts of the Department to have



an increasing number of purebred females submitted to the official long distance recording has met with the approval of stud masters generally, and increased activity in this division has resulted.

Several stud breeders have written to the effect that they intend to retain only such females as qualify for entry into the Advanced Register in their herds.

#### DAIRY CATTLE IMPROVEMENT SUBSIDY SCHEME.

The provisions of the scheme are being availed of by dairy farmers throughout the State, and some high-class sires have been introduced from other States of the Commonwealth and from New Zealand.

The operations of the scheme have given an impetus to the breeding of a better-class dairy stock, and a number of dairymen who introduced a subsidised sire have since purchased and introduced high-class females into their herds.

A number of young men have recently taken up the breeding of high-class dairy stock, and have laid the foundation of what should be a profitable business to themselves and a valued asset to the industry.

The following report has been submitted by Mr. G. H. HEERS, Senior Grading Inspector:—

#### BUTTER.

The season just closed may be regarded as one of good average, and though rain for the dairying districts was generally insufficient during the spring and early summer months, the total quantity of exportable surplus butter over the whole period reached 869,883 boxes, which was slightly higher than the two preceding years. This was mainly due to the excellent conditions which obtained right through from the early new year. This is best shown by the exportable surplus available in Brisbane for December being 58,202, against which the following month, January, produced 124,729 boxes. As was the case in 1929, February again proved to be the peak month, the figures rising to 133,596 boxes, but with a continuance of ideal conditions it is somewhat difficult to understand the drop from 102,000, in April, to 49,318 boxes in May, especially as the early winter remained very mild.

The quality was generally better, and no less than 85,000 boxes more graded 93 points or better than in the previous year.

The actual figures for choice and first grades for the corresponding periods were—1929, 657,537 boxes, and 1930, 683,791 boxes.

During the flush months, when the cream delivery would necessarily be more frequent, the quality was maintained at a very high standard. This was evidenced at the recent Factory Managers' Show, where quite a number of butters taken from ordinary consignments three months previously were consistently worth on the flavour basis as much as 93 and 94 points—an excellent test as to how good butter would arrive in London. Manufacture generally was

particularly good throughout, and it was pleasing to note the absence of stickiness so prevalent in our coastal districts of recent years. In fact, the general character of our butter would compare favourably with that produced in the best butter-producing countries anywhere, whilst on quality it is pleasing to be able to state that generally all butters seen in Brisbane from North Queensland have been most satisfactory, which augurs well for the future of the industry, because the dairying on a large scale in North Queensland would assist in keeping a more continuous supply on the overseas markets, a most important factor in holding the trade for Australian butter.

Packing, however, provided a serious fault, which in view of the results obtained during experiments conducted by the Wood Taint Investigation Committee is regrettable.

During these tests it was clearly demonstrated that air spaces are a big factor in providing the agent for surface and wood taints. The Department, as a result of these experiments, immediately advised the use of a third sheet of parchment placed horizontally in the box in order that air might be excluded and the butter further protected. Very beneficial results have followed the use of this method of packing; still, it is hard to understand why several factories refuse to accept the advice tendered. It should be the duty of every factory to use a good box, the best wrapping paper, and pack the butter so as to allow for no creases or air spaces. It is believed that as a result of the work done in connection with these wood taint experiments, it is possible that we are on the eve of an important discovery in connection with surface deterioration, but in the meantime packing as recommended by the Department will greatly minimise surface defects of which we have heard so much in recent years.

Weights and moisture content have shown some improvement in uniformity, but neither is by any means perfect. Both of these matters should not be too lightly regarded, as either one or both are big factors in what might make or mar a factory's success.

Queensland has for various reasons gradually departed from the uniform cube box which has long served us so faithfully and well. With the price of timber advancing, an effort has been made to introduce a cheaper type of box by using thin timber both in the plain and wire-bound form, and though there appears to be no sound reason why it should do so, surface defects invariably were associated with consignments whenever the change over took place. Hitherto Queensland has always prided herself with having the best and strongest package arriving on the London market. It has been often said that the buyer gave a premium of 6d. to 1s. per box on this account, so that the cheapening of the box may not be as economical as it would at first appear. There can be no gainsaying that the present medley of boxes used is no advertisement for either the Queensland timber or butter industries. After all, is it a wise policy to endanger a commodity worth £5 for the sake of 6d., the difference between the price of a good and a doubtful box?



## CHEESE.

The cheese output was less than the two previous years. This may to some extent be accounted for by the fact that portion of the Downs, where almost all our cheese is produced, suffered more from drougthy conditions than other dairying centres. The total number of crates submitted for export for the season was 55,203. The discolouration trouble which played such havoc with our cheese during the two preceding years was negligible this season, and in consequence the grading showed a distinct improvement over that of 1929. Notwithstanding this the general quality of our cheese is far from satisfactory. It has been frequently noticed that brands on a satisfactory standard periodically, for no apparent reason, drop several points in quality from one day's make to the next.

After remaining down for a few days the quality gradually improves and within a week or so regains its former level. The very feature of this cheese, backed by this convincing evidence, makes it fairly clear that the cause may be put down to colostrum milk. Every dairyman supplying milk to a cheese factory should on no account send the milk of a freshly calved cow for cheese making. Section 18, subsection iii. of "*The Dairy Produce Act of 1920*," provides that it is unlawful to sell any abnormal milk, including that which has been drawn from a cow within seven days directly following on parturition.

It must be remembered that the addition of the milk from one cow will spoil the whole vat in which it is placed.

*Colour.*—The matter of colouring cheese to the requirements of the various markets is now being better understood. There is, however, some difficulty with cheese intended for processing within the Commonwealth. The bulk of this cheese is submitted for export, and should the colour not be that which is demanded for export cheese a reduction in points is made as a penalty, which means that the processer is able to purchase this cheese at a lower price, though the actual quality should certainly be no worse, especially as to produce this high colour the quality of colouring matter which has necessarily to be used borders on adulteration. Surely some system could be evolved which would gain for the producer his full reward! There appears to be a decided change, both within the State and in the South, for matured cheese, and retailers everywhere report that the demand for a more mature cheese is definitely on the increase. The trade will be well advised to take cognisance of this fact, and if possible assist to further promote and establish it, as only then will cheese come into its own as a wholesome and economic foodstuff, eminently suitable for the table of the professional man, the artisan, and the worker alike. Queensland is the greatest cheese-producing State, and it would be of immense importance to foster the industry by encouraging the use of cheese in every possible way within the Commonwealth.

The figures given below show the official grading of butter and cheese examined by State Grading Officers during the season.

BUTTER GRADED FOR TWELVE MONTHS, JULY TO JUNE, 1929-30.

Month.	GRADE.								Totals
	Salted.				Unsalted.				
	C	1	2	3	C	1	2	3	
July .. ..	7,977	16,049	2,879	103	152	118	349	140	27,767
August .. ..	1,591	15,089	3,327	341	218	1,345	460	377	22,748
September .. ..	3,394	17,666	2,617	350	486	1,407	1,518	363	27,801
October .. ..	8,418	28,979	4,488	1,853	2,387	3,217	1,832	634	51,808
November .. ..	11,201	29,659	5,964	1,991	1,961	6,672	1,721	511	59,680
December .. ..	13,634	26,255	5,474	3,734	2,697	4,094	1,771	543	58,202
January .. ..	26,790	62,431	11,653	7,031	4,628	6,914	3,353	1,929	124,729
February .. ..	25,696	73,670	11,147	9,274	2,800	6,808	2,454	1,747	133,596
March .. ..	25,690	62,819	8,635	5,645	2,217	4,359	2,417	1,224	113,006
April .. ..	46,985	39,496	6,525	2,366	3,554	828	1,772	474	102,000
May .. ..	26,402	18,074	1,803	1,262	739	105	758	175	49,318
June .. ..	22,887	14,810	1,461	439	387	36	242	54	40,316
Totals .. ..	220,665	404,997	65,973	34,389	22,226	35,903	18,647	8,171	810,971

In addition to the above figures, butter submitted from the port of Gladstone totalled 58,917 boxes, making a grand total of 869,888 boxes.



The following table indicates the gradual improvement in first grade:—

Grade.	Year 1927-28.		Year 1928-29.		Year 1929-30.	
	Per cent.		Per cent.		Per cent.	
Choice .. ..	37.6		19.5		30.0	
First .. ..	44.5		61.7		54.3	
	82.1		81.2		84.3	
Second .. ..	13.5		12.1		10.4	
Third and pastry ..	4.4		5.7		5.2	

CHEESE GRADED, JULY TO JUNE, 1929-30.

Month.	GRADE.			Total.
	1.	2.	3.	
July .. ..	3,586	807	3	4,396
August .. ..	2,372	466	1	2,839
September ..	3,089	685	7	3,781
October .. ..	2,711	2,731	158	5,600
November ..	836	2,740	770	4,346
December ..	659	2,690	544	3,893
January .. ..	2,359	4,251	322	6,932
February ..	2,815	2,603	121	5,539
March .. ..	2,725	2,100	122	4,947
April .. ..	3,237	1,768	35	5,040
May .. ..	3,332	851	56	4,239
June .. ..	2,639	976	36	3,651
Totals ..	30,360	22,668	2,175	55,203

Grade.	1927-28.	1928-29.	1929-30.
First .. ..	57.48	46.8	55.0
Second .. ..	40.44	50.8	41.0
Third .. ..	2.08	2.4	3.9

The following report has been submitted by Mr. G. B. GALLWEY, Inspector of Accounts.

I have to report that the inspection of the accounts of the Co-operative Dairy Associations has indicated that, except in a few cases, the records of manufacture are well kept.

The distribution of the overrun has been carried out regularly by all factories.

The question of a standard set of factory books came prominently before me during the year, and as a preliminary step I formulated a method of keeping the records in a concise form.

The commercial butter chart investigation enabled me to obtain first-hand and complete knowledge of means of these records, and I am quite convinced that a uniform method of showing all entries from the receiving of the cream to the sale of the butter would be of advantage to all concerned in the industry.

The associations interested have had the proposed scheme submitted to them and comment has been invited.

An investigation as to the adaptability to Queensland conditions of the commercial butter chart in use in New South Wales yielded valuable information on the various phases of the work performed in factories.

After the first series of investigations it was decided that further work should be performed, so that complete data would be available to provide a basis for definite decision. This investigation assisted the dairy instructors in demonstrating to the employees of the factories the efficacy of efficient and sound methods in all work.

The manufacture of butter for the year was 75,999,058 lb., and a table attached shows the monthly production and the difference in yield between this and last year.

During the year the Cheese Investigation Committee requested me to inspect the accounting systems of the cheese associations. Portion of this work has been carried out, and it is hoped to complete it by December, 1930.

Many interesting facts have been ascertained and will be fully detailed in a report at the conclusion of the investigation.

The manufacture of cheese for the year was 12,374,705 lb., and the appended table shows the details of the production.

The condensed milk made was 1,999,659 lb. In addition to condensed milk, coffee and milk, and bettabread have also been produced from the supplies of milk to the condensary.

	Butter Manufactured.	Increase over 1928-29 Season.	Decrease.
1929.			
July .. ..	3,913,481	320,975	..
August .. ..	3,767,926	..	91,675
September ..	4,078,606	..	203,149
October .. ..	4,960,901	..	169,723
November ..	5,996,422	587,194	..
December ..	6,472,605	..	39,312
1930.			
January .. ..	9,548,201	1,122,841	..
February ..	10,026,744	567,158	..
March .. ..	9,628,543	..	11,742
April .. ..	7,245,231	..	497,132
May .. ..	5,675,930	..	428,115
June .. ..	4,684,468	455,075	..
	75,999,058	3,053,243	1,440,848

The following report has been submitted by Mr. L. ANDERSEN, Senior Herd Tester:—

I have the honour to herewith submit my annual report on the herd production recording work carried out by the herd testing officers during the year 1929-30.

Generally speaking, the season just ended has been a very good one for the dairy farmer of this State.

A good winter was experienced and useful falls of rain gave a fair spring, while 2 to 3 inches were recorded during each of the last three months of the year.

Good and regular falls of rain were recorded during summer and autumn and produced ample feed for dairy stock during this period, and the outlook is at present very bright for a record



production of dairy produce for the coming year. While this applies generally to most of the dairying districts, a few isolated places were not so fortunate.

Amongst these were the Central district and the south-eastern portion of the Darling Downs, including Killarney, Warwick, Pittsworth, and Milmerran, and along the South-Western Railway line.

In these districts many owners found it necessary to remove dairy stock elsewhere for agistment until conditions improved.

The following are the principal centres where regular bi-monthly tests have been carried out:—

Darling Downs—Clifton, Cunningham, Killarney, Kingsthorpe, Oakey, and Willowvale.

West Moreton—Beaudesert, Glamorgan Vale, Mudgeeraba, Peak Crossing, Springbrook, and Toogoolawah.

Wide Bay—Cinnebar, Cooroy, Gympie, Kandanga, Kileoy, Maleny, Miva, and Nambour.

Burnett—Gayndah, Goodger, Maindenwell, and Memerambi.

Central—Mount Larcom and Wowan.

In addition twenty herds were also submitted in the Atherton district.

The total number of herds submitted for recording was 415 as against 393 last year, while the number of cows tested, 13,920, is approximately 600 more than any previous season.

The actual number of tests—viz., 35,488—carried out during the season is also a record.

Darling Downs dairy farmers submitted the greatest number of herds (143) and dairy cows (3,729) for production recording, and the same district holds first position in production.

The average daily production for this district is shown as .92 lb. butter fat, which is 41.5 per cent. better than any other district, and 61.4 per cent. greater than the lowest return from a district.

That low-producing herds are found here as well as good producers is shown in the following:—

The best district average yield extended over the whole season was .99 lb. daily; the highest herd average, 1.35 lb. daily; and the lowest herd average .62 lb. daily.

Assuming three herds of an equal number of 25 cows and applying the figures quoted above, the following illustration speaks for itself:—

Cows.	Butter Fat.	Value.
		£ s. d.
25 good producers yield in 273 days	11,943	875 14 0
25 average producers yield in 273 days	6,756	506 14 0
25 poor producers yield in 273 days	4,231	317 6 0

To show the fallacy of selecting and breeding without the aid of the Babcock tester, the following is interesting:—During the season under review a herd was inspected and the owner pointed out two cows which he considered to be his best. Although the lactation has another month to run, the respective returns to date are as follows:—

	£ s. d.
A produced in 240 days 386 lb. butter fat at 1s. 6d. . . . .	28 19 0
B produced in 240 days 252 lb. butter fat at 1s. 6d. . . . .	18 18 0
Difference, 134 lb. butter fat . . . . .	£10 1 0

Another cow in the same herd evidently overlooked by the owner produced in the same period 297 lb. butter fat at 1s. 6d. = £22 5s.

Approximately 500 samples of skim milk have also been submitted and tested during the season, and some excessive losses have been discovered and in many cases rectified by new parts or adjustment to the machine.

One case which came under my notice showed a loss of .9 per cent. fat or approximately 25 per cent. of the cream.

Assuming that 40 gallons of milk were put through this machine daily, the loss of butter fat would represent no less a sum than £98 7s. in twelve months.

Full details of all districts are attached hereto.



SUMMARY OF YEAR'S OPERATIONS.  
GENERAL AVERAGE—ALL DISTRICTS.

Number of herds tested .. .. .	415	Daily amount of butter fat produced in individual herds—	Lb.
Number of cows tested .. .. .	13,920	Mean .. .. .	0.68
Number of tests carried out .. .. .	35,488	Highest (average for season) .. .. .	1.35
Daily yield of milk in tested herds—	Lb.	Lowest (average for season) .. .. .	0.44
Mean .. .. .	16.15	Highest amount of milk yielded by individual cow daily (lb.) .. .. .	69.5
Highest .. .. .	43.5	Highest amount of butter fat yielded by individual cow daily .. .. .	Lb.
Lowest .. .. .	4.7	Lowest .. .. .	2.85
Butter fat content of herd milk—	Per Cent.		
Mean .. .. .	4.2		
Highest (average for season) .. .. .	5.4		
Lowest (average for season) .. .. .	3.5		

GENERAL AVERAGE—ALL DISTRICTS.

District.	Year.	Number of Individual Tests.	Number of Herds Tested.	Number of Cows Tested.	Average Daily Production of Milk.	Average Daily Fat.	Average Daily Production of Butter Fat.
					Lb.	Per cent.	Lb.
Darling Downs .. .. .	1929-1930	9,183	143	3,729	21.68	4.24	.92
West Moreton .. .. .	1929-1930	9,502	89	3,512	15.61	4.2	.65
Wide Bay .. .. .	1929-1930	9,204	79	3,501	14.3	4.22	.60
Burnett .. .. .	1929-1930	3,498	47	1,450	15.3	4.23	.65
Central .. .. .	1929-1930	2,675	37	1,204	13.5	4.25	.57
Atherton .. .. .	1929-1930	1,426	20	524	16.5	4.05	.67
		35,488	415	13,920	16.15	4.2	.68

HERD TESTING, 1929-30.

District.	Month.	Number of Herds Tested.	Number of Cows Tested.	Average Daily Production of Milk.	Average Daily Fat.	Average Daily Production of Butter Fat.
				Lb.	Per cent.	Lb.

DARLING DOWNS DISTRICT.

Killarney .. .. .	July .. .. .	9	182	19.43	4.58	.89
Killarney .. .. .	September .. .. .	15	301	23.2	4.15	.96
Killarney .. .. .	December .. .. .	14	317	19.9	4.0	.80
Killarney .. .. .	February .. .. .	13	271	18.5	4.27	.79
Killarney .. .. .	April .. .. .	7	144	13.81	4.59	.63
Killarney .. .. .	June .. .. .	11	219	18.28	4.48	.82
Clifton .. .. .	August .. .. .	14	240	25.5	4.24	1.08
Clifton .. .. .	October .. .. .	35	632	24.6	4.12	.99
Clifton .. .. .	January .. .. .	32	625	23.4	4.21	.99
Clifton .. .. .	February .. .. .	35	657	19.8	4.3	.86
Clifton .. .. .	April .. .. .	34	552	21.1	4.52	.95
Clifton .. .. .	June .. .. .	14	265	21.9	4.41	.66
Allora .. .. .	October .. .. .	5	83	28.0	3.98	1.11
Allora .. .. .	December .. .. .	8	152	25.5	4.15	1.06
Allora .. .. .	February .. .. .	7	119	20.5	4.29	.88
Allora .. .. .	April .. .. .	5	82	23.1	4.34	1.00
Allora .. .. .	June .. .. .	2	26	26.25	4.5	1.20
Kingsthorpe .. .. .	September .. .. .	13	178	23.4	4.15	.97
Kingsthorpe .. .. .	November .. .. .	13	189	24.98	3.95	.99
Kingsthorpe .. .. .	January .. .. .	13	194	22.3	4.2	.94
Kingsthorpe .. .. .	March .. .. .	13	200	19.8	4.5	.89
Kingsthorpe .. .. .	May .. .. .	16	232	22.3	5.2	1.15
Oakey .. .. .	July .. .. .	14	271	19.5	4.3	.84
Oakey .. .. .	September .. .. .	10	224	22.1	3.98	.88
Oakey .. .. .	November .. .. .	10	270	23.3	3.96	.92
Oakey .. .. .	February .. .. .	11	278	24.95	4.2	1.05
Oakey .. .. .	April .. .. .	12	264	22.19	4.41	.98
Oakey .. .. .	June .. .. .	13	271	21.18	4.45	.94
Willowvale .. .. .	January .. .. .	13	184	20.3	4.2	.85
Willowvale .. .. .	March .. .. .	15	225	21.97	4.2	.92
Willowvale .. .. .	May .. .. .	11	144	19.0	4.5	.86
Milmerran .. .. .	July .. .. .	5	98	20.98	4.39	.92
Milmerran .. .. .	September .. .. .	3	61	20.16	4.17	.84
Cunningham .. .. .	July .. .. .	9	117	19.5	4.13	.81
Cunningham .. .. .	October .. .. .	11	173	21.4	3.75	.79
Cunningham .. .. .	December .. .. .	14	237	26.6	3.8	1.01
Cunningham .. .. .	February .. .. .	12	217	23.26	3.89	.91
Cunningham .. .. .	April .. .. .	11	197	16.7	4.35	.73
Cunningham .. .. .	June .. .. .	6	92	16.87	4.44	.75
		143	9,183	21.68	4.24	.92



## HERD-TESTING, 1929-30—continued.

District.	Month.	Number of Herds Tested.	Number of Cows Tested.	Average Daily Production of Milk.	Average Daily Fat.	Average Daily Production of Butter Fat.
				Lb.	Per cent.	Lb.
WEST MORETON DISTRICT.						
Peak Crossing .. .. .	January .. .. .	14	279	15.2	3.9	.59
Peak Crossing .. .. .	February .. .. .	20	399	17.9	4.15	.74
Peak Crossing .. .. .	April .. .. .	17	282	14.3	4.56	.65
Peak Crossing .. .. .	June .. .. .	14	180	12.6	4.42	.56
Mudgeeraba, Springbrook, and Currumbin	September .. .. .	11	338	12.3	4.1	.50
Mudgeeraba, Springbrook, and Currumbin	November .. .. .	11	398	15.9	4.02	.64
Mudgeeraba, Springbrook, and Currumbin	January .. .. .	12	495	13.0	4.0	.52
Mudgeeraba, Springbrook, and Currumbin	March .. .. .	12	544	18.0	4.24	.76
Mudgeeraba, Springbrook, and Currumbin	April .. .. .	11	482	12.8	4.73	.61
Mudgeeraba, Springbrook, and Currumbin	June .. .. .	11	368	9.4	4.9	.48
Tallebudgera-Burleigh .. .. .	November .. .. .	7	196	14.1	4.19	.59
Tallebudgera-Burleigh .. .. .	January .. .. .	8	258	15.9	3.99	.63
Tallebudgera-Burleigh .. .. .	March .. .. .	8	272	17.0	4.3	.73
Tallebudgera-Burleigh .. .. .	May .. .. .	7	189	13.2	4.54	.60
Tallebudgera-Burleigh .. .. .	June .. .. .	6	120	12.35	4.45	.55
Gleneagle .. .. .	November .. .. .	5	249	16.0	3.92	.63
Gleneagle .. .. .	January .. .. .	5	271	20.0	3.98	.80
Gleneagle .. .. .	March .. .. .	5	281	18.25	4.14	.76
Gleneagle .. .. .	May .. .. .	5	257	11.5	4.9	.56
Glamorgan Vale .. .. .	November .. .. .	24	454	18.62	4.05	.75
Glamorgan Vale .. .. .	January .. .. .	24	531	21.06	4.08	.86
Glamorgan Vale .. .. .	March .. .. .	25	560	15.8	4.58	.72
Glamorgan Vale .. .. .	May .. .. .	21	417	14.1	4.07	.57
Toogoolawah .. .. .	September .. .. .	6	188	19.15	3.74	.72
Toogoolawah .. .. .	November .. .. .	9	376	19.1	3.67	.70
Toogoolawah .. .. .	January .. .. .	10	427	19.6	3.76	.74
Toogoolawah .. .. .	March .. .. .	9	386	18.25	3.86	.70
Toogoolawah .. .. .	May .. .. .	7	305	11.75	4.42	.52
		89	9,502	15.61	4.2	.65
WIDE BAY DISTRICT.						
Kandanga .. .. .	July .. .. .	10	298	9.9	4.45	.44
Kandanga .. .. .	September .. .. .	11	286	12.9	3.75	.48
Kandanga .. .. .	November .. .. .	15	470	15.3	3.8	.58
Kandanga .. .. .	January .. .. .	14	547	18.0	4.17	.75
Kandanga .. .. .	March .. .. .	13	535	13.4	4.3	.57
Kandanga .. .. .	May .. .. .	7	234	11.5	4.5	.52
Gympie .. .. .	October .. .. .	4	94	15.8	3.68	.58
Gympie .. .. .	December .. .. .	5	143	17.6	3.8	.67
Gympie .. .. .	February .. .. .	6	174	20.2	4.13	.83
Gympie .. .. .	March .. .. .	6	177	15.0	4.3	.64
Gympie .. .. .	May .. .. .	3	100	10.7	4.4	.47
Maleny .. .. .	July .. .. .	2	71	9.7	4.25	.41
Maleny .. .. .	October .. .. .	3	63	13.7	4.0	.55
Maleny .. .. .	December .. .. .	4	112	17.6	4.25	.75
Maleny .. .. .	February .. .. .	4	154	20.0	4.45	.89
Maleny .. .. .	March .. .. .	4	162	16.6	4.9	.81
Maleny .. .. .	May .. .. .	4	160	11.7	4.8	.56
Kilcoy .. .. .	November .. .. .	16	400	13.7	3.8	.51
Kilcoy .. .. .	January .. .. .	16	521	17.0	4.0	.68
Kilcoy .. .. .	March .. .. .	14	525	16.0	4.17	.67
Kilcoy .. .. .	May .. .. .	10	289	10.3	4.95	.51
Kilcoy .. .. .	June .. .. .	5	48	11.0	4.46	.49
Miva .. .. .	November .. .. .	9	186	20.0	3.7	.74
Miva .. .. .	January .. .. .	10	288	21.5	3.83	.82
Miva .. .. .	March .. .. .	10	329	17.0	4.1	.70
Miva .. .. .	May .. .. .	8	233	8.5	4.08	.39
Image Flat .. .. .	July .. .. .	10	161	13.3	4.1	.55
Image Flat .. .. .	October .. .. .	6	108	17.7	3.58	.63
Image Flat .. .. .	December .. .. .	8	180	15.4	4.0	.62
Image Flat .. .. .	February .. .. .	7	213	22.2	4.1	.91
Image Flat .. .. .	April .. .. .	7	197	15.4	4.4	.68
Image Flat .. .. .	June .. .. .	6	118	12.0	5.0	.60
Cooroy .. .. .	January .. .. .	4	104	19.0	3.8	.72
Cooroy .. .. .	February .. .. .	6	220	18.2	4.0	.73
Cooroy .. .. .	April .. .. .	5	189	11.0	5.0	.55
Cooroy .. .. .	June .. .. .	1	25	14.0	4.24	.59
Cinnabar .. .. .	July .. .. .	7	139	12.4	4.3	.53
Cinnabar .. .. .	September .. .. .	8	186	12.8	3.55	.45
Cinnabar .. .. .	November .. .. .	8	232	15.1	4.04	.61
Cinnabar .. .. .	January .. .. .	8	248	19.1	4.3	.82
Cinnabar .. .. .	March .. .. .	8	224	14.8	4.61	.68
Cinnabar .. .. .	May .. .. .	2	61	9.45	5.05	.48
		79	9,204	14.3	4.22	.60



## HERD TESTING, 1929-30—continued.

District.	Month.	Number of Herds Tested.	Number of Cows Tested.	Average Daily Production of Milk.	Average Daily Fat.	Average Daily Production of Butter Fat.
				Lb.	Per cent.	Lb.
BURNETT DISTRICT.						
Gayndah .. .. .	September .. ..	2	22	19.5	4.3	.84
Gayndah .. .. .	December .. ..	14	302	15.35	3.9	.60
Gayndah .. .. .	February .. ..	17	398	19.7	4.13	.81
Gayndah .. .. .	March .. ..	14	331	13.1	4.7	.62
Gayndah .. .. .	May .. ..	8	133	9.6	5.15	.49
Maidenwell .. .. .	December .. ..	5	161	14.3	3.78	.54
Maidenwell .. .. .	February .. ..	4	129	19.3	3.9	.75
Maidenwell .. .. .	April .. ..	3	97	15.2	4.3	.65
Maidenwell .. .. .	May .. ..	3	60	17.8	3.93	.70
Goodger .. .. .	December .. ..	8	220	16.5	3.69	.61
Goodger .. .. .	February .. ..	8	253	21.8	3.97	.87
Goodger .. .. .	April .. ..	8	256	15.7	4.41	.69
Goodger .. .. .	June .. ..	8	189	11.2	4.64	.52
Memerambi .. .. .	July .. ..	8	159	11.5	4.0	.46
Memerambi .. .. .	December .. ..	11	263	17.3	3.63	.63
Memerambi .. .. .	February .. ..	8	246	23.3	4.88	1.13
Memerambi .. .. .	April .. ..	6	163	13.9	4.53	.63
Memerambi .. .. .	June .. ..	6	116	10.3	4.38	.45
		47	3,498	15.3	4.23	.65
CENTRAL DISTRICT.						
Mount Larcom .. .. .	August .. ..	12	233	10.0	4.26	.43
Mount Larcom .. .. .	November .. ..	9	164	13.0	3.7	.48
Mount Larcom .. .. .	December .. ..	2	28	13.0	3.63	.47
Mount Larcom .. .. .	January .. ..	12	209	16.7	4.0	.67
Mount Larcom .. .. .	March .. ..	12	293	15.7	4.1	.64
Mount Larcom .. .. .	April .. ..	13	300	9.6	4.7	.45
Mount Larcom .. .. .	June .. ..	6	124	9.7	5.2	.50
Wowan .. .. .	August .. ..	8	179	11.6	4.5	.52
Wowan .. .. .	October .. ..	5	90	12.0	3.85	.46
Wowan .. .. .	December .. ..	8	130	16.6	4.0	.66
Wowan .. .. .	January .. ..	5	121	19.5	4.0	.78
Wowan .. .. .	February .. ..	14	307	18.3	4.0	.73
Wowan .. .. .	April .. ..	15	329	12.7	4.65	.60
Wowan .. .. .	June .. ..	10	168	10.4	5.0	.52
		37	2,675	13.5	4.25	.57
ATHERTON TABLELAND.						
Atherton .. .. .	July .. ..	6	134	14.3	4.27	.64
Atherton .. .. .	August .. ..	7	187	11.6	4.2	.49
Atherton .. .. .	September .. ..	3	89	15.7	3.7	.48
Atherton .. .. .	October .. ..	6	172	16.1	3.8	.61
Atherton .. .. .	November .. ..	1	22	13.7	4.1	.56
Atherton .. .. .	December .. ..	5	135	15.5	3.8	.59
Atherton .. .. .	January .. ..	5	58	19.2	4.1	.79
Atherton .. .. .	February .. ..	8	123	20.0	3.87	.77
Atherton .. .. .	March .. ..	6	107	21.8	4.15	.90
Atherton .. .. .	April .. ..	6	96	17.7	4.15	.73
Atherton .. .. .	May .. ..	7	149	17.7	4.26	.75
Atherton .. .. .	June .. ..	7	154	15.0	4.14	.62
		20	1,426	16.5	4.05	.67

## ACKNOWLEDGMENTS.

I have to acknowledge the assistance rendered by the Analytical and Bacteriological Branches of the Department in carrying out investigatory work.

It is pleasing to record that Mr. O. St. J. Kent, B.Sc., A.A.C.I., will now be specialising in dairy research work.

I have also to record appreciation of the co-operation between the various Herd Book

Societies and this Branch, and in this connection to specially mention Messrs. R. V. Hamilton and G. T. Nuttall, secretaries of the Australian Illawarra Shorthorn and Jersey Societies, respectively, who have at all times given every assistance in connection with inquiries relating to the pure-breed activities of this Branch.

CHAS. McGRATH,

Supervisor of Dairying.



## REPORT OF THE GOVERNMENT BOTANIST.

### GENERAL.

Correspondence and personal interviews with farmers and pastoralists took up a considerable amount of time. The inquiries extended over a great range of subjects relating to plant life, but the major portion dealt with plants sent in for identification and report on their properties. Owing to the Department of Public Instruction's stressing nature study in the schools, a very large number of the specimens were sent in by school teachers for identification and report.

### FIELD WORK.

For the purpose of general botanical collecting, visits were paid to Springbrook, Lamington National Park, and the Burrum River. During Easter vacation a good deal of collecting was done on Stradbroke Island during a camp-out of the Queensland Naturalists' Club. Various minor collecting trips were made to other parts of South-east Queensland. The trips to Springbrook and the Lamington National Park yielded several plants not previously described, and several new records for the State.

During August a visit was paid to Beechmont for the purpose of gathering information about the different races of the Queensland Nut (*Macadamia ternifolia*). An article on this is being prepared for the "Queensland Agricultural Journal." The matter is deemed of some importance, and a big future is predicted for this nut commercially. There is a great range of variety in the wild trees as regards thickness of shell, quantity of nuts per tree, &c.

During February a visit was paid to Gatton Agricultural College for the purpose of reporting on changes in the composition of native pastures in response to top-dressings of various artificial manures.

A visit was paid during the year to Pittsworth for the purpose of studying the growth of Mint Weed or Narrow-leaved Sage (*Salvia lanceifolia*). A report on this is being prepared for the "Queensland Agricultural Journal." As the plant has been suspected of poisoning stock, about 10 lb. of the dried herb were sent to the Poison Plants Committee of the Council for Scientific and Industrial Research. A report is awaited.

### EXHIBITION.

In the Departmental Court, at the August National Show, a comprehensive collection of native grasses, fodder plants, and plants poisonous to stock was staged.

### HERBARIUM.

Exchanges of herbarium material have been continued with the Royal Botanic Gardens, Kew, England; Botanic Gardens, Singapore; Botanic Gardens, Buitenzorg, Java; the Arnold Arboretum, Boston, United States of America; the

United States National Herbarium, Washington, D.C., United States of America; Botanic Gardens and Museum, Berlin, Germany. Fortunately everything has been put away as received, and the herbarium is growing again to the extent that additional storage facilities will soon be required.

### BOTANICAL MUSEUM.

Additions to the Botanical Museum have not been very numerous, though several specimens of dried fruits, barks, and woods of some interest have been added.

### POISONOUS PLANTS.

As in previous years a large number of specimens have been received as suspected of poisoning stock. Most of these were of harmless plants, but a few notes on some of the more suspicious or definitely poisonous ones are as follows:—

#### *Zygophyllaceæ.*

*Zygophyllum apiculatum*—Mr. J. H. McCarthy, Inspector of Stock, reported that this plant was fairly common in some parts round about Dalby this season, and was locally known as Gall Weed. He stated that farmers in the locality were very definite about the poisonous nature of the weed.

#### *Oleaceæ.*

*Jasminum simplicifolium*—Specimens were received from the Inspector of Stock, Helidon, who reported that Mr. A. McArthur, of Iredale, via Helidon, suspected the berries of causing deaths in pigs.

#### *Primulaceæ.*

*Anagallis arvensis*—Recently, Mr. F. A. Moore, a dairyman of Moggill road, Indooroopilly, reported the loss of dairy cattle due to eating some poisonous herb. I visited the locality and found the stubble paddocks where the cows had been grazing full of the common Scarlet Pimpernel (*Anagallis arvensis*), and in the absence of evidence to the contrary would regard this plant in this case as the cause of the trouble.

#### *Solanaceæ.*

*Cestrum Parqui*—Specimens received from Mr. J. A. Rudd, veterinary surgeon, Brisbane, indicate that the plant is very poisonous to stock, causing paralysis of involuntary muscle and ultimately of voluntary muscle also, just previous to death. He further stated from his own personal knowledge he knew of the death of a sheep and of a cow due to this plant.



*Thymelæaceæ.*

*Pimelea trichostachya*—This plant, common on the Lower Maranoa and locally known as "broom bush," was received from Mr. J. W. Marsh, Mitchell, as one of the most deadly poisonous plants of the area.

*Ulmaceæ.*

*Trema aspera*—Mr. W. Ford, Inspector of Stock, Kingaroy, reporting the deaths of two cows within twenty-four hours out of the herd of Mr. G. E. Evans, of Coolabunia, forwarded specimens of this plant with the report that the plant was freely eaten by stock, and when the paunch was opened a large quantity of the leaves and berries mixed with other fodder was found. Specimens of *Duboisia Leichhardtii* were forwarded at the same time. This plant is definitely poisonous, but stock generally do not eat it, so that it would seem in this case that the deaths of the stock were due to the *Trema aspera* or Peach-leaf Poison Bush. As has been shown by Smith and White, the plant develops at times a prussic-acid-yielding glucoside, though the presence of this in the plant is somewhat fleeting.

A number of phyllodes of *Acacia Burrowi* and *Acacia Cunninghamii* were forwarded by request to the Poison Plants Committee, Council for Scientific and Industrial Research.

## STAFF.

In December Mr. W. D. Francis left Brisbane to undertake a year's work in the herbarium of the Royal Botanic Gardens, Kew, England, and in April Mr. C. E. Hubbard of the Kew staff arrived at Brisbane to undertake a year's work in Queensland. The exchange should work admirably. Mr. Francis will be able to compare a lot of our specimens with type specimens at Kew and the British Museum, and the experience gained through working at one of the

world's largest—if not the largest—botanical establishment should better equip him for future work in Queensland. Mr. Hubbard is a specialist on grasses; he will put our grass collections in order, and shortly after his return to England hopes to publish a revised account of Queensland grasses. This is work that has been needed doing for some time past as our grass collections, though large, were in rather an unsatisfactory state as regards classification and nomenclature.

## PUBLICATIONS.

The following botanical papers were published during the year:—

White, C. T.—Queensland Vegetation (Handbook Australasian Association for the Advancement of Science, Brisbane Meeting); Queensland Pastures (Handbook Australasian Association for the Advancement of Science, Brisbane Meeting); The Australian Species of *Derris* and *Lonchocarpus* (Kew Bulletin, England, 1929, No. 10); Queensland Weeds (Twin-leaf, *Zygophyllum apiculatum*, and Wild Tobacco, *Solanum auriculatum*, in "Queensland Agricultural Journal").

White, C. T., and W. D. Francis.—Contribution to the Queensland Flora No. 4 (Proc. Royal Soc. Queensland, vol. xli., No. 10).

White, C. T. (assisted by various botanists). Ligneous Plants collected in the Territory of Papua in 1925-6 by L. J. Brass (Journal of the Arnold Arboretum, U.S.A., vol. x., No. 4).

Francis, W. D.—Australian Rain Forest Trees: Excluding the Species confined to the Tropics, pp. xi., 347. (Published under the auspices of the Council for Scientific and Industrial Research by the Government Printer, Brisbane.)

C. T. WHITE,

Government Botanist.



## REPORT OF THE CHIEF ENTOMOLOGIST.

I have the honour to submit herewith my report of the work of the Division of Entomology and Plant Pathology for the twelve months ending 30th June, 1930. The treatment is the same as in previous years; that is, staff and allied matters are dealt with by myself and the activities of the Entomological Branch of the Division are also reviewed by me. The work of the Pathological Branch is dealt with in notes submitted by Mr. Simmonds.

### STAFF AND ACCOMMODATION.

The staff of the Division now consists of the Chief Entomologist, seven officers engaged on entomological investigations, three on plant pathology, one illustrator, and one clerical assistant.

Towards the close of the Departmental year the extension of premises, referred to in my report for the previous year, was completed, and the Division now possesses an extensive set of offices and laboratories well equipped for the handling of its work.

On 1st January a new field station was started at Nambour, the work at that station being citrus and pineapple entomology. The Division now possesses three Entomological Field Stations, one at Cairns handling mainly banana and tomato pests, one at Nambour dealing with citrus and pineapple problems, and one at Stanthorpe concentrating largely on deciduous fruit pests.

### BANANA INSECT PESTS.

During the year Mr. Weddell made several inspections of the plantations on which the histerid beetle (*Plasius javanus* Er.) and the lepid fly (*Chrysopila ferruginosa* Wied.) were liberated as a contribution to the biological control of the banana weevil borer (*Cosmopolites sordida* Chev.). No trace could be found of the lepid fly, but the failure to locate it occasioned no surprise because the number of adults surviving for liberation was so small that the prospects of success were by no means good. The position with regard to the predatory beetle is, however, very much better, because at the last examination it was still found to be breeding where it had been liberated. So far no effort has been made to distribute this beneficial insect because it has been considered wiser to wait until the species has thoroughly established itself before drawing off colonies for distribution elsewhere.

Mr. Weddell has commenced various field trials for the control of the banana weevil borer at the recently established Banana Experiment Station at Kin Kin.

The banana weevil borer still continues to be a very serious problem on many banana plantations, but reports of rust damage due to the banana thrips (*Scirtothrips signipennis* Bagnall) have been by no means numerous, although losses have again occurred in the Gympie district. The fruit-eating caterpillar (*Tiracola plagiata* Walker) has not been in evidence to any appreciable extent, and no epidemic comparable with that which occurred a few years ago has been recorded.

E

Mention must also be made of the establishment of the Banana Industry Protection Board, consisting of two growers' representatives and two representatives of the Department, one being the Chief Entomologist.

The whole of the work on banana thrips has been placed in the hands of Mr. J. Harold Smith at Cairns, and very good progress has been made in laboratory and field studies of this very serious banana pest. Exhaustive small-scale field-control experiments have given very promising indications of success. This work is carried out during the summer months in Cairns and at suitable plantations close to that centre. The work will be resumed in spring when the incidence of the pest becomes much more severe than during the winter months.

### DECIDUOUS FRUIT PESTS.

Mr. Hubert Jarvis again devoted most of his attention at Stanthorpe to the two major problems, the Queensland fruit fly (*Chaetodacus tryoni* Frogg.) and the codling moth (*Cydia pomonella* Linn.). Fruit-fly infestation was not so serious as in some previous years, but loss from codling moth was distinctly heavy.

The work on fruit fly again consisted mainly of life history studies, but a new development was the testing of a lure evolved by Mr. Jarvis. These preliminary tests have so far given very promising results.

Dusting and spraying experiments for the control of codling moth were continued as in previous years, and it is hoped that some very definite information will shortly be available on this aspect of codling moth control. Little has been seen of the codling moth egg parasite (*Trichogramma minutum* Riley), which was liberated in very considerable numbers in various orchards during last season.

Reports of the activities of the woolly aphis parasite (*Aphelinus mali* Hald.) have again been very encouraging, and it is obvious that the burden of controlling woolly aphis is now very much reduced.

### CITRUS PESTS.

As the result of the establishment of a field station at Nambour, it has been possible to give very much increased attention to citrus pests. Mr. W. A. T. Summerville, B.Sc., was appointed to take charge of that station, and he is devoting practically 90 per cent. of his time to citrus problems.

The bronzy orange bug (*Rhacocoris sulci-ventris* Stal.) and the spiny orange bug (*Biprorulus bibax* Bredd.) are probably the most important problems at present. Field work on the former pest is being carried out very largely on the Blackall Range, while the latter is handled mainly at Gayndah and Rockhampton. Certain aspects of the life histories of these two insects have been handled, on Mr. Summerville's behalf, by Mr. A. R. Brimblecombe, in Brisbane.

At Mapleton Farm College trials for the control of the citrus root-bark channeller (*Decilaus citriperda* Tryon) are now well under way.



Other pests such as the various scale insects associated with citrus are also receiving attention.

Accommodation has been provided for Mr. Summerville at Nambour, and a good range of microscopes supplies all requirements. The library, which is indispensable to research workers, is also being steadily built up.

#### COTTON PESTS.

During the year under review the corn-ear worm (*Heliothis obsoleta* Fabr.) was extremely destructive in certain districts. The losses due to this pest are subject to very marked seasonal fluctuations, and it is hoped that next year's crop will suffer less severely than the one just picked.

The work on the cotton stainer (*Dysdercus sidae* Montr.) has, of course, been suspended owing to Miss Evans's absence in Europe.

#### TOMATO PESTS.

Tomato pests in the Bowen district have again received a great measure of attention by Mr. J. Harold Smith, who is in charge of the Cairns Field Station. Dusting and baiting experiments were carried out early in the Departmental year, and during April further extensive dusting trials were laid out. The percentage of fruit lost at Bowen through the incidence of pests is surprisingly high, and it will therefore be desirable to extensively investigate the tomato problems in that district until such time as thoroughly satisfactory control measures are available.

#### PINEAPPLE PESTS.

Mr. Summerville again devoted some attention to pineapple white grub control in the Nambour district. Certain field experiments were kept under observation, but before proceeding further with this research project it will be desirable to carry out laboratory tests as a result of which the field trials will probably be modified.

White grub losses in pineapples have again been greater than has been the case for a number of years.

#### WHITE GRUBS AND GRASS GRUBS.

During the year under review white grubs (Scarabæidæ) have been unusually abundant on the Atherton Tableland, and have caused much loss to dairy farmers by the destruction of the pastures. Grass grubs (*Oncopera mitocera* Turner) have also been responsible for severe losses, and it is hoped that during the next three or four months some considerable attention will be devoted to these problems. They have so far been handled by Mr. J. Harold Smith, but in order that the work on these pests may be intensified, Mr. D. O. Atherton was transferred to Cairns at the beginning of June to assist Mr. Smith to handle the numerous major problems which have been allotted to him.

Fumigation for the control of white grubs has been suggested, but it is considered that for economic reasons fumigation of pasture lands is impracticable, although it is successful and economically sound on the higher-price sugar lands on the coastal districts of North Queensland. There are strong indications that cultural measures may very appreciably alleviate the

position so far as white grubs are concerned, but the *Oncopera* position is at present much more obscure.

#### BUFFALO FLY.

This Division has made no further survey of the buffalo fly (*Lyperosia exigua* de Meij.) position in North-Western Queensland. No alteration has been made in the area quarantined on account of this pest.

It is gratifying to be able to record the fact that the Council for Scientific and Industrial Research is devoting a great deal of attention to this problem, particularly with respect to the possibilities of biological control.

#### TAXONOMIC WORK.

The only specialised taxonomic work carried out in the Division has again been that handled by Mr. A. A. Girault, who has continued his work on the very important groups of parasitic Hymenoptera and Thysanoptera.

#### ILLUSTRATION WORK.

Mr. I. W. Helmsing, the Division's Illustrator, has continued his work on practically the same lines as last year. A total of twenty plates, consisting of 161 figures, were prepared and four new exhibition cases were completed.

The services of the Division's Illustrator were made available for work on behalf of the Bureau of Sugar Experiment Stations, the Government Botanist, the Poultry Expert, and the Senior Instructor in Pig Raising.

#### PATHOLOGICAL WORK.

In the Pathological Branch, Mr. Simmonds has been able to devote a very considerable proportion of his time to the investigation of banana leaf spot, and in co-operation with the Council for Scientific and Industrial Research has continued his investigation of water blister of pineapples. Mr. Morwood has specialised on flag smut of wheat and cob rot of maize. Since his appointment on 1st January, Mr. Mandelson has concentrated on citrus diseases. These projects will be referred to in greater detail by Mr. Simmonds.

#### ADVISORY WORK.

It is gratifying to be able to report that there is a steady increase in the volume of inquiries for advice with respect to both pests and diseases. This work occupies a considerable proportion of time, particularly in Brisbane, but it is a feature of our work that is well worthy of encouragement.

#### LIBRARY.

There has been a considerable addition to the head office library in Brisbane, which is now very adequately housed in the new extension.

#### PUBLICATIONS.

Contributions were made to eleven of the monthly issues of the "Queensland Agricultural Journal." Manuscripts dealing with several important research projects were also completed during the year, and are now available for publication.

#### ROBERT VEITCH.

Chief Entomologist.



## REPORT OF THE PLANT PATHOLOGIST.

The work of the year under review was interrupted to some extent by the necessity of removing to new quarters, which involved the transfer and refitting of laboratory equipment. The pursuit of the several major lines of research was to some extent retarded on this account. However, several events have now contributed to the provision of facilities for the satisfactory working of this Branch, constituting a very considerable improvement on those previously enjoyed. The chief of these are (1) the housing of the Branch in new laboratory quarters, which are eminently suited to the staff as it exists at present; (2) the appointment of an Assistant Pathologist has made it possible to devote much more time to research work; (3) the recent allocation of a portion of the glasshouse at the University to the use of this Branch will supply a long-felt need in this direction; (4) negotiations are under way for the establishment of an experimental plot on the Domain, which will further facilitate work. As in previous years, attention to routine inquiries has occupied a considerable proportion of the time of the Branch. This work is important in that it provides a point of direct contact with the grower. Out of these inquiries has arisen a number of items of special interest from their pathological aspects.

In addition to routine work, a number of more important lines of investigation have been proceeded with as opportunity offered. These are best dealt with under the headings of the respective hosts.

### Cereals.

The cereal work has been under the charge of Mr. Morwood, who has devoted the major portion of his time to a consideration of wheat and maize diseases. The 1929 field experiments in connection with flag smut of wheat yielded interesting results. Experiments on somewhat similar lines are being carried out this year at the Roma State Farm, with the co-operation of the Manager, Mr. Soutter. The work includes the testing of the susceptibility of various Queensland-grown varieties of wheat and the action of fungicides on the control of the disease.

A survey of the maize diseases of the Atherton Tableland was recently completed by Mr. Morwood. Attention is being concentrated on the investigation of cob rot (*Diplodia zeæ*) and root rot, two of the more important of the diseases of this crop.

### Banana.

Of banana diseases leaf spot (*Cercospora* sp.) has received most attention. In addition to laboratory work several lines with respect to the elucidation of control measures have been investigated at the Kin Kin Banana Experiment Station. These included (1) the effect of different spacing on the development of the disease, (2) the value of dusting, (3) the effect of sanitation and the removal of spotted leaves at various times throughout the year. So far no solution of the problem has been forthcoming,

though some foundation has been laid for future work.

### Pineapple.

As was the case last year, this Branch co-operated with the Council for Scientific and Industrial Research in an endeavour to find a means of controlling water blister (*Thielaviopsis paradoxa*). A considerable advance was made on the work of the previous year. Two likely methods of fruit treatment are now available. A considerable amount of time was also devoted to ascertaining the origin of the causal organism in the field. This line of investigation has yielded results having a direct bearing on the control of the disease.

### Citrus.

Since his appointment Mr. Mandelson has handled all work in connection with citrus diseases, the main lines of investigation being directed towards the control of black spot (*Phoma citricarpa*). With this object in view two spraying trials have been conducted on the orchard of Messrs. Stephenson Bros., Palmwoods, and Mr. J. M. Allen, of Montville. A third trial in connection with both black spot and melanose was carried out in co-operation with Mr. J. Pack, of Mapleton. It is too early yet to state the results of this work.

In connection with the investigation of the mottle leaf trouble in the Gayndah district, Mr. Mandelson was able to demonstrate the presence of the citrus root nematode *Tylenchulus semi-penetrans*, which is possibly acting as the limiting factor in the normal growth of citrus in this and other localities.

### Passion Vine.

The investigations into the cause and control of brown spot (*Macrosporium* sp.) and scab (*Cladosporium* sp.) have now reached a stage at which it is possible to make available certain of the results for the use of growers. An article on brown spot has therefore been prepared for publication in the "Queensland Agricultural Journal," and it is hoped to deal similarly with the second disease in the near future. The field experiments in connection with the control of these diseases have been undertaken as in previous years.

### Collection.

Both herbarium and jar specimens have received numerous interesting additions during the year, and it has been possible also to increase the range of material suitable for display at the agricultural shows. In the new quarters much much more suitable accommodation is available for this collection, which it is at present undergoing rearrangement under an efficient card catalogue system.

In conclusion, it may be stated that, with the added facilities both in accommodation and staff made available to this Branch, a considerable expansion of its activities can be expected in the future.

J. H. SIMMONDS,  
Plant Pathologist.



REPORT OF THE AGRICULTURAL CHEMIST.

The analytical work carried out at the agricultural laboratory was very much increased, showing an increase of about 25 per cent. in the number of samples over last year's samples, chiefly due to a heavy increase in the number of grasses, pest destroyers, and butter analysed.

	1927-8.	1928-9.	1929-30.
Ashes .. .. .	1	4	4
Butters .. .. .	1,078	1,092	1,732
Cheeses .. .. .	91	111	78
Condensed milk and milk products	14	36	47
Dipping fluids and concentrates	460	297	311
Fertilisers .. .. .	212	259	250
Fruits, fresh .. .. .	6	4	80
Jams, preserves, canned fruits	..	4	3
Leathers .. .. .	44	46	16
Limestones, lime, &c. ..	12	22	14
Margarin and vegetable fats	1	1	3
Milk and cream .. .. .	103	175	116
Miscellaneous .. .. .	35	30	68
Parchment papers .. .. .	23	3	3
Pest destroyers .. .. .	152	98	318
Road material .. .. .	469	438	25
Rocks .. .. .	2	10	1
Salts and licks .. .. .	3	43	69
Seeds, grasses, plants .. .. .	255	236	506
Soils and subsoils .. .. .	242	280	121
Soil moistures .. .. .	1,152	1,184	2,508
Soil nitrates .. .. .	..	..	72
Stock foods .. .. .	210	281	299
Sugar-cane, molasses, honey, &c.	3	23	4
Viscera .. .. .	46	116	96
Waters .. .. .	42	113	158
Total .. .. .	4,656	5,546	6,902
Glassware, &c., tested .. .. .	4,976	5,539	3,336

STAFF.

During the year we lost the services of C. R. von Stieglitz, and also of N. G. Cassidy, B.Sc., who were transferred to the new sugar laboratory, and in consequence we were shorthanded

and got seriously in arrears with certain work, chiefly fertilisers, more particularly as from two to three assistants were continually employed with pasture grasses and stock foods.

SOILS.

The samples of soil received from all parts of Queensland were analysed and are reported on in Table I. Particular attention was paid to acidity determinations and Ph. values in accordance with various methods, but, unfortunately, we are not able to make much use of these figures because we have no facilities to corroborate them with cultural results.

DIPPING FLUIDS.

Three hundred and eleven samples of dipping fluid were analysed, and in 102 (or about 33 per cent. of the total number) samples were found of effective strength, between 7.5 and 8.5 lb. of arsenic per 400 gallons. Forty-six samples, or 15 per cent., were more or less oxidised.

VISCERA.

Ninety-six samples of viscera, stomach contents, &c., were analysed with positive findings in only 18 cases.

During the year several cases of fatalities among cattle feeding on very young seedling noogoora burr were reported. We made several trials with testing noogoora burr seedlings germinated in the seed-testing laboratory, of the smallest sprout seedlings 4 in. high and only 2 in. high, and also seedlings 10 in. high from a badly infested paddock, but could not find traces of a hydrocyanic acid yielding glucoside in any of the samples.

DAIRY PRODUCTS.

In accordance with the regulations under the Dairy Produce Act, the following glassware, &c., was tested. No fault can be found with the quality of glassware used in the factories.

	Tested.	Approved.	Condemned.	Broken.	Per Cent. Condemned.
Cream bottles .. .. .	1,704	1,702	..	2	..
Milk bottles .. .. .	144	144	..	..	..
Cream pipettes .. .. .	529	525	..	4	..
Milk pipettes .. .. .	293	291	1	1	.3
Thermometers .. .. .	643	598	41	4	6.4
Hydrometers .. .. .	19	19	..	..	..
Cylinders .. .. .	4	4	..	..	..
Totals .. .. .	3,336	3,283	42	11	1.2

We also prepared and tested 205 bottles of N/10 alkali and 138 pints of standard iodine solution.

For the Commonwealth Dairy Produce Inspection Branch the graders submitted 1,571 samples

of export butters, 61 samples of cheese, and 47 samples of condensed milk and milk products. Of the butters 324, or 20.6 per cent., contained an excess of moisture of 16 per cent. and over. The State graders submitted 137 samples of butter and 10 samples of cheese.



One of my assistants, O. St. J. Kent, B.Sc., devoted the major part of his time to dairy work, visiting a number of factories and making various investigations for the information of the supervisor in dairying.

*Cheese.*—One experiment was carried out at a cheese factory to ascertain the distribution of moisture contents. The cheese was made on 10th July, 1929, and marked samples turned regularly every week and kept under identical conditions with unturned cheeses.

The result of the moisture determinations made on 3rd October, 1929, were as follows:—

	Turned.	Unturned.
	Per Cent.	Per Cent.
From top .. .. .	34.7	34.3
From middle .. .. .	36.6	36.5
From bottom .. .. .	34.0	34.7

No difference in the moisture content was found.

Many of the samples of cheese received showed an almost brick-red colour, accompanied by a disagreeable peculiar flavour, due to an excessive use of the organic colouring matter.

A high colour was evidently encouraged by the Commonwealth graders for the export trade, and it has actually happened that a cheese of good quality and true natural cheese colour was judged only second grade on account of being not sufficiently coloured to the grader's fancy.

A high colour is really an adulteration, and I maintain that the general manufacture of over-coloured cheese will lead to a complete loss of our valuable interstate trade, and Queensland must lose its premier position of cheese production which it took years to build up and which should be maintained by all means, instead of having it seriously handicapped by persons who should have no say in the actual manufacture and sale of cheese in our State.

A high colour of cheese is of absolutely no value to the public, as it does not indicate any special quality or high butter-fat contents, &c., but is simply a trade fancy, and instead of being encouraged should be really prohibited as an adulteration.

#### NEW CROPS.

Ginger growing is one of the new industries advocated, and good quality of ginger can be grown in many suitable localities.

The analyses of the samples received from Montville gave the following results, which compare quite favourably with the imported article.

	Per Cent.	Per Cent.
Moisture in green roots ..	86.0	84.4
Analysis after drying moisture ..	1.6	6.0
Cold water extract .. ..	20.7	26.1
Alcohol extract .. ..	7.5	10.2
Ether extract—		
Volatile .. ..	1.1	1.3
Non-volatile .. ..	3.0	2.8
Conde fibre .. ..	8.5	6.6
Protein .. ..	9.6	10.5
Ash .. ..	6.7	7.5

#### NATURAL PASTURE.

Our invitation to pastoralists to submit samples of pasture for analysis has met with a very generous response, and nearly 400 samples of grasses, roughage, herbs, shrubs, &c., were submitted, involving an enormous amount of work.

At the outset it must be clearly understood that the samples submitted do not actually indicate what the stock, chiefly sheep, eat and live on, but rather the food available in the pasture. The question on what the sheep really live on during times of drought, which was very pronounced and serious last year, is very hard to answer, and therefore I suggested to the owner of a large station near Blackall, in the centre of Queensland near the Barcoo River, to submit the dried contents of the paunch of a sheep killed for mutton. The contents of the paunch of this 1½-year old wether, weighed, when dried, 3 lb. 2 oz. and gave the remarkable good analysis No. 2541, with 11.4 per cent. protein, 3.139 per cent. lime, and .678 per cent. phosphoric acid.

This sheep did not get any lick, and subsisted on the pasturage available in the district as given by sample 2150, a roughage of Bull Mitchell containing only 4.0 per cent. protein and a very low amount of lime and phosphoric acid. At this time shrubs were felled consisting of Boree and Gidyea. Analyses 2414 to 2416, with fairly good protein, very high lime contents, but low phosphorus contents. It is remarkable how closely the analysis of the material in the paunch compares with Boree leaves, and this wether must undoubtedly have had access to some food of the type of Boree leaves and some other material containing more phosphorus than found in Boree and Mitchell grass.

The result of this investigation is exceedingly interesting and valuable, and should be extended in the coming year in other places, as it gives a truer index of the food consumed by a sheep than the analysis of available grass and roughage. The paunch contents must be thoroughly dried in the sun before being forwarded, and, of course, it would be also of value to get for comparison an average sample of the roughage available from the paddock where the sheep was pastured before killing. If possible such samples should be taken from sheep receiving licks or otherwise.

A glance at Table II., in which the grasses are classed together according to species, shows the usual great variation in the composition, according to age and locality, but no species can be picked out as being particularly superior to any other species.



The owner's remarks, speaking about general value, &c., are in most cases quite erroneous, and some grasses condemned as useless are in accordance to analysis quite valuable. Of course, palatability will play an important part, but this of course is not revealed by any analysis.

On the whole a decided phosphorus deficiency is established, and only in a few isolated cases lime is more deficient than phosphoric acid.

A very complete series of analyses of grasses, &c., were carried out for a large station near Julia Creek, in North Queensland, where Dr. Legg, of Townsville, carried out an investigation on the serious losses amongst cattle, on which he reported as follows:—

- "1. The condition occurs at the latter end of the dry season.
- "2. The animals affected are mostly breeders.
- "3. Calves remain in fair condition, while the mothers are badly affected.
- "4. The cattle are very poor.
- "5. The principal symptoms are extreme emaciation, difficulty in moving; that is, short potterly gait and brittle bones which are easily fractured.
- "6. The principal lesion apart from extreme emaciation is the ease with which the bones are fractured and cut.

"There is little doubt that the condition is due to mineral deficiency, probably phosphorus, and a point worth noting is that as years go on the disease is gradually getting worse. Many cattle, according to the owners, are bone-chewers, though I was not able to definitely ascertain whether botulism was associated with the habit.

"An interesting point in connection with both stations is that the country originally covered by these stations included much open downs and good fattening country of Mitchell and Flinders grass, but owing to resumptions most of the good country has been resumed, and all that practically now remains of these stations consists of poor, sandy ridges with much poor timber, such as ironbark, &c."

On Dr. Legg's advice samples of grasses were collected and also bones of an animal dead of acute "pigleg." The analysis of bones as given below does not show anything abnormal in the chemical composition as compared with average analyses.

Analysis of Bones from N.Q.				Average Analysis.
			Per Cent.	Per Cent.
Moisture .. .. .			5.46	10.0
Ash .. .. .			46.73	..
Nitrogen .. .. .			3.23	..
or Protein .. .. .			20.19	..
Fat .. .. .			14.52	5 to 15
Lime CaO—				
In ash .. .. .			52.53	51.28
In whole bone .. .. .			24.36	..
Phosphoric acid P <sub>2</sub> O <sub>5</sub> —				
In whole bone .. .. .			18.95	..
On ash .. .. .			39.3	37.46

For the investigation of the pasture four varieties of grasses were collected repeatedly from seven paddocks, and the results recorded on Table IV. The results of analyses show, in general, a great deficiency in proteins, lime, and phosphoric acid; although many of the samples contained a fair amount of young, green material, only the true green shoots contained high amounts of protein and fair amounts of lime and phosphoric acid. The variation of the quality in the different paddocks is noticeable, but there is not much variation in the quality of the four varieties, although it appears that Mitchell grass shows a greater deficiency in phosphoric acid than the other grasses, more particularly Flinders grass.

The disease is unquestionably due to malnutrition caused by protein and mineral deficiencies, and our generally recommended Nauru phosphate salt lick should give beneficial results.

#### PASPALUM PASTURE IMPROVEMENT.

The experiments carried out at Maleny and Atherton, fully reported on last year, were continued, and the results given in tables entirely endorse the remarks made in my last report.

Again only a small number of cuts were made at Atherton, at very irregular intervals. The yield of the uncultivated and unfertilised control plots Nos. 5 and 6 yielded on an average, in 213 days, 1,099 lb. dry material with 5.57 lb. phosphoric acid and 8.74 lb. lime. The ploughed and unfertilised plot No. 1 (the other plot, No. 2, cannot be taken into account because it was accidentally eaten out) yielded 2,122 lb. dry matter, with 10.1 lb. P<sub>2</sub>O<sub>5</sub> and 15.4 lb. lime. Plot Nos. 2 and 3 (cultivated only) yielded 2,097 lb. dry matter and 7.26 lb. P<sub>2</sub>O<sub>5</sub>, and 11.6 lb. lime. The proteins are again disappointingly low—about 50 per cent. lower than the paspalum grown in the same period at Maleny, practically the same as last year, and slightly the highest on the untreated plots.

At Maleny it was found last year that the cuts on the east and west portions of the plots varied very considerably in Experiment No. 1, and the hurdles were therefore removed to localities north and south of the field, giving more concordant results in Experiment Nos. 1 and 2, but still showing a great difference in Experiment No. 3. The plots were cut seven times during the year, representing a 265 days' growth, against 256 days last year. The average yield of the three plots was as follows:—

	lb.	lb.	lb.
Total water from material ..	5,154	6,170	4,783
Containing P <sub>2</sub> O <sub>5</sub> .. .. .	33.5	36.3	28.6
Against last year's—			
Dry material .. .. .	4,688	5,950	6,765
Phosphoric acid .. .. .	31.2	41.2	28.5

This shows a decided and significant increase in the crop of the fertilised and cultivated plot No. 2, but a serious falling-off in the yield of the cultivated but unfertilised plot No. 3.



The composition of the grass is practically the same as last year, and in some cases the protein contents identical; the wonderful increase in the feeding value in April and May cuts is again clearly demonstrated.

*Kikuyu Grass.*—In the same locality two hurdles were placed in a field of Kikuyu grass established five years ago, and another in a field planted three years ago. The yield is rather lower than that of paspalum pasture, and also the nutritive value is rather lower than that of paspalum. The phosphoric acid contents are higher, and in some cases exceptionally high, although the land was not top-dressed. The lime contents are rather low as compared with phosphoric acid, and this also applies to the paspalum pasture in the district. This is clearly supported by the soil analyses, which gave for the Atherton experiments 4,000 to 5,000 lb. available lime and 59 to 76 lb. available phosphoric acid, or, on an average, 5,912 lb. of CaO and 67 lb. of  $P_2O_5$ , against Maleny, with 894 to 2,700 lb. of available lime and 101 to 191 lb.  $P_2O_5$ , or, on an average, 1,835 lb. CaO and 148 lb.  $P_2O_5$ . The difference of the nitrogen in the soil, on an average, is 8,855 lb. per acre foot in Atherton, as against 11,223 lb. per acre foot in Maleny, combined with practically double the amount of humus in the Maleny soil, against the Atherton soil, accounts for higher yields and higher protein of the Maleny pastures.

Complete analyses of the ashes of these pastures, on composite samples collected throughout the year, are given on Table X., with some other ash analyses of grasses collected last year. They confirm the remarks made, that fertilising has practically no influence on the composition of the plant ash under our conditions.

#### Stock Licks.

The use of the recommended stock licks, consisting of two parts of extra finely crushed Nauru phosphate and 1 part of coarse salt, has been widely extended all over Queensland with most beneficial results. Numerous reports have been received showing that even during the very dry years just passed the improvement in lambing was very satisfactory, being in many cases more than doubled, and 95 per cent. of lambing being obtained; the quantity and quality of the wool has improved; sheep could be maintained on felled scrub for long periods with the use of licks, and did not show that rapid falling-off which previously was universal when scrub feeding lasted more than a few months.

The pernicious reports on the unsuitability of Nauru phosphate for lick purposes referred to in my last annual report are still being spread, and, of course, caused uneasiness in the minds of many stock owners.

The late Professor T. Brailsford Robertson took a particularly keen interest in this matter, and I think it is therefore my duty to publish a copy of a private letter I received from him late last year and only three months before his untimely death, in which he emphatically contra-

dicts some of such rumours. As there is no person in Australia who could speak on these matters with better authority than the late Chief of the Division of Animal Nutrition of the Council for Scientific and Industrial Research, I think the publication of this letter should settle all controversies.

[Copy.]

“Council for Scientific and Industrial  
Research,  
Division of Animal Nutrition,  
University of Adelaide, South  
Australia,

October 15th, 1929.

“Dear Mr. Brünnich,—Professor Prescott has handed to me copy of the letter addressed by . . . to . . . of Queensland, which, I understand, you gave him for transmission to me. It deals with the rumour which is now being put about in Australia to the effect that the administration of rock phosphate to animals is injurious on account of its content of fluorine.

“I must say that I am entirely in disagreement with the writer of the letter, both from a theoretical point of view and from practical experience. In the first place, the feeding tests to which Mr. . . . alludes were carried out with diets to which sodium fluoride was added. Obviously sodium fluoride is a very different thing from the calcium fluoride contained in rock phosphate. In the second place, although Mr. . . . does not refer to the experiments of E. V. McCollum upon rats, these have been quoted recently in certain quarters to prove that the teeth are rendered brittle by fluorides. The fact of the matter was, of course, that McCollum found in rats an extreme overgrowth of teeth following the administration of fluorides, but this is hardly to the disadvantage of fluorides, because in the rat and mouse the teeth grow throughout life, and the overgrowth after the administration of fluorides was so great that the teeth broke occasionally for purely mechanical reasons. There was nothing in the investigation to show that the teeth were more brittle than usual, but being so much longer than usual they were incidentally subject to fracture.

“So far as practical experience is concerned my own experience is limited to sheep, but it so happens that at the Waite Institute we have been administering sodium fluoride to half a dozen lambs for the greater part of a year. Our purpose in doing this was to ascertain whether there was any deficiency of fluorides in the district and whether fluorides were of unsuspected value to the animals. We anticipated that, in case there should chance to be a deficiency, we might possibly obtain an improvement of the animals in consequence of the administration.

“We were led to this experiment by the work of McCollum, which has been cited here in Australia as proof of the disadvantageous



action of fluorides. As a matter of fact, our sheep to which we have administered fluoride do not differ in any particular from the controls originally chosen to be as alike with them as possible. Furthermore, it so happens that we have a dentist associated with the work, who has been examining the teeth of all our sheep at the Waite Institute, and who has been unable to detect any difference between the teeth of the animals in respect of fluoride and those to which fluoride has not been administered. We do not regard this experiment as final or conclusive, but it suffices to remove from our minds any very great apprehension regarding the harmfulness of fluorides incidentally present in licks.

"In addition, however, I have just had the privilege of examining the sheep at Meteor and Orion Downs, near Springsure. Meteor Downs, as you know, was one of the first stations in Queensland to adopt your proposal to employ ground rock phosphate as a source of phosphoric acid in the diet. The neighbouring station, Orion Downs, adopted the procedure at about the same time. The teeth of all the sheep on these stations are unusually excellent. I have never seen better teeth in any part of Australia, and these sheep have now been in receipt of Nauru phosphate lick for some four years without intermission. It so happens that at Orion Downs there are a number of very old ewes not less than fourteen years of age, some of which have borne lambs this year. I did not think that I would have the chance of encountering such old ewes upon any station, and certainly would not have expected to have found them possessed of any teeth, but quite contrary to my anticipation the teeth of these ewes were in excellent condition and certainly conveyed no hint of their age, nor did they suggest in the slightest degree that any deleterious influences were operating upon the teeth. These also have been in receipt of Nauru phosphate for the last four years.

"Personally, therefore, I am quite satisfied that Nauru phosphate is harmless. On the other hand, the excellent effect your lick has had in Queensland is notorious. On all hands pastoralists assured me that prior to the employment of this mixture the sheep's rib bones used to break under the shearers' hands, and sheep frequently broke their legs when pursued by dogs. In old sheep one can still see the old fractures inflicted before the phosphate lick was inaugurated. These fractures have usually mended well. The present condition of the bones does not suggest that they will be easily fractured. I think that Sir Arnold Theiler was right in characterising this as an outstanding case of the success of a mineral supplement. It does not, of course, follow that rock phosphate is the most ideal source of phosphoric acid, and we are conducting careful comparative experiments on different phosphoric acid compounds at our field station at Dismal Swamp, in the south-east of South Australia, but I think it may be considered to be demonstrated that rock phosphate is of very great value.

"The number of accusations that have recently been levelled against rock phosphate in the more popular and irresponsible periodicals in Australia, taken together with their extreme variety and lack of any connection with each other, suggests that the criticisms proceed not so much from conviction as from the self-interest of certain parties. We will do our best to combat them where we can without bringing these parties into undeserved prominence by replying to them directly.

"I am,

Yours sincerely,

(Sgd.) T. BRAILSFORD ROBERTSON,

Chief of Division."

Of course, I do not claim that the recommended lick is a *multum in parvo* suitable for all localities and conditions, but in the great majority of cases it is the most useful and cheapest lick available. Under certain conditions the addition of a small percentage of Epsom salts, iron sulphide, sulphur, &c., may be advantageous, but the addition of iodine in the form of potassium iodide is, as far as our present knowledge goes, quite unnecessary. Considering the exceedingly precarious economic position of our cattle and sheep industry, it is our duty to get a lick as cheap as possible, and the great increase in freight alone will make a free use of lick impossible. The fact that only a relatively small portion of the lick is utilised by the animal in digestion, the rest being returned to the soil as fertiliser, must not be overlooked, as it necessitates a liberal supply of lick, which is only possible if obtainable at reasonable cost.

Considering that the increase of the number of sheep, due to better percentage of lambing and reduction of losses caused by malnutrition and starvation, increased wool clip, &c., will improve railway revenues. It is only reasonable to suggest that licks, like food for starving stock, should be carried at special low rates like fertilisers, &c.

In a very few isolated cases it was reported that the use of lick did not show any results, and on investigation it was found that the animals did not consume a sufficient amount of the lick. It is always necessary to keep a check on the consumption, and if not taken readily the lick should be made more palatable by the addition of small amounts of molasses or some meals, which should be discontinued when consumption gets too large.

With regard to the Analyses of Ashes (Table X.), attention must be drawn to the very high potash contents, yielding as much as  $2\frac{1}{2}$  per cent. of potash in the dry material of the grass. Already, in 1913, I found as much as 6.6 per cent. of potash in *Paspalum scrobiculatum*, with only .3 per cent. lime and .5 per cent. phosphoric acid, and in all fodders a great excess of potash is consumed as compared with the other mineral constituents.



It is, therefore, quite possible that the statement made that stock require saline waters to combat a high percentage of potash in their feed, is perfectly correct, and explains the craving for salt in many districts. A high ratio of potash to soda also lowers assimilation of other mineral constituents and, therefore, an intake of extra soda, in form of salt, will give beneficial results.

#### FOOD GRAINS.

In connection with maize fertilising experiments carried out at Kingaroy last year, average samples of the grain harvested from the plots were collected and analysed. The results given in Table VIII. showed a very uniform composition, only the amount of potash showed some variation, but apparently not influenced to any significant degree by the fertiliser applied. Only the 12 plots receiving the double amount of complete fertilisers gave the highest percentage of protein, phosphoric acid, and potash.

As it was considered possible that the generally low protein in the grain was due to grading, special samples of the top and tail of cobs were collected and analysed, but no difference in the analyses can be noted. Analyses of seed maize recently collected and of many years back are also given, demonstrating the great falling-off in protein contents.

#### POULTRY FEEDING EXPERIMENT.

The poultry expert conducted a feeding experiment with poultry, reported elsewhere, where he divided the birds into three pens receiving different feeds.

*Pen A.*—A mash (given in self-feeding hoppers) consisted of 37 per cent. maize meal, 20 per cent. bran, 15 per cent. lucerne meal, 10 per cent. pea meal, 10 per cent. meat meal, 5 per cent. cotton-seed meal, 2 per cent. bone meal, and 1 per cent. salt, being fed with maize as grain.

*Pen B.*—The mash: 52 per cent. pollard, 26 per cent. bran, 12 per cent. lucerne meal, 7 per cent. meat meal, 2 per cent. bone meal, 1 per cent. salt, with wheat as grain.

*Pen C.*—Mash: 52 per cent. maize meal, 15 per cent. lucerne meal, 10 per cent. pea meal, 10 per cent. meat meal, 10 per cent. cotton-seed meal, 2 per cent. bone meal, and 1 per cent. salt, with barley as a grain.

The results of the protein consumed are summarised in Table IX. and show a considerable variation in the amount of protein consumed to produce the eggs. From 0.842 oz. to 2.258 oz. protein consumed in the mash and grain produced one egg, and the average amounts were 1.204 oz. in Pen A, 1.389 oz. Pen B, and 1.271 oz. Pen C per egg, with an actual average production of eggs laid over the period—137.2 Pen A, 145.7 Pen B, and 129.0 Pen C.

Already, in 1904, I stated in my annual report that maize should be utilised on a much larger scale as a substitute for wheat for poultry food, and this recent experiment, which is being continued in an improved manner this year, shows that maize feeding is quite feasible and economic.

#### TUBERS OF CANNA EDULIS.

The Instructor of Agriculture in North Queensland submitted, at monthly intervals, the roots of *Canna edulis* in order to ascertain if the harvesting season could be safely spread over several months for the production of Canna starch, which persistently and erroneously is locally called Arrowroot. The following table shows that the contents of sugar vary much more than the starch contents, but that the tubers could be safely kept for long periods.

ANALYSES OF CANNA EDULIS TUBERS FORWARDED FROM ATHERTON.

Analysis No.	Date Forwarded.	Water.	Analysis of Water-free Material	
			Starch.	Total Sugars.
		Per cent.	Per cent.	Per cent.
1159	20th September, 1929 .. .. .	76.2	61.6	22.4
1379	30th September, 1929 .. .. .	76.4	56.0	26.3
1686	19th October, 1929 .. .. .	72.1	68.0	9.0
2170	13th November, 1929 .. .. .	71.6	67.4	8.1
2385	29th November, 1929 .. .. .	76.4	65.3	9.3
2544	11th December, 1929 .. .. .	81.0	55.4	15.3
3056	14th January, 1930 .. .. .	83.7	47.2	13.5
3563	12th February, 1930 .. .. .	86.9	54.3	26.8
5195	16th April, 1930 .. .. .	81.1	56.1	15.3



## PEST DESTROYERS.

In a previous report, 1927-28, I spoke about the difference in the physical properties of lead arsenate with regard to settling in suspension. For further experiments 9 lead arsenates were chosen with composition as follows:—

No.	Manufacturer or Agent.	Lead as PbO.	Arsenic as As <sub>2</sub> O <sub>5</sub> .	Volume in c.c. of 1 gr.	Sediment of 1 gr. in 100 c.c. after 5 min.
		Per cent.	Per cent.	Per cent.	Per cent.
1	Australian lead arsenate .. .. .	63.4	32.3	1.6	87.2
2	Cooper's Arsinette .. .. .	63.8	30.9	2.1	16.7
3	Cooper's Arsinette .. .. .	60.6	31.5	2.1	11.4
4	Austral Co-operative fertilisers .. .. .	63.6	31.3	1.4	91.5
5	Victor Leggo .. .. .	65.1	30.7	1.7	93.1
6	Austral Co-operative fertilisers .. .. .	66.4	30.3	1.7	95.6
7	Neptune Oil Coy. (Paste) .. .. .	60.4	32.6	1.3	22.6
8	Buzacott's lead arsenate.. .. .	64.3	32.5	1.8	19.2
9	C.O.D. imported (German) .. .. .	59.1	29.8	1.5	48.7

It will be noted that Nos. 2, 3, 7, and 8 kept well in suspension due to the presence of some "sticker" or deflacculating agent like soap, tannin, gums, casein, glue, &c.

In order to test all the powders under the same condition 1 grain of each of the samples was added to 100 cc. of water containing 0.2 per cent. gum arabic in solution, shaken for two hours in a mechanical shaking machine, allowed to settle, and determination of the material still in suspension made after 2 minutes, 5 minutes, and 5 minutes intervals for one hour. The results are shown graphically in Table X., and prove the superiority of samples 2, 3, and 8. A sample (9), specially imported for the Committee of Direction, showed poor analysis and poor sedimentation test.

The results of sedimentation were confirmed by a microscopical examination of the various preparations, and we found—

No. 1—Consisting of a large proportion coarse compound particles with very few simple ones.

Nos. 2 and 3—No compound coarse particles; all fine simple ones.

Nos. 4, 5, and 6—Practically no simple particles; all large compound particles.

No. 7—All simple particles, but larger than Nos. 2 and 3.

No. 8—Large proportion of simple particles; a few coarse compound.

No. 9—Equal proportion of simple and coarse compound particles.

The size of the simple particles of Nos. 2 and 3 were from 1 cc. to 3 cc. in diameter (1 cc. = .001 mm.).

The fineness of the particles and the addition of a suitable "sticker" will be of importance in practical application of lead arsenate, but we have, unfortunately, no experimental tests carried out by the Entomological Branch to confirm our analytical tests.

J. C. BRÜNNICH,

Agricultural Chemist.



Table I.—ANALYSES OF QUEENSLAND SOILS.

Laboratory No.	Locality.	Description of Soils.	TOTAL ELEMENTS IN SOIL, CALCULATED ON SOIL DRIED AT 100° C.										Available Plant Food, Soluble in 1 per cent. Citric Acid.				Total Elements, Lb. per Acre, 12" Deep.				Available Plant Food, Soluble in 1 per cent. Citric Acid, Lb. per Acre, 12" Deep.			SOIL ACIDITY.								
			Soluble in Hydrochloric Acid, Sp. Gr. 1.115.					Nitrogen.	Chlorine.	Combined Water and other Organic Matter	Humus.	Phosphoric Acid.	Lime.	Magnesia.	Potash.	Total Insoluble Matter.	Phosphoric Acid.	Lime.	Magnesia.	Potash.	Nitrogen.	Phosphoric Acid.	Lime.	Potash.	Phosphoric Acid.	Lime.	Potash.	Comber Test.	Truog Test.	Total Acidity (Jones).	Mineral Acidity (Hopkins).	Organic Acidity (J-H).
			Phosphoric Acid.	Lime.	Magnesia.	Potash.																										
							Ph.																									
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
3109	COOK— Barrine ..	l. gr. s. S...	1.01	2.13	.010	.073	..	..	..	.0024	.0461	.0164	.0008	..	..	..	..	..	..	..	87	1,680	29	7.47	5.09	..	Nil	18.1	4.4	13.7		
3068	NORTH KENNEDY— Mount Edgecombe ..	gr. s. ..	1.36	18.06	.005	.107	.08	19.82	.24	.03	.0009	.3128	.0159	.0032	59.14	.0009	.3128	.0159	.0032	3,892	2,937	11,387	117	8.06	7.94	Alk.	Nil	..	..	..	..	
3075	Cardwell ..	l. br. s. L...	1.28	5.59	.006	.175	.03	.35	.15	.12	.0010	.1288	.0057	.0087	83.08	.0010	.1288	.0057	.0087	5,859	1,028	4,317	291	..	..	Sl.	..	..	..	..	..	
3076	SOUTH KENNEDY Chelona ..	r. br. cl. L.	1.40	13.98	.008	.301	..	..	..	..	.0022	.0287	.0566	.0150	..	.0022	.0287	.0566	.0150	7,998	..	763	400	..	..	Med.	86.9	13.4	73.5			
3077	Ditto ..	br. L. ..	2.31	12.55	.006	.368	..	..	..	..	.0054	.0524	.0570	.0192	..	.0054	.0524	.0570	.0192	10,279	..	1,463	537	..	..	Med.	93.3	2.4	90.9			
3090	Eungella ..	l. br. L. ..	2.04	10.35	.033	.293	.11	.19	.21	.08	.0034	.0199	.0506	.0111	69.16	.0034	.0199	.0506	.0111	9,289	3,650	630	352	4.95	4.08	Med.	119	27	92			
..	(Subsoil of 3090)	y. br. L. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.85	4.08	Str.	110	33	77			
3091	Ditto ..	br. s. L. ..	1.38	5.82	.015	.165	.04	.17	.12	.02	.0029	.0211	.0223	.0071	85.21	.0029	.0211	.0223	.0071	5,947	1,468	760	257	4.97	4.15	Med.	78	11	67			
..	(Subsoil of 3091)	br. s. L. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.73	4.00	Med.	83	23	60			
3092	Ditto ..	dk. gr. c. L.	2.86	12.29	.013	.260	.14	.77	.69	.03	.0055	.1878	.0762	.0060	60.00	.0055	.1878	.0762	.0060	7,091	3,747	5,116	164	5.07	4.44	Med.	110	3	107			
..	(Subsoil of 3092)	br. cl. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.02	4.03	Str.	123	54	69			
3093	Ditto ..	r. br. L. ..	2.50	12.83	.010	.309	.08	.21	.18	.04	.0020	.0455	.0245	.0108	59.71	.0020	.0455	.0245	.0108	7,672	2,067	1,129	269	4.88	4.03	Med.	129	16	113			
..	(Subsoil of 3093)	y. br. cl. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4.07	3.83	Str.	76	76	..			
3050	LEICHHARDT— Mackay ..	gr. s. S. ..	.49	.85	.007	.022	.004	.37	.07	.005	.0008	.0342	.0009	.0002	95.63	.0008	.0342	.0009	.0002	873	158	1,334	8	5.23	4.77	Sl.	..	..	..	..		
3053	Clermont ..	bl. cl. ..	1.37	9.77	.006	.140	.33	3.07	3.15	.19	.0205	.5131	.1589	.0009	53.97	.0205	.5131	.1589	.0009	3,466	8,223	12,663	23	7.56	7.32	Nil	..	..	..	..		
3054	Ditto ..	br. cl. L. ..	.90	8.91	.005	.123	.26	3.67	4.78	.14	.0627	.4099	.1742	.0038	52.41	.0627	.4099	.1742	.0038	3,402	7,060	11,340	106	8.27	7.51	Nil	..	..	..	..		
3062	Ditto ..	br. cl. ..	.79	13.73	.165	.068	.03	5.59	5.93	.15	.0004	.4516	.1521	.0038	48.90	.0004	.4516	.1521	.0038	1,957	963	12,902	109	8.83	7.80	Alk.	Nil	..	..	..	..	
3063	Ditto ..	r. cl. ..	.77	8.28	.010	.085	.08	2.67	2.71	.06	.0004	.6183	.2796	.0028	64.90	.0004	.6183	.2796	.0028	2,566	2,303	18,475	85	8.78	7.91	Alk.	Nil	..	..	..	..	
3099	Theodore ..	gr. s. S. ..	1.08	1.53	.006	.062	.05	.29	.16	.21	..	..	..	..	..	..	..	..	..	2,428	1,958	..	..	7.06	..	Sl.	..	..	..	..	..	
3100	Ditto ..	dk. gr. cl...	1.60	6.22	.011	.127	.02	1.08	.98	.80	..	..	..	..	74.76	..	..	..	..	4,012	680	..	..	8.02	..	V. sl.	..	..	..	..	..	
3122	Ditto ..	gr. s. S. ..	.70	1.17	.004	.028	.02	.22	.15	.26	.0055	.0711	.0191	.0082	94.78	.0055	.0711	.0191	.0082	1,203	859	3,034	348	74.9	7.03	V. sl.	..	..	..	..	..	



Table I.—ANALYSES OF QUEENSLAND SOILS—continued.

Laboratory No.	Locality.	Description of Soils.	TOTAL ELEMENTS IN THE SOIL, CALCULATED ON SOIL DRIED AT 100° C.										Available Plant Food, Soluble in 1 per cent. Citric Acid.				Total Elements, Lb. per Acre, 12" Deep.				Available Plant Food, Soluble in 1 per cent. Citric Acid. Lb. per Acre, 12" Deep.				SOIL ACIDITY.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
			Humus.	Combined Water and other Organic Matter.	Chlorine.	Nitrogen.	Soluble in Hydrochloric Acid, Sp. Gr. 1.115.					Phosphoric Acid.	Lime.	Magnesia.	Potash.	Total Insoluble Matter.	Phosphoric Acid.	Lime.	Nitrogen.	Phosphoric Acid.	Lime.	Potash.	Phosphoric Acid.	Lime.	Potash.	PH.		Comber Test.	Truog Test.	Total Acidity (Jones).	Mineral Acidity (Hopkins).	Organic Acidity (J.H.).																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
							Phosphoric Acid.	Lime.	Magnesia.	Potash.	%															%	%						%	%	%	%	%	H <sub>2</sub> O.	KCl.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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3123	(Subsoil of 3122)	l. br. s. S...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..







Table I.—ANALYSES OF QUEENSLAND SOILS—continued.

Laboratory No.	Locality.	Description of Soils.	TOTAL ELEMENTS IN THE SOIL, CALCULATED ON SOIL DRIED AT 100° C.										Available Plant Food, Soluble in 1 per cent. Citric Acid.				Total Elements, Lb. per Acre, 12" Deep.					Available Plant Food, Soluble in 1 per cent. Citric Acid, Lb. per Acre, 12" Deep.					SOIL ACIDITY.							
			Humus.	Combined Water and other Organic Matter.	Chlorine.	Nitrogen.	Soluble in Hydrochloric Acid, Sp. Gr. 1.115.				Phosphoric Acid.	Lime.	Magnesia.	Potash.	Total Insoluble Matter.	Phosphoric Acid.	Lime.	Potash.	Nitrogen.	Phosphoric Acid.	Lime.	Potash.	Phosphoric Acid.	Lime.	Potash.	Comber Test.	Truog Test.	Total Acidity (Jones).	Mineral Acidity (Hopkins).	Organic Acidity (J-H).				
							Humus.	Combined Water and other Organic Matter.	Chlorine.	Nitrogen.																					Phosphoric Acid.	Lime.	Magnesia.	Potash.
MORETON—continued.																																		
3059	Windsor	..	..	6.43	.019	.150	..	..	..	..	.0925	1.0696	.0334	.0016	..	..	..	..	..	..	..	..	..	..	..	Alk.	Nil	..	..	..				
3067	Cleveland	..	ch. L.	1.78	15.31	.007	.180	.10	.45	.18	.0159	.1689	.0242	.0175	41.04	2,937	12,726	979	5,124	2,937	454	4,807	499	..	..	V. sl.	Med.	61.5	1	60.5				
3069	Stapylton	..	dk. gr. c. L.	1.11	5.10	.007	.110	.17	1.47	1.22	.0257	.1686	.0652	.0014	75.43	5,264	46,065	3,619	3,488	5,264	803	5,270	43	..	..	Sl.	Sl.	..	..	..				
3070	Indooroopilly	..	r. br. L.	1.10	5.62	.007	.153	.06	.23	.46	.0036	.0462	.0347	.0015	78.79	2,202	..	..	5,360	2,202	125	1,622	51	..	..	..	Med.	66	26	40				
3071	Petrie	..	gr. s. L.	.94	4.50	.005	.088	.01	.26	.13	.0012	.0440	.0207	.0235	86.26	359	8,974	19,389	3,015	359	39	1,508	804	..	..	..	Sl.	34	1	33				
3085	Graceville	..	lt. br. s. L.	1.39	3.98	.011	.108	.06	.37	.20	.0214	.1204	.0260	.0090	85.77	2,170	13,020	1,447	3,834	2,170	760	4,275	318	..	..	..	Sl.	49	8	41				
3086	Tingalpa	..	br. P. L.	9.49	18.73	1.500	.746	.28	.24	.44	.0194	.0753	.1728	.0052	45.43	5,090	4,242	2,969	13,300	5,090	346	1,343	98	..	..	V. str.	..	473	301	172				
3088	Mount Glorious	..	ch. L.	3.74	18.31	.006	.512	.34	.52	.41	.0037	.1811	.0598	.0178	35.78	9,863	14,952	636	14,795	9,863	108	5,237	515	..	..	Med.	85	1	84					
3089	Darra	..	gr. S.	.87	.81	.002	.039	.01	.08	.04	.0002	.0186	.0055	.0014	97.68	443	3,546	443	1,729	443	9	820	62	..	..	..	Sl.	32	..	32				
3094	Oxley	..	br. s. L.	.98	3.68	.022	.098	.09	.92	.65	.0104	.1721	.0391	.0026	82.88	3,402	33,640	9,450	3,591	3,402	382	6,308	94	..	..	..	Sl.	..	..	..				
3095	Q'land. Irrig. Commission, Beerwah	..	dk. gr. Cl.	3.77	11.09	.023	.448	.11	.29	.25	.0113	.1186	.0362	.0035	64.05	2,420	6,292	9,196	9,632	2,420	242	2,549	75	..	..	Str.	170	25	145					
3096	Ditto	..	dk. gr. s. Cl.	3.80	11.49	.027	.394	.10	.31	.27	.0054	.0578	.0390	.0045	64.25	2,423	7,269	6,999	9,341	2,423	129	1,373	108	..	..	Str.	206	59	147					
3097	Ditto	..	gr. s. Cl.	2.12	7.18	.007	.243	.04	.20	.14	.0016	.0422	.0310	.0041	81.07	1,207	5,735	3,924	7,094	1,207	45	1,235	121	..	..	Str.	129	38	91					
3120	Nambour	..	br. cl. L.	3.16	11.27	.015	.372	.34	.43	.77	.0189	.1432	.0657	.0074	50.98	10,006	12,820	625	11,038	10,006	560	4,253	219	..	..	Med.	85	6	84.4					
3129	Ditto	..	br. s. S.	.91	2.79	.005	.063	.03	.20	.11	.0026	.0430	.0197	.0042	91.49	1,167	7,777	2,722	2,411	1,167	101	1,656	163	..	..	Med.	51	3	48					
3136	Eumundi	..	l. gr. s. Cl.	2.61	7.20	.003	.257	.17	.67	.54	.0238	.2529	.0749	.0103	76.39	2,807	11,226	13,160	4,315	2,807	400	4,252	174	..	..	V. sl.	..	..	..					
3116	Conondale	..	lt. br. s. Cl.	1.24	8.25	.033	.307	.06	.38	.24	.0004	.0859	.0984	.0063	66.40	1,990	12,607	3,317	10,185	1,990	13	3,182	209	..	..	Med.	50.9	12.2	38.7					
3133	Mount Cotton	..	br. cl. L.	1.82	4.92	.004	.196	.05	.29	.47	.0039	.0582	.0178	.0045	84.43	1,700	9,178	13,904	6,288	1,700	126	1,866	143	..	..	Str.	102	55	47					
3119	Brisbane	..	gr. s. S.	.60	1.58	.004	.039	.02	.11	.13	.0014	.0399	.0246	.0021	94.03	816	4,487	6,526	1,591	816	57	1,627	86	..	..	Med.	28	1	27					
DARLING DOWNS—																																		
3064	Cunningham	..	bl. Cl.	1.50	7.13	.004	.187	.05	.73	1.05	.0026	.1881	.0832	.0040	77.95	1,605	21,820	21,499	5,583	1,605	77	5,625	119	..	..	Alk.	V. sl.	..	..	..				
3065	Ditto	..	dk. gr. Cl.	.60	5.31	.106	.085	.04	1.64	1.40	.0167	.8811	.1120	.0024	79.72	4,392	52,556	20,188	2,715	4,392	536	28,262	77	..	..	Alk.	Nil	..	..	..				
3066	Ditto	..	bl. Cl.	1.52	8.13	.005	.194	.27	1.56	1.36	.0193	.2393	.0901	.0020	66.14	8,566	49,340	8,566	6,134	8,566	610	7,559	62	..	..	Neut.	Sl.	..	..	..				







Table II.  
ANALYSES OF PASTURE GRASSES.

Number of Analyses.	Date Cut.	Name of Grass.	Local Name.	District.	ANALYSIS OF WATER-FREE MATERIAL.							Remarks. (Chiefly made by senders).
					Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P <sub>2</sub> O <sub>5</sub> .	
					%	%	%	%	%	%	%	
MITCHELL GRASSES.												
388	31 July, 1929	<i>Astrelba lappacea</i>	Mitchell	Roma (D)	5.0	1.2	50.4	29.6	13.8	.715	.323	Slightly elevated brown soil flats; regarded as good for cattle, but only when young for sheep; very resistant to drought.
540	15 Aug., 1929	Ditto	Curly Mitchell	Darling Downs (J)	5.2	1.0	53.4	33.4	7.1	.300	.216	Heavy black soil flats.
747	29 Aug., 1929	Ditto	ditto	Dalby (H)	3.2	0.9	57.6	31.0	7.3	.316	.318	Plain country; heavy soil.
929	12 Sept., 1929	Ditto	ditto	Hughenden (CD)	6.6	0.9	50.0	30.4	12.1	.520	.177	Loose open downs; mature with seed.
1130	25 Sept., 1929	Ditto	ditto	Hughenden (S)	4.6	0.9	49.5	31.8	13.2	.701	.216	..
1132	25 Sept., 1929	Ditto	ditto	Hughenden (D)	6.0	0.5	47.3	32.8	12.7	.268	.077	..
1496	16 Oct., 1929	Ditto	ditto	Winton (M)	6.8	0.8	54.0	29.2	9.2	.247	.186	Some seedheads 9 to 12 in. high; brown open downs country.
1498	16 Oct., 1929	Ditto	ditto	ditto	5.1	1.7	59.0	25.9	8.3	.310	.158	..
2542	17 Dec., 1929	Ditto	ditto	Cloncurry (BP)	5.0	0.9	56.2	26.8	11.1	.320	.071	..
3576	19 Feb., 1930	Ditto	ditto	Ifracombe (RD)	17.1	1.1	39.7	29.6	12.5	.890	.450	In full green seed head.
5625	17 May, 1930	Ditto	ditto	Morven (VD)	6.2	1.0	53.5	30.8	8.5	.618	.185	High brown soil; mature grass.
737	27 Aug., 1929	<i>Astrelba pectinata</i>	Mitchell	Camooweal (R)	5.7	0.8	52.9	29.7	10.9	.680	.137	Gidyea country.
984	18 Sept., 1929	Ditto	ditto	Emmett (ED)	4.6	0.9	55.5	27.8	11.2	.488	.174	Top dressed country
986	18 Sept., 1929	Ditto	ditto	Emmett (S)	6.3	0.8	53.1	27.5	12.9	.767	.114	Open country
985	18 Sept., 1929	Ditto	ditto	Emmett (ED)	6.2	1.0	53.9	29.2	9.7	.606	.143	Open country
1629	17 Oct., 1929	Ditto	ditto	Winton (C)	5.5	0.7	50.8	32.7	10.3	.437	.278	..
3578	19 Feb., 1930	Ditto	Upright Mitchell	Ifracombe (RD)	16.2	1.2	40.4	30.9	11.3	.870	.410	In full green seedhead.
4220	21 Mar., 1930	Ditto	Mitchell	Longreach (E)	7.2	0.9	43.0	36.5	12.4	.603	.321	2 ft. high; in full seed.
5687	22 May, 1930	Ditto	ditto	Camooweal (MD)	8.7	0.9	42.8	31.7	15.9	.837	.223	In full seedhead.
916	11 Sept., 1929	<i>Astrelba Squarrosa</i>	Curly Mitchell	Camooweal (R)	7.2	0.9	45.2	32.2	14.5	.725	.362	This grass green; grown in moist locality; matured; with ripe seed.
932	12 Sept., 1929	Ditto	Bull Mitchell	Hughenden (CD)	4.1	0.9	54.5	28.1	12.4	.661	.204	Mature; with seed; stony country.
2164	19 Nov., 1929	Ditto	ditto	Winton (A)	3.9	0.8	58.8	24.4	12.1	.267	.495	Creek frontage.
933	12 Sept., 1929	<i>Astrelba elymoides</i>	Weeping Mitchell	Hughenden (CD)	4.3	1.3	52.5	28.8	13.1	.663	.236	Mature; most of seeds fallen; stony country.
3577	19 Feb., 1930	Ditto	Weeping, Wire, and Hoop (Mitchell)	Ifracombe (RD)	15.0	1.8	39.3	31.3	12.6	.830	.380	In full green seedhead.
4219	21 Mar., 1930	Ditto	ditto	Longreach (E)	7.5	1.4	42.7	37.7	10.7	.535	.271	4 ft.; in seed.
62	10 July, 1929	<i>Astrelba sp.</i>	Mitchell	Nelia (A)	6.1	0.9	47.7	33.6	11.7	.596	.369	..
1627	17 Oct., 1929	Ditto	ditto	Winton (C)	3.9	0.8	52.1	31.1	12.1	.339	.160	Dirty sample; no seedheads 9 in. ditto.
1628	17 Oct., 1929	Ditto	ditto	ditto	4.7	1.4	42.2	36.2	11.1	.245	.227	Fairly clean sample; no seedheads.
1630	17 Oct., 1929	Ditto	ditto	ditto	5.1	0.7	50.3	33.5	10.4	.388	.234	..
1631	17 Oct., 1929	Ditto	ditto	ditto	4.7	0.5	49.8	32.2	12.8	.312	.182	Black soil plains.
1400	9 Oct., 1929	Ditto	ditto	Dalby (K)	5.4	1.2	54.4	32.4	6.6	.201	.225	Stony country.
2165	19 Nov., 1929	Ditto	ditto	Winton (A)	5.0	0.8	55.3	27.9	11.0	.562	.157	Creek frontage; subject to flood.
2166	19 Nov., 1929	Ditto	ditto	ditto	3.9	1.9	51.1	31.3	11.8	.336	.635	..
2958	14 Jan., 1930	Ditto	ditto	Cloncurry (OP)	3.9	1.1	54.4	29.5	11.1	.427	.485	..



FLINDERS GRASS.									
		<i>Isilema mitchellii</i>		Flinders		Roma (D)			
387	31 July, 1929	Ditto	..	ditto	..	Camooweal (R)	3-3	1-0	48-3
727	27 Aug., 1929	Ditto	..	ditto	..	ditto	9-1	1-0	48-3
734	27 Aug., 1929	Ditto	..	ditto	..	Hughenden (CD)	11-9	0-7	52-0
934	19 Sept., 1929	Ditto	..	ditto	..	Hughenden (S)	4-1	1-3	51-9
1129	25 Sept., 1929	Ditto	..	ditto	..	Hughenden (D)	3-1	0-8	49-0
1131	25 Sept., 1929	Ditto	..	ditto	..	Cloneuray (BP)	4-9	0-9	45-9
2543	17 Dec., 1929	Ditto	..	ditto	..	Camooweal (R)	11-3	1-2	46-3
4056	11 Mar., 1930	Ditto	..	ditto	..	Camooweal (MD)	5-5	1-0	47-4
5685	22 May, 1930	Ditto	..	ditto	..	ditto	5-6	0-9	42-6
5686	22 May, 1930	Ditto	..	ditto	..	Nelia (A)	6-8	0-8	41-0
63	10 July, 1929	Not identified	..	ditto	..	Hughenden (R)	5-4	1-4	48-6
234	19 July, 1929	Ditto	..	ditto	..	Winton (C)	7-5	0-8	47-1
1625	17 Oct., 1929	Ditto	..	ditto	..	ditto	3-9	1-1	50-0
1626	17 Oct., 1929	Ditto	..	ditto	..	ditto	2-5	1-0	47-9
1641	17 Oct., 1929	Ditto	..	ditto	..	Winton (A)	4-5	0-9	49-0
2163	19 Nov., 1929	Ditto	..	ditto	..	Winton (OP)	3-0	0-7	40-5
2959	14 Jan., 1930	Ditto	..	ditto	..	Darling Downs (C)	4-1	1-0	47-6
394	1 Aug., 1929	<i>Andropogon sericeus</i>	..	Blue Grass	..	Darling Downs (J)	3-0	1-1	50-2
544	15 Aug., 1929	Ditto	..	ditto	..	Springsure (N)	3-1	0-6	48-9
576	19 Aug., 1929	Ditto	..	ditto	..	ditto	7-3	1-2	44-3
578	19 Aug., 1929	Ditto	..	ditto	..	Dalby (H)	10-0	1-1	42-5
744	29 Aug., 1929	Ditto	..	ditto	..	Charters Towers (BD)	3-3	0-8	49-2
1200	1 Oct., 1929	Ditto	..	ditto	..	Dalby (M)	8-4	1-6	44-9
1671	24 Oct., 1929	Ditto	..	Unknown	..	Darling Downs (C)	3-9	1-0	50-7
2352	29 Nov., 1929	Ditto	..	Blue Grass	..	ditto	6-3	1-5	48-8
2353	29 Nov., 1929	Ditto	..	ditto	..	Darling Downs (H)	4-3	0-8	47-8
2575	19 Dec., 1929	Ditto	..	ditto	..	Dalby (M)	3-9	1-0	47-6
5501	9 May, 1930	Ditto	..	ditto	..	Roma (D)	4-8	1-7	46-6
385	31 July, 1929	<i>Andropogon</i> sp.	..	ditto	..	Charters Towers (BD)	3-6	0-7	52-6
898	7 Sept., 1929	Ditto	..	..	..	Camooweal (R)	1-9	0-8	43-2
732	27 Aug., 1929	<i>Andropogon sericeus</i> var. <i>polystachyus</i>	..	..	..	Roma (D)	3-1	0-6	52-0
390	31 July, 1929	<i>Pollinia fulva</i>	..	Brown Top Blue Grass	..	Camooweal (R)	3-4	1-7	51-4
728	27 Aug., 1929	Ditto	..	ditto	..	ditto	3-7	1-2	50-0
729	27 Aug., 1929	Ditto	..	ditto	..	ditto	3-8	1-0	49-1
1359	7 Oct., 1929	Ditto	..	Brown Top	..	Dalby (R)	3-5	0-7	53-3
1499	16 Oct., 1929	Ditto	..	Swamp Blue Grass	..	Winton (M)	2-8	1-1	45-2
2168	19 Nov., 1929	Ditto	..	River Grass	..	Winton (A)	2-5	1-3	54-7
4055	11 Mar., 1930	Ditto	..	Red Grass	..	Camooweal (R)	4-2	1-5	47-3
5502	9 May, 1930	Ditto	..	Brown Top	..	Dalby (M)	5-4	1-7	46-9
2127	14 Nov., 1929	<i>Eulalia fulva</i>	..	Red Mulga Grass	..	Charleville (M)	3-1	0-5	48-2
4221	21 Mar., 1930	Ditto	..	Brown Top Blue Grass	..	Longreach (E)	4-5	1-3	44-4
4708	8 April, 1930	Ditto	..	Red Mulga Grass	..	Charleville (M)	3-8	0-8	52-3
930	12 Sept., 1929	<i>Panicum decompositum</i>	..	Barley Grass or Blow Grass	..	Hughenden (CD)	5-0	1-5	55-2
1497	16 Oct., 1929	Ditto	..	Star Grass	..	Winton (M)	8-1	0-8	54-0
2169	19 Nov., 1929	<i>Panicum decompositum</i> var. <i>tenius</i>	..	Unknown	..	Winton (A)	2-2	0-4	57-1

Barelay Tableland.  
 Considered poor straw grass.  
 Stony country; grass short with separate seedheads.  
 Dried in stack; about 12 in. long; just coming into seed.  
 In full green seedhead.  
 Older growth than No. 5685.  
 Brown soil; creek frontage; subject to floods.  
 Regarded as best grass on holding; brown volcanic soil.  
 Food value very high; fair resistance to drought; heavy black soil plains.  
 Matured; in seed; green.  
 ditto.  
 Plain country; heavy soil.  
 9 to 12 in.; apparently major portion not yet seeded.  
 A few seedheads; heavy black soil; stock relish grass.  
 18 in. high.  
 15 in. high.  
 Red volcanic soil; in seedhead.  
 Stock fond of it; not as plentiful as in past; 3 ft. high; in full seedhead.  
 Brown soil flats.  
 Bleached sample.  
 Gulf watershed of tableland.  
 Brown soil; low-lying.  
 Red grass of plain country; not relished by stock, but very hardy.  
 Silverleaf forest red grass.  
 Bleached with some green material.  
 With seedheads; open downs.  
 Creek frontage.  
 2 ft. high; in full seedhead.  
 2 to 3 ft. high; full seedhead; cattle more partial than sheep.  
 Roughage without seedhead; sheep do well when green and short.  
 2 ft. 6 in. high; in full seed.  
 Good when green; see 2127.  
 Forest; matured with seed.  
 Open downs country; in seedhead.  
 Grows on all classes of soil.



Table II—continued.

## ANALYSES OF PASTURE GRASSES—continued.

Number of Analyses.	Date Out.	Name of Grass.	Local Name.	District.	ANALYSIS OF WATER-FREE MATERIAL.							Remarks. (Chiefly made by senders).
					Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	lime CaO.	Phosphoric Acid, P <sub>2</sub> O <sub>5</sub> .	
					%	%	%	%	%	%	%	
FLINDERS GRASSES—continued.												
389	31 July, 1929	<i>Panicum trachyrhachis</i>	White Top Roly Poly	Roma (D)	2.8	1.0	49.3	35.0	11.9	.575	.209	Brown elevated ridge previously cultivated.
542	15 Aug., 1929	Ditto	Umbrella Grass	Darling Downs (J)	4.3	1.0	53.4	34.1	7.2	.477	.201	Regarded as poor food value except when green; heavy black soil; poor resistance to drought.
556	16 Aug., 1929	Ditto	ditto	Darling Downs (H)	4.4	1.3	50.9	31.8	11.6	.375	.312	Fair food value; fair drought resistance; red volcanic soil.
558	16 Aug., 1929	Ditto	Unknown	ditto	4.7	1.1	51.9	33.4	8.9	.474	.235	Mixed grasses also in sample; black soil; food value good after burning.
2349	29 Nov., 1929	Ditto	Umbrella Grass	Darling Downs (C)	4.9	1.4	55.0	30.5	8.2	.672	.562	Green; 21 in.
397	1 Aug., 1929	Not identified	Canary Grass	ditto	7.6	1.5	50.5	30.2	10.2	.680	.351	Brown volcanic soil. Readily eaten by sheep.
559	16 Aug., 1929	<i>Panicum divaricatisimum</i>	Unknown	Darling Downs (H)	4.1	1.0	49.8	35.7	9.4	.463	.227	Food value good; fair drought resister. Red volcanic soil.
910	10 Sept., 1929	<i>Panicum uncinulatum</i>	ditto	Bell (S)	7.1	0.9	56.7	30.4	4.9	.332	.195	Useless except after burning; stock like young shoots.
1108	23 Sept., 1929	<i>Panicum sp.</i>	Wire Grass	Chinchilla (P)	2.7	0.9	53.8	35.4	7.2	.314	.160	Some green seedheads about 6 in. high. Stock appear to show preference to this; similar to No. 3251.
3251	30 Jan., 1930	<i>Panicum gracile</i>		Tara (H)	21.0	1.1	43.8	23.9	10.2	.377	.384	In full seed; medium growth.
3252	30 Jan., 1930	Ditto		ditto	19.6	1.0	44.8	22.9	11.7	.261	.211	Full seed; good when green; useless dry.
4710	8 April, 1930	<i>Panicum macracanthinum</i>	Umbrella Grass	Charleville (M)	9.6	1.5	43.6	34.8	10.5	.300	.269	2 to 3 ft. high; plain country chiefly; stock fond of it; in full seedhead.
4712	8 April, 1930	<i>Panicum rarum</i>	Canary Grass	ditto	14.0	1.4	43.8	27.0	13.8	.220	.170	Low-lying country; brown soil.
5506	9 May, 1930	<i>Panicum globoideum</i>	Quail or Shot Grass	ditto	8.2	1.1	45.8	33.6	11.3	.273	.314	Seeds troublesome; very hardy; brown volcanic soil; food value moderate.
386	31 July, 1929	<i>Aristida leptopoda</i>	Wire Grass	Roma (D)	4.0	1.0	50.2	32.5	12.3	.450	.146	Poor food value; seed dangerous to sheep; heavy black soil plains.
399	1 Aug., 1929	Ditto	White Spear Grass	Darling Downs (C)	4.8	0.7	48.4	32.2	13.9	.360	.354	Mostly wire grass; after heavy frost; bone chewing country; low-lying hard sandy soil.
543	15 Aug., 1929	Ditto	Wire Grass	Darling Downs (J)	3.6	0.8	50.0	35.5	10.0	.276	.234	..
586	20 Aug., 1929	Ditto	ditto	Miles	3.5	0.6	49.6	36.2	10.1	.323	.038	..
422	8 Aug., 1929	<i>Aristida vagans</i>	ditto	Dalby (W)	5.2	0.6	48.3	38.6	7.4	.201	.298	..
908	10 Sept., 1929	Ditto	Unknown	Dalby (B)	4.8	0.7	55.2	31.6	7.7	.578	.324	..
909	10 Sept., 1929	Ditto	ditto	ditto	3.9	0.8	53.3	30.7	11.3	.394	.362	..
1106	23 Sept., 1929	Ditto	Spear Grass	Chinchilla (P)	3.5	1.1	50.9	36.3	9.2	.242	.080	Stock fond of young shoots.
1155	26 Sept., 1929	Ditto		Dalby (S)	4.7	0.7	47.7	35.6	11.3	.222	.209	..
1500	16 Oct., 1929	Ditto	Feather Top Grass	Winton	3.4	0.5	46.6	40.1	9.4	.168	.093	Open downs country; 3 ft. high with seedheads.
731	27 Aug., 1929	<i>Aristida ramosa</i>	Unknown	Camooweal (R)	3.1	0.7	55.2	30.0	11.0	.302	.100	Forest grass, of little value.
755	— Aug., 1929	<i>Aristida adscensionis</i>		Callide Valley	9.1	1.2	41.9	37.7	10.1	.219	.342	Forest sandy soil; low-lying country
1107	23 Sept., 1929	<i>Aristida sp.</i>	Purple Top Grass	Chinchilla (P)	4.4	0.5	52.2	33.4	9.5	.244	.117	Good all stages; good drought resister; new grass to district.
2579	19 Dec., 1929	Ditto	Umbrella Grass	Darling Downs (H)	6.4	1.4	46.2	34.5	11.5	.199	.440	Red volcanic soil; fresh matured; full seedhead.



1213	1 Oct., 1929	<i>Chrysopogon gryllus</i>	..	Summer Grass	..	Charters Towers (P)	5.6	0.6	45.0	34.8	14.0	.366	.163	Common grass; in green stage.
3579	19 Feb., 1930	Ditto	..	Unknown	..	Ilfracombe (RD)	19.6	2.0	40.8	25.2	12.4	.680	.500	
4711	8 April, 1930	Ditto	..	ditto	..	Charleville (M)	7.4	1.1	49.2	28.6	13.7	.636	.162	
395	1 Aug., 1929	<i>Anthistiria ciliata</i>	..	Wild Oats	..	Darling Downs (C)	3.1	1.2	54.4	30.7	10.6	.431	.139	Considered next to Blue Grass in food value; brown volcanic soil.
897	6 Sept., 1929	Ditto	..	Kangaroo Grass	..	Charters Towers (BD)	2.0	0.9	52.4	33.8	10.9	.247	.192	..
1212	1 Oct., 1929	Ditto	..	Oaten Top Grass	..	Charters Towers (P)	4.4	1.0	41.9	43.6	9.1	.292	.166	Sparse in box country; found more in higher country; with seed heads.
1674	24 Oct., 1929	Ditto	..	..	..	Dalby (M)	3.6	1.5	55.4	30.3	9.2	.340	.192	Red volcanic soil; fresh matured; in full seedhead.
2573	19 Dec., 1929	Ditto	..	Kangaroo Grass	..	Darling Downs (H)	3.6	1.5	49.8	34.9	10.2	.359	.394	4 to 5 ft. high; full ripe seedhead.
5504	9 May, 1930	Ditto	..	ditto	..	Dalby (M)	3.7	2.5	54.6	30.1	9.1	.513	.318	Heavy plains.
745	29 Aug., 1929	<i>Anthistiria avenacea</i>	..	Wild Oats	..	Dalby (H)	3.2	0.7	54.2	33.8	8.1	.372	.255	Chief grass this locality.
2348	29 Nov., 1929	Ditto	..	Kangaroo Grass	..	Darling Downs (C)	7.9	1.0	53.2	29.3	8.6	.375	.592	In seed.
2576	19 Dec., 1929	Ditto	..	Wild Oats	..	Darling Downs (H)	5.5	0.9	47.8	34.0	11.8	.296	.329	Sample just prior to seed blade opening.
541	15 Aug., 1929	<i>Anthistiria sp.</i>	..	ditto	..	Darling Downs (J)	3.9	0.7	52.0	36.8	6.6	.428	.181	Cut when seed blade is just opening out.
421	15 Aug., 1929	<i>Chloris divaricata</i>	..	Water Couch	..	Dalby (W)	5.7	0.7	52.8	32.8	7.9	.409	.364	Cut when blade is opening out.
577	19 Aug., 1929	Ditto	..	Unknown	..	Springsure (N)	10.8	1.2	48.4	29.3	10.3	.571	.367	Seed commencing to ripen.
396	1 Aug., 1929	<i>Chloris sp.</i>	..	ditto	..	Darling Downs (C)	4.6	0.7	55.0	31.7	8.0	.460	.432	In full seed; 2 ft. high.
746	29 Aug., 1929	Ditto	..	Star Grass	..	Dalby (H)	6.9	0.8	51.1	31.2	10.0	.553	.165	Considered good food; 14 in. high; full ripe seedhead.
1109	23 Sept., 1929	Ditto	..	Unknown	..	Chinchilla (P)	5.0	0.6	48.6	36.4	9.4	.517	.366	Black soil; fair drought resister.
1204	1 Oct., 1929	<i>Chloris divaricata</i>	..	Scrub Grass	..	Charters Towers (M)	8.4	0.8	49.6	30.2	10.3	.299	.218	Matured in seed; green.
3794	27 Feb., 1930	<i>Chloris acicularis</i>	..	Brigalow Mitchell	..	Tambo (C)	14.9	1.6	41.7	31.6	10.2	.271	.406	2 ft. high; very hard stalk; green sample.
3795	27 Feb., 1930	Ditto	..	ditto	..	ditto	14.3	1.4	46.3	28.3	9.7	.269	.481	15 in. high; green sample.
3796	27 Feb., 1930	<i>Chloris and Ventricosa</i>	..	ditto	..	ditto	12.7	1.4	46.1	29.9	9.9	.246	.579	Red volcanic soil; full seedheads.
3797	27 Feb., 1930	Ditto	..	ditto	..	ditto	11.3	0.8	46.7	32.4	8.8	.246	.386	Regarded as good fodder all stock; heavy black soil plains; good drought resister.
4415	28 Mar., 1930	<i>Chloris acicularis</i>	..	ditto	..	ditto	11.1	1.0	46.0	32.8	9.1	.482	.402	Matured; in green seed.
5505	9 May, 1930	<i>Chloris divaricata</i>	..	Star grass..	..	Dalby (M)	8.2	1.1	48.3	31.7	10.7	.516	.677	Considered fair food value; brown volcanic soil.
560	16 Aug., 1929	<i>Stipa aristiglumis</i>	..	Unknown	..	Darling Downs (H)	8.0	1.7	52.7	28.3	9.3	.550	.330	Heavy plains.
575	19 Aug., 1929	<i>Heteropogon contortus</i>	..	Butch Spear Grass	..	Springsure (N)	8.3	1.1	44.1	35.8	10.7	.464	.577	Chief grass this locality.
1208	1 Oct., 1929	Ditto	..	Spear Grass	..	Charters Towers (P)	5.1	1.1	50.2	34.0	9.6	.221	.190	In seed.
2350	29 Nov., 1929	<i>Stipa micrantha</i>	..	ditto	..	Darling Downs (C)	5.9	1.6	43.8	43.2	5.5	.324	.266	Sample just prior to seed blade opening.
2351	29 Nov., 1929	<i>Stipa scabra</i>	..	Canary	..	ditto	9.7	2.7	40.2	35.2	12.2	.690	.499	Cut when seed blade is just opening out.
2578	19 Dec., 1929	<i>Stipa sp.</i>	..	Wire grass	..	Darling Downs (H)	5.7	1.9	47.6	33.9	10.9	.264	.400	Cut when blade is opening out.
5742	24 May, 1930	<i>Stipa aristiglumis</i>	..	..	..	Darling Downs (C)	6.9	1.9	42.5	40.2	8.5	.475	.439	Seed commencing to ripen.
5743	24 May, 1930	<i>Stipa micrantha</i>	..	..	..	ditto	6.3	1.3	43.2	35.9	13.3	.446	.200	In full seed; 2 ft. high.
398	1 Aug., 1929	<i>Sporobolus indicus</i> var. <i>elongatus</i>	..	Ratstail Grass	..	d tto	3.6	0.6	54.9	31.5	9.4	.570	.323	Considered good food; 14 in. high; full ripe seedhead.
545	15 Aug., 1929	Ditto	..	Summer Grass	..	Darling Downs (J)	4.5	0.7	50.4	37.6	6.7	.250	.159	Black soil; fair drought resister.
966	17 Sept., 1929	<i>Sporobolus actinocladius</i>	..	..	..	Winton (C)	6.4	0.6	49.4	29.0	14.6	.246	.085	Matured in seed; green.
1202	1 Oct., 1929	<i>Sporobolus indicus</i> var. <i>elongatus</i>	..	Never Fail	..	Charters Towers (BD)	11.5	1.7	44.3	31.1	11.4	.665	.917	2 ft. high; very hard stalk; green sample.
1230	3 Oct., 1929	Ditto	..	Unknown	..	Dalby (L)	5.8	1.4	50.9	33.9	8.0	.289	.159	15 in. high; green sample.
1354	7 Oct., 1929	Ditto	..	Unknown	..	ditto	3.0	0.8	47.6	36.4	12.2	.269	.139	Red volcanic soil; full seedheads.
574	19 Aug., 1929	<i>Eriochloa punctata</i>	..	Unknown	..	Springsure (N)	10.6	1.2	43.0	32.5	12.7	.492	1.070	Regarded as good fodder all stock; heavy black soil plains; good drought resister.
931	12 Sept., 1929	Ditto	..	ditto	..	Hughenden (CD)	4.0	1.3	57.1	26.7	10.9	.507	.117	Matured in seed; with seed heads.
937	12 Sept., 1929	Ditto	..	Early Spring Grass	..	Hughenden (RP)	5.5	0.7	47.6	33.9	12.3	.543	.151	Red volcanic soil; fresh matured; in full seedhead.
5507	9 May, 1930	Ditto	..	Honey or Sugar Grass	..	Dalby (M)	9.8	1.3	45.5	30.8	12.6	.782	.656	4 to 5 ft. high; full ripe seedhead.

Common grass; in green stage.  
 Considered next to Blue Grass in food value; brown volcanic soil.  
 Sparse in box country; found more in higher country; with seed heads.  
 Red volcanic soil; fresh matured; in full seedhead.  
 4 to 5 ft. high; full ripe seedhead.  
 Heavy plains.  
 18 in. high; green sample.  
 Red volcanic soil; 4 ft. high; fresh matured; full seedheads.  
 Regarded as good fodder all stock; heavy black soil plains; good drought resister.  
 Matured; in green seed.  
 Considered fair food value; brown volcanic soil.  
 Heavy plains.  
 Chief grass this locality.  
 In seed.  
 Sample just prior to seed blade opening.  
 Cut when seed blade is just opening out.  
 Cut when blade is opening out.  
 Seed commencing to ripen.  
 In full seed; 2 ft. high.  
 Considered good food; 14 in. high; full ripe seedhead.  
 Black soil; fair drought resister.  
 Matured in seed; green.  
 2 ft. high; very hard stalk; green sample.  
 15 in. high; green sample.  
 Red volcanic soil; full seedhead.  
 Mixed dry and green grass; 2 ft. 6 in.  
 Older grass than No. 5742.  
 Readily eaten by stock; red volcanic basalt ridge.  
 Food value regarded as low; heavy black soil plains; poor in drought.  
 Stock prefer this grass to Mitchell; clay plains.  
 Stated this grass only capable of being cut on account of all other grass being eaten down.  
 Roots and soil attached.  
 Matured in seed; green.  
 Matured in seed; 4 ft. high.  
 Seed mostly fallen; matured; 4 ft.  
 Looked upon as useless grass; 2 ft. to 2 ft. 6 in.; in full ripe seed; remains green through winter.



Table II—continued.

## ANALYSES OF PASTURE GRASSES—continued.

Number of Analysis.	Date Cut.	Name of Grass.	Local Name.	District.	ANALYSIS OF WATER-FREE MATERIAL.							Remarks. (Chiefly made by senders.)
					Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P <sub>2</sub> O <sub>5</sub> .	
					%	%	%	%	%	%	%	
FLINDERS GRASSES—continued.												
557	16 Aug., 1929	<i>Eragrostis leptostachya</i>	Unknown	Darling Downs (C)	3.7	0.8	51.7	34.9	8.9	.345	.187	Food value fair; fair drought resister; red volcanic soil.
5744	24 May, 1930	Ditto		Warwick (W)	4.4	0.9	51.4	35.5	7.8	.344	.101	Grass in extreme stages of growth; mixed with a little green grass.
1207	1 Oct., 1929	<i>Eragrostis Brownii</i>	Summer Grass	Charters Towers (P)	7.6	0.6	43.2	35.7	12.3	.244	.154	In full seedhead.
1209	1 Oct., 1929	<i>Eriachne mucronata</i>	Bird Seed Grass	ditto	4.8	0.7	50.6	36.4	7.5	.195	.257	ditto.
1211	1 Oct., 1929	<i>Perotis rara</i>	Fire Grass	ditto	6.0	0.8	53.6	31.6	8.0	.390	.114	5 ft. high; full seedhead.
1214	1 Oct., 1929	<i>Sorghum fulvum</i>	Red Top Grass	ditto	6.2	0.5	46.2	39.2	7.9	.292	.152	2 ft. high.
1215	1 Oct., 1929	Indeterminable	Blue Grass	ditto	4.4	0.7	49.8	34.2	10.9	.514	.124	Fine material only.
938	12 Sept., 1929	<i>Salsola kali</i>	Roly Poly Grass	Hughenden (RP)	14.9	1.3	46.5	10.4	26.9	5.100	.202	Picked green and sun-dried.
1091	18 Sept., 1929	Ditto	ditto	ditto	16.9	0.9	45.4	7.3	29.5	3.580	.180	Thorny; sheep like it.
2158	19 Nov., 1929	<i>Bassia tricuspidis</i>		Roma	11.9	1.5	41.1	27.0	18.5	1.868	.181	Fresh matured; full seedhead.
2160	19 Nov., 1929	Indeterminable	Molasses Grass	Cairns (M)	4.6	1.7	50.4	37.6	5.7	.200	.133	ditto.
2574	19 Dec., 1929	<i>Duhelnachne crinita</i>	Rattail Grass	Darling Downs (H)	10.3	2.2	42.4	34.5	11.6	.336	.274	In full seedhead.
2577	19 Dec., 1929	<i>Sorghum plumosum</i>	Unknown	ditto	5.2	1.0	48.6	34.4	10.8	.331	.409	In full seedhead.
3798	27 Feb., 1930	<i>Panicum flavidum</i> var. <i>tenior</i>		Tambo (C)	14.1	0.8	43.9	29.6	11.6	.221	.351	In full seed head; green sample.
4082	11 Mar., 1930	<i>Pennisetum villosum</i>		Darling Downs (W)	10.4	1.5	46.2	30.1	11.8	.284	.463	1 ft. high; in full seed.
4222	21 Mar., 1930	<i>Dactyloctenium aegyptiacum</i>	Button Grass	Evesham	12.7	0.9	41.0	29.8	15.6	.892	.355	18 in. high; in full seed.
4416	28 Mar., 1930	<i>Paspalidium basicaldum</i>	ditto	Tambo (C)	14.4	1.9	44.0	27.2	12.5	.496	.555	Goes off quickly; in full seedhead;
4703	8 April, 1930	<i>Dactyloctenium aegyptiacum</i>	ditto	Charleville (M)	7.9	1.0	47.9	27.8	15.4	.949	.447	stock fond of it.
4706	8 April, 1930	<i>Eriachne mucronata</i>	Bad Rock Grass	ditto	5.8	1.4	54.8	33.0	5.0	.222	.131	In full seed; stock will not eat.
4709	8 April, 1930	<i>Eriachne mitchelliana</i>	Rock Tassel Grass	ditto	8.9	2.9	50.0	30.8	7.4	.318	.127	Most of seedhead dropped.
5404	2 May, 1930	<i>Eriachne obtusa</i>		Townsville (VD)	4.2	0.6	51.8	36.6	6.8	.099	.044	Most of seed fallen.
5405	2 May, 1930	<i>Eriachne armittii</i>		ditto	5.7	0.9	50.3	32.1	11.0	.247	.227	Green; in full seedhead.
696	— Aug., 1929	Grass		Dalby (T)	3.2	0.6	45.0	34.5	16.7	1.361	.147	Dry and bleached; short; without seed-heads.
697	— Aug., 1929	Ditto		ditto	3.6	0.8	44.5	34.2	16.9	.322	.180	ditto.
907	10 Sept., 1929	Indeterminable		Bell (S)	5.4	0.8	58.7	34.1	8.0	.560	.366	..
911	10 Sept., 1929	Ditto		ditto	8.0	1.3	50.2	31.3	9.2	.442	.470	..
1203	1 Oct., 1929	Ditto		Charters Towers (M)	16.7	1.1	45.4	25.8	11.0	.480	.363	Green shoots; 9 in.
1350	7 Oct., 1929	Ditto	Scrub Grass	Dalby (M)	3.4	0.7	46.1	38.9	10.9	.247	.355	Heavy soil.
1352	7 Oct., 1929	Ditto		ditto	2.6	0.7	50.6	34.0	11.1	.297	.213	ditto.
1353	7 Oct., 1929	Ditto		Dalby (R)	3.5	1.2	50.5	33.1	11.7	.344	.162	..
1355	7 Oct., 1929	Ditto		ditto	2.8	0.6	41.5	36.3	18.8	.343	.127	Roots and soil attached.
1358	7 Oct., 1929	Ditto		ditto	11.8	1.2	52.9	23.6	10.5	.342	.380	Green growth with bleached material.
1401	9 Oct., 1929	Ditto		Dalby (K)	3.1	0.9	49.0	36.6	10.4	.197	.154	..
1439	11 Oct., 1929	Ditto		Dalby (J)	3.7	0.7	50.5	34.9	10.2	.224	.179	2 to 3 ft. high; stony country.
1440	11 Oct., 1929	Ditto		ditto	3.0	1.2	54.6	33.1	8.1	.374	.256	Black soil plains; 2 ft. 6 in. high
2541	28 Nov., 1929	Grass (from paunch)		Blackall (ID)	11.4	1.2	38.3	32.2	16.9	3.139	.678	Contents sheep's paunch.



ANALYSES OF MIXED PASTURE.												
32	2 July, 1929	Blue and Star Grass pasture ..	..	Milmerran (R)	5.1	0.7	52.6	31.6	10.0	.483	.142	..
30	2 July, 1929	Star Grass pasture mostly ..	..	Milmerran (DT)	4.9	1.7	53.3	28.7	11.4	.437	.135	Cattle chew bones every winter; forest land; pebbly ridges.
31	2 July, 1929	Ditto ..	..	ditto ..	5.3	1.2	55.8	27.7	10.0	.412	.163	ditto.
66	11 July, 1929	Mixed Grasses ..	..	Oakey (N)	4.4	0.8	50.4	33.7	10.7	.405	.160	..
67	11 July, 1929	Ditto ..	..	ditto ..	4.2	1.0	50.9	33.2	10.7	.410	.153	..
733	27 Aug., 1929	<i>Astrelba lappacea</i> and <i>Grevillea striata</i> (mixed)	..	Camooweal (R)	3.7	1.2	50.1	28.6	16.4	1.950	.152	..
1119	23 Sept., 1929	<i>Trichinium</i> sp. and <i>Iseilema mitchelli</i>	..	ditto ..	7.7	1.2	48.0	28.0	15.1	.836	.236	..
3799	27 Feb., 1930	Mixed Grasses ..	..	Tambo (C)	13.1	1.1	43.4	31.8	10.6	.245	.369	..
4707	8 April, 1930	<i>Anihostiria ciliata</i> , <i>Andropogon sericeus</i> , and <i>Eulalia fulva</i> (mixed)	..	Charleville (M)	7.3	1.5	48.6	30.5	12.1	.494	.157	Also <i>Chrysopogon gryllus</i> and <i>Panicum rarum</i> . Relished by stock; some seedheads.
4417	28 Mar., 1930	<i>Eriochloa punctata</i> and <i>Panicum distachyum</i> (mixed)	..	Tambo (C)	12.7	1.3	41.4	30.2	14.4	.418	.373	Not in full seedhead; 1 ft. high.
4418	28 Mar., 1930	<i>Paspalum distans</i> and <i>Panicum distans</i> (mixed)	..	ditto ..	13.2	1.7	43.2	28.6	13.3	.441	.435	Very few seedheads; 1 ft. high.
4825	11 April, 1930	<i>Sporobolus elongatus</i> and <i>Andropogon sericeus</i> (mixed)	..	Pittsworth ..	3.5	0.9	57.3	27.9	10.4	.336	.802	In full seed; 14 in. high.
5503	9 May, 1930	<i>Andropogon sericeus</i> and <i>Eriochloa punctata</i> (mixed)	..	Dalby (M)	4.9	1.0	45.5	39.4	9.2	.294	.275	Also <i>Sporobolus indicus</i> and <i>Chloris divaricata</i> . 3 ft.; full and empty seedheads.
5624	19 May, 1930	<i>Astrelba lappacea</i> and <i>Astrelba elymoides</i> (mixed)	..	Morven (VD)	6.2	1.7	51.2	30.3	10.6	.468	.207	Mature; most seed fallen.
5626	19 May, 1930	<i>Astrelba lappacea</i> and <i>Panicum decompositum</i> (mixed)	..	ditto ..	5.9	1.1	52.4	30.7	9.9	.524	.199	High pebbly downs; major portion mature; some green seedhead.
5627	19 May, 1930	<i>Astrelba lappacea</i> and <i>Eriochloa punctata</i>	..	ditto ..	6.3	1.0	54.2	29.2	9.3	.470	.232	Also <i>Thehungia advena</i> and <i>Digitaria divaricatissima</i> . High pebbly downs; major portion mature; some green seedhead.
5628	19 May, 1930	<i>Astrelba lappacea</i> and <i>Astrelba elymoides</i>	..	ditto ..	5.7	1.7	50.2	30.9	11.5	.447	.242	Also <i>Panicum globoides</i> and <i>Andropogon sericeus</i> . Mature; flat; brown soil.



Table III.

ANALYSES OF SHRUBS, &c.

Number of Analysis.	Date Cut.	Name of Shrubs, &c.	Locality.	ANALYSIS OF WATER-FREE MATERIAL.						Remarks.	
				Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime CaO.		Phosphoric Acid P <sub>2</sub> O <sub>5</sub> .
				%	%	%	%	%	%	%	
573	19 Aug., 1929	<i>Indigofera hirsuta</i> (kind of clover)	Springsure (N)	15.9	1.3	56.2	19.0	7.6	2.040	.660	Sandy country ; in seed ; green ; matured.
730	27 Aug., 1929	<i>Triolea</i> sp. (a spinifex)	Camoo-weal (R)	2.2	1.0	56.1	32.0	8.7	.430	.179	..
1515	16 Oct., 1929	<i>Parkinsonia aculeata</i>	Winton (M)	19.3	1.8	46.2	22.4	10.3	2.910	.394	Green leaves and flowers.
1516	16 Oct., 1929	Ditto ..	ditto	7.5	1.8	44.8	29.0	16.9	5.820	.153	Leaves from ground ; sheep reported to do well.
1694	28 Oct., 1929	<i>Amarantus</i>	Brisbane	26.7	1.5	42.5	10.7	18.6	2.888	.682	Green moisture 90.7 per cent.
2167	19 Nov., 1929	<i>Portulaca oleracea</i> (pig weed)	Winton (A)	10.6	2.4	42.4	19.0	25.4	3.460	.221	Brown soil flats.
2413	11 Dec., 1929	Boree Leaves	Blackall (ID)	11.4	2.4	49.1	27.7	9.4	3.450	.145	Cut from mature tree.
2414	11 Dec., 1929	Gidgea Leaves	ditto	11.6	3.4	57.9	15.2	11.9	3.600	.124	Leaves from mature tree.
2415	11 Dec., 1929	Ditto ..	ditto	14.7	3.4	53.2	19.2	9.5	2.598	.158	Leaves from mature tree after burning.
2416	11 Dec., 1929	Ditto ..	ditto	11.4	2.9	54.4	18.8	12.5	3.494	.151	Leaves from young tree.
2792	9 Jan., 1930	Fuchsia Bush ( <i>Eremophila maculata</i> )	Dalby	18.0	0.7	56.4	14.4	10.5	1.491	.544	Poisonous to stock.
2796	9 Jan., 1930	Ditto ..	ditto	12.4	1.1	46.1	32.4	8.0	.943	.216	ditto.
3018	20 Jan., 1930	<i>Eucalyptus ochrophloia</i>	Adavale (T)	6.9	2.3	74.4	10.2	6.2	1.977	.202	Called Na-punga, La-punga, and Ya-punga.
4713	8 April, 1930	<i>Euphorbia Drummondii</i> (milkweed)	Charleville (M)	10.6	2.3	55.7	24.7	6.7	1.250	.274	Poisonous to stock in some stages.
4714	8 April, 1930	<i>Haloragis odontocarpa</i> (tassel weed)	ditto	15.2	2.4	50.3	21.7	10.4	1.421	.199	Eaten by stock.
4715	8 April, 1930	<i>Evobolus alsinoides</i>	ditto	16.2	1.3	47.4	24.8	10.3	1.455	.378	Stock fond of it, both green and dry.
2128	14 Nov., 1929	Low Mulga	ditto	11.2	2.9	52.8	27.6	5.5	1.030	.152	Not eaten readily.
2129	14 Nov., 1929	Tall Mulga	ditto	10.1	4.8	56.1	23.7	4.6	1.064	.137	..
1391	..	Bush hay (cut 6 years)	Charleville (R and P)	5.1	1.0	51.6	31.6	10.7	.622	.311	..
4224	21 Mar., 1930	Lucerne ..	Brisbane Market	16.4	1.8	43.2	28.9	9.7	1.794	.842	..

ANALYSES OF ROUGHAGE.

420	8 Aug., 1929	<i>Sporobolus indicus</i> var. <i>elongatus</i> (Rat-tail)	Dalby (W)	4.9	0.6	51.6	37.1	5.8	.274	.229	Food value good ; fair drought resister.
555	16 Aug., 1929	Mostly Blue Grass	Darling Downs (H)	3.8	0.7	51.0	34.1	10.4	.445	.172	
893	5 Sept., 1929	Grass	Dalby (U)	3.6	1.0	52.9	33.1	9.4	.469	.192	
894	5 Sept., 1929	Oat Grass (local)	ditto	3.1	0.9	52.6	35.3	8.1	.222	.161	..
895	5 Sept., 1929	<i>Panicum trachyrhachis</i>	ditto	3.8	1.2	53.8	35.8	5.4	.174	.202	Long rank grass ; always green butt.
896	5 Sept., 1929	Grass	ditto	4.2	0.7	50.7	34.7	9.7	.225	.202	..
967	17 Sept., 1929	Ditto ..	Winton (C)	6.8	0.9	50.7	27.0	14.6	.627	.125	Composed mostly of Mitchell with Flinders and Button Grass that has fallen, and is taken from ground. Usually preferred to Mitchell until it is blackened with rain.
1110	23 Sept., 1929	Mitchell Grass	Chinchilla (P)	2.8	0.6	47.2	35.3	14.1	.586	.213	..
1199	— Sept., 1929	<i>Stipa</i> sp. ..	Morven (I)	3.9	0.5	50.2	31.4	14.0	.295	.320	..
1360	7 Oct., 1929	Wild oats (local)	Dalby (P)	2.5	1.2	54.0	31.9	10.1	.507	.227	Short roughage ; no seedhead.
1361	7 Oct., 1929	Blue Grass (local)	ditto	2.8	0.7	51.5	32.9	12.1	.221	.149	ditto.
1362	7 Oct., 1929	Wire Grass (local)	ditto	5.9	0.9	47.0	32.2	14.0	.241	.217	ditto.



1392	9 Oct., 1929	Wire Grass (local)	..	..	..	Charleville (R and P)	2.7	0.4	49.9	40.3	6.7	.122	.075	Sandhills.
1393	9 Oct., 1929	Kangaroo Grass (local)	..	..	..	ditto	3.5	0.5	45.8	36.4	13.8	.195	.112	River flats; mostly root butts; 6 in.
1394	9 Oct., 1929	Wire Grass (local)	..	..	..	ditto	3.2	1.0	47.8	34.0	14.0	.318	.164	Sandy river flats; 18 in. high.
1416	10 Oct., 1929	Dry Grass	..	..	..	Roma (N)	4.4	0.4	50.1	35.1	10.0	.222	.224	Low-lying, ringbarked country.
1672	24 Oct., 1929	Roughage..	..	..	..	Dalby (M)	3.2	0.5	46.4	37.9	12.0	.340	.200	..
1673	24 Oct., 1929	Ditto ..	..	..	..	ditto	3.3	0.5	52.3	37.4	6.5	.269	.241	..
2131	14 Nov., 1929	Mixed Roughage..	..	..	..	Charleville (M)	4.0	0.9	50.6	33.4	11.1	.336	.091	..
2150	15 Nov., 1929	Bull Mitchell (local)	..	..	..	Blackall (ID)	4.5	1.0	53.0	30.9	10.6	.296	.244	27 points rain in June; no further rain till cut.
2151	15 Nov., 1929	Mitchell (local)	..	..	..	ditto	3.9	1.3	53.6	30.1	11.1	.438	.293	ditto.
2152	15 Nov., 1929	Blue Grass ( <i>Andropogon sp.</i> )	..	..	..	ditto	3.6	1.0	50.7	31.3	13.4	.365	.274	27 points rain in June; no further rain till cut; called Red Blue Grass.
3060	22 Jan., 1930	Roughage..	..	..	..	Dalveen	5.9	1.0	47.7	37.3	8.1	.197	.252	Some green shoots.
5623	17 May, 1930	<i>Andropogon sericeus</i> (Blue Grass)	..	..	..	Clermont (LD)	3.2	1.7	49.2	35.8	10.1	.695	.112	4 ft. high; most of seedhead fallen.
6147	10 June, 1930	<i>Stipa micrantha</i>	..	..	..	Bell	10.3	1.5	38.6	39.4	10.2	.970	.219	New growth; typical of roughage in Bell district; reported good food value at certain stages.
6148	10 June, 1930	Ditto	..	..	..	ditto	8.3	1.0	44.8	38.4	7.5	.743	.156	Older growth; typical of roughage in Bell district; reported good food value at certain stages.



Table IV.

## ANALYSES OF PASTURE GRASSES FROM ONE STATION ONLY, NEAR JULIA CREEK.

Number of Analyses.	Date Cut.	COMPOSITION OF WATER-FREE MATERIAL.							
		Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P <sub>2</sub> O <sub>5</sub> .	
		%	%	%	%	%	%	%	
Paddock CS.									
<i>Aristida ramosa</i> (Feathertop).									
1833	1 Nov., 1929	3.7	.07	50.3	34.8	10.5	.243	.095	
2717	2 Jan., 1930	5.5	.09	49.5	36.2	7.9	.241	.067	Half green ; half roughage
4000	7 Mar., 1930	5.0	1.2	44.1	41.5	8.2	.171	.178	Full seedhead.
4725	9 April, 1930	4.6	1.0	44.4	38.6	11.4	.341	.149	ditto.
6006	— May, 1930	3.0	0.9	45.6	38.8	11.7	.287	.107	Few seedheads.
INDETERMINABLE.									
1834	1 Nov., 1929	1.8	1.3	53.4	33.5	10.0	.413	.081	..
<i>Astrelba pectinata</i> (Mitchell).									
1835	1 Nov., 1929	3.3	1.2	48.6	35.7	11.2	.323	.099	..
2718	2 Jan., 1930	7.2	0.7	50.0	29.2	12.9	.254	.137	Green and roughage.
4001	7 Mar., 1930	5.0	0.9	46.2	36.2	11.7	.244	.140	Some green shoots.
4726	9 April, 1930	4.6	1.7	46.4	34.3	13.0	.710	.146	14 in. ; some seedheads.
6007	— May, 1930	4.5	1.6	44.0	34.0	15.9	.647	.189	Much green material.
<i>Iseilema mitchellii</i> (Flinders).									
1836	1 Nov., 1929	2.9	0.9	49.0	37.1	10.1	.336	.118	..
4727	9 April, 1930	3.3	1.2	49.3	34.6	11.6	.441	.196	Full seedhead.
6008	— May, 1930	2.5	0.6	47.8	39.4	9.7	.695	.142	..
<i>Andropogon annulatus</i> (Red Grass).									
1837	1 Nov., 1929	2.2	0.7	51.1	32.2	13.8	.336	.029	..
4728	9 April, 1930	4.8	1.8	48.8	34.8	9.8	.612	.176	Little seedhead.
6009	— May, 1930	3.7	1.0	42.9	40.5	11.9	.800	.087	..
Paddock 13.									
<i>Aristida ramosa</i> .									
1838	1 Nov., 1929	2.2	0.7	50.7	35.9	10.5	.240	.057	..
2719	2 Jan., 1930	4.4	1.3	48.0	35.2	11.1	.314	.109	Green and roughage.
4729	9 April, 1930	5.2	1.1	44.2	39.2	10.3	.293	.170	Full ripe seed.
6002	— May, 1930	3.9	1.2	46.4	37.7	10.8	.559	.127	Mature, with seed.
INDETERMINABLE.									
1839	1 Nov., 1929	2.2	1.4	39.6	36.3	10.5	.353	.091	..
<i>Astrelba pectinata</i> .									
1840	1 Nov., 1929	1.8	1.5	49.8	34.6	12.3	.431	.059	..
4730	9 April, 1930	5.0	2.2	46.8	35.4	10.6	.343	.231	..
6003	— May, 1930	5.4	1.3	48.5	32.1	12.7	.901	.124	Mature ; green material.
<i>Iseilema mitchellii</i> .									
1841	1 Nov., 1929	1.4	0.7	49.8	36.4	11.7	.240	.056	..
4731	9 April, 1930	4.2	1.5	47.4	35.5	11.4	.269	.170	..
6004	— May, 1930	3.4	1.3	46.0	34.1	15.2	.436	.134	With ripe seedheads.
<i>Andropogon annulatus</i> .									
1842	1 Nov., 1929	1.6	0.7	49.5	35.5	12.7	.287	.045	..
2720	2 Jan., 1930	4.3	0.5	47.6	36.8	10.8	.386	.109	Green and roughage.
4732	9 April, 1930	3.5	1.8	45.8	40.9	8.0	.096	.140	..
6005	— May, 1930	3.0	1.7	47.5	38.2	9.6	.291	.129	Mostly green material.
Paddock R.									
<i>Aristida ramosa</i> .									
1843	1 Nov., 1929	4.5	0.7	45.5	38.5	11.5	.293	.066	..
4733	9 April, 1930	3.6	0.9	44.8	40.0	10.7	.147	.220	..
5998	— May, 1930	3.2	0.7	48.0	38.1	10.0	.413	.106	2 ft.; few seed heads.



Table IV—continued.

## ANALYSES OF PASTURE GRASSES FROM ONE STATION ONLY, NEAR JULIA CREEK—continued.

Number of Analysis.	Date Cut.	COMPOSITION OF WATER-FREE MATERIAL.							
		Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub> .	
		%	%	%	%	%	%	%	
INDETERMINABLE.									
1844	1 Nov., 1929	2.3	1.4	43.5	37.9	14.9	.555	.186	..
<i>Astrebula pectinata.</i>									
1845	1 Nov., 1929	1.1	0.8	55.2	32.3	11.6	.290	.216	..
4734	9 April, 1930	4.0	1.0	50.6	35.4	9.0	.123	.115	..
5999	— May, 1930	4.7	1.0	48.2	32.7	13.4	.731	.144	18 in. ; few seedheads.
<i>Iseilema mitchellii.</i>									
1846	1 Nov., 1929	1.1	0.7	52.4	33.8	12.0	.450	.252	..
4735	9 April, 1930	5.3	0.8	42.4	34.7	16.8	.439	.462	..
6000	— May, 1930	4.2	1.8	47.0	30.7	16.3	.735	.238	18 in. ; ripe seedheads.
<i>Andropogon annulatus.</i>									
1847	1 Nov., 1929	2.4	1.4	49.9	35.4	10.9	.388	.313	..
4736	9 April, 1930	3.5	1.3	43.3	39.0	12.9	.414	.244	..
6001	— May, 1930	3.6	1.5	47.3	34.1	13.5	.510	.087	No seedheads.
Paddock 9M.									
<i>Aristida ramosa.</i>									
1848	1 Nov., 1929	2.5	0.9	47.5	36.8	12.3	.216	.073	..
2721	2 Jan., 1930	5.8	0.6	49.1	35.6	8.9	.217	.159	Some green material.
4737	9 April, 1930	4.2	0.8	41.6	45.1	8.3	.180	.128	Ripe seedheads.
5986	— May, 1930	3.0	0.8	43.4	40.1	12.7	.55.7	.058	2 ft. ; seedheads fallen.
INDETERMINABLE.									
1849	1 Nov., 1929	2.8	1.3	49.2	32.0	14.7	.241	.074	..
<i>Astrebula pectinata.</i>									
1850	1 Nov., 1929	2.7	1.4	48.6	33.0	14.3	.479	.100	..
2722	2 Jan., 1930	4.9	1.3	46.5	30.0	17.3	.389	.123	Green and roughage.
4738	9 April, 1930	6.6	1.0	43.5	36.8	12.0	.459	.279	..
5987	— May, 1930	4.2	1.3	44.4	33.8	16.3	.851	.134	20 in. ; matured.
<i>Iseilema mitchellii.</i>									
1851	1 Nov., 1929	2.5	1.2	51.2	33.7	11.4	.394	.083	..
4739	9 April, 1930	4.2	1.2	45.6	31.7	17.3	.384	.297	Seedheads.
5988	— May, 1930	4.9	1.5	47.4	31.8	14.4	.783	.158	Matured grass.
<i>Andropogon anulatus.</i>									
2723	2 Jan., 1930	4.2	1.0	50.6	33.2	11.0	.351	.202	Green and roughage.
4740	9 April, 1930	3.9	1.0	43.6	37.7	13.8	.343	.139	In seedhead.
5989	— May, 1930	3.7	1.4	43.2	35.2	16.5	.976	.101	2 ft. ; grass had seeded.
Paddock B.									
<i>Aristida ramosa.</i>									
1852	1 Nov., 1929	2.6	0.9	47.5	36.3	12.7	.268	.081	..
2724	2 Jan., 1930	4.3	0.7	50.3	32.0	12.7	.284	.349	Little green grass.
4741	9 April, 1930	3.8	0.8	40.2	41.0	14.2	.221	.157	Full seed head.
5994	— May, 1930	3.3	0.7	47.7	38.2	10.1	.293	.112	18 in. ; no seedheads.
INDETERMINABLE.									
1853	1 Nov., 1929	2.5	0.6	51.6	32.8	12.5	.438	.060	..
2725	2 Jan., 1930	4.5	0.9	47.6	32.8	14.2	.142	.164	Little green grass.



Table IV—continued.

## ANALYSES OF PASTURE GRASSES FROM ONE STATION ONLY, NEAR JULIA CREEK—continued.

Number of Analyses.	Date Cut.	COMPOSITION OF WATER-FREE MATERIAL.							
		Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub> .	
		%	%	%	%	%	%	%	
<i>Astrelba pectinata.</i>									
1854	1 Nov., 1929	3.2	1.1	47.9	36.3	12.5	.561	.066	..
2726	2 Jan., 1930	6.2	0.9	43.2	37.1	12.6	.433	.268	Green and roughage.
4742	9 April, 1930	4.8	1.0	47.0	32.1	15.1	.416	.133	14 in. ; no seedhead.
5995	— May, 1930	3.4	1.3	49.8	33.3	12.2	.487	.109	18 in. ; ripe seedheads.
<i>Iseilema mitchellii.</i>									
1855	1 Nov., 1929	2.3	0.8	54.0	31.1	11.8	.268	.077	..
4743	9 April, 1930	4.9	1.4	47.9	33.9	12.9	.467	.244	In seed.
5996	— May, 1930	3.3	1.4	49.4	33.8	12.1	.413	.183	2 ft. ; seedheads eaten.
<i>Andropogon annulatus.</i>									
1856	1 Nov., 1929	2.7	1.3	53.5	31.9	10.6	.390	.074	..
2727	2 Jan., 1930	4.0	1.1	45.2	39.8	9.9	.337	.320	Very little green grass.
4744	9 April, 1930	2.7	1.1	47.9	37.4	10.9	.342	.115	Tops cut off.
5997	— May, 1930	3.6	1.4	46.8	39.1	9.1	.329	.118	2 ft. ; seedheads eaten.
Paddock C.									
<i>Aristida ramosa.</i>									
1857	1 Nov., 1929	2.7	0.9	49.9	34.3	12.2	.317	.066	..
2728	2 Jan., 1930	4.4	0.9	49.5	35.2	10.0	.315	.123	Very little green grass.
4745	9 April, 1930	3.3	0.5	43.8	39.2	13.2	.220	.167	In full seedhead.
5982	— May, 1930	5.6	0.7	45.5	37.6	10.6	.633	.120	Seed eaten off.
INDETERMINABLE.									
1858	1 Nov., 1929	2.3	0.7	44.9	38.3	13.8	.473	.070	..
2729	2 Jan., 1930	4.3	0.8	44.3	38.5	12.1	.365	.103	One-quarter green.
<i>Astrelba pectinata.</i>									
1859	1 Nov., 1929	4.6	1.0	53.3	30.4	10.7	.335	.085	..
2730	2 Jan., 1930	5.6	0.5	46.1	35.7	12.1	.438	.255	Mostly green.
4746	9 April, 1930	4.5	0.9	44.5	34.3	15.8	.559	.193	No seedheads.
5983	— May, 1930	3.9	1.0	52.8	29.4	12.7	.686	.222	9 in. ; second growth.
<i>Iseilema mitchellii.</i>									
1860	1 Nov., 1929	2.7	0.9	50.1	34.6	10.7	.382	.134	..
4747	9 April, 1930	5.7	1.2	46.3	34.6	12.2	.656	.427	In seed.
5984	— May, 1930	4.1	1.4	46.3	35.4	12.8	.686	.551	18 in. ; mature.
<i>Andropogon annulatus.</i>									
1861	1 Nov., 1929	3.2	1.4	50.3	37.1	8.0	.471	.061	..
2731	2 Jan., 1930	3.7	0.9	51.3	34.8	9.3	.341	.126	Mostly roughage.
5985	— May, 1930	9.6	1.9	41.0	38.2	9.3	.532	.281	30 in. ; green.
Paddock DS.									
<i>Aristida ramosa.</i>									
1862	1 Nov., 1929	2.7	0.7	43.5	37.7	15.4	.340	.023	..
2732	2 Jan., 1930	4.1	0.6	45.1	38.2	12.0	.338	.063	One-quarter green.
4002	7 Mar., 1930	6.9	1.5	40.8	34.4	16.4	.296	.220	Some full seedheads.
4748	9 April, 1930	3.7	0.8	44.7	39.9	10.9	.462	.113	Full seedhead.
5990	— May, 1930	2.9	0.7	47.2	38.6	10.6	.503	.065	2 ft. ; little leaf.
INDETERMINABLE.									
1863	1 Nov., 1929	2.8	1.2	48.9	33.9	13.2	.602	.073	..
2733	2 Jan., 1930	2.9	1.1	38.0	42.5	15.5	.362	.142	Some green ; 6 in.
<i>Astrelba pectinata.</i>									
1864	1 Nov., 1929	4.1	1.0	51.2	32.5	11.2	.411	.083	..
2734	2 Jan., 1930	3.3	0.9	49.2	37.8	8.8	.440	.054	Very little green.
4003	7 Mar., 1930	7.9	2.0	47.1	34.1	8.9	.567	.183	Some full seedheads.
4749	9 April, 1930	3.8	1.0	48.1	35.6	11.5	.585	.140	Full seedhead.
5991	— May, 1930	5.0	0.6	43.2	35.3	15.9	.970	.104	16 in. ; some green growth.



Table IV—continued.

## ANALYSES OF PASTURE GRASSES FROM ONE STATION ONLY, NEAR JULIA CREEK—continued.

Number of Analysis.	Date Cut.	COMPOSITION OF WATER-FREE MATERIAL.							
		Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub> .	
		%	%	%	%	%	%	%	
<i>Iseilema mitchellii</i> .									
1865	1 Nov., 1929	3.0	0.7	50.7	33.4	12.2	.566	.031	..
4004	7 Mar., 1930	8.5	1.8	45.0	33.7	11.0	.346	.300	6 in. ; green shoots.
4570	9 April, 1930	3.8	1.1	50.5	32.9	11.7	.562	.170	In seed.
5992	— May, 1930	3.1	1.3	44.8	36.6	14.2	.561	.152	12 in. ; some green.
<i>Andropogon annulatus</i> .									
1866	1 Nov., 1929	3.4	0.7	47.8	32.6	15.5	.412	.075	..
2735	2 Jan., 1930	14.4	0.9	40.6	34.2	9.9	.491	.133	Small sample.
4005	7 Mar., 1930	11.5	1.2	42.3	33.1	11.9	.270	.347	12 in. ; green shoots.
4751	9 April, 1930	3.9	1.4	47.2	39.4	8.1	.565	.100	24 in. ; no seedheads.
5993	— May, 1930	3.2	2.2	45.3	38.2	11.1	.690	.154	2 ft. ; some eaten.
Paddock TH.									
<i>Aristida ramosa</i> .									
4006	7 Mar., 1930	5.6	1.2	45.4	40.2	7.6	.111	.173	Few seedheads.
<i>Astrebula pectinata</i> .									
4007	7 Mar., 1930	3.4	0.7	44.9	37.6	13.1	.197	.138	Green shoots and roughage.
<i>Andropogon annulatus</i> .									
4008	7 Mar., 1930	4.4	1.5	48.7	36.9	8.5	.197	.160	Mostly green material ; 12 in.
TRUE GREEN SHOOTS—PS.									
<i>Aristida ramosa</i> .									
2736	2 Jan., 1930	19.6	1.9	39.4	28.4	10.7	.828	.453	6 in. to 8 in
INDETERMINABLE.									
2737	2 Jan., 1930	16.1	1.5	37.1	31.4	13.9	.679	.720	10 in. to 12 in.
<i>Astrebula pectinata</i> .									
2738	2 Jan., 1930	21.1	1.4	38.4	27.6	11.5	.593	.273	12 in.



Table V.  
PASPALUM PASTURE IMPROVEMENT PLOTS AT MALENY.

Date of Cutting.	Grass—Days Old.	Weight per Acre of Water-free Material.	COMPOSITION OF WATER-FREE MATERIAL.						RAINFALL.		Remarks.		
			Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P <sub>2</sub> O <sub>5</sub> .	In Inches.		Between Dates.	
PLOT 1N.—WITHOUT FERTILISER; NOT PLOUGHED; NOT CULTIVATED.													
6 November, 1929	62	1,078	14.9	1.6	44.6	29.6	9.3	.406	.464	6.64	5 Sept. to 6 Nov., 1929	..	Cutting considered fair.
10 December, 1929	34	885	10.6	1.8	47.9	31.2	8.5	.574	.421	3.98	7 Nov. to 10 Dec., 1929	..	Growth 3 in. to 4 in. and dense.
13 January, 1930	34	544	12.7	1.7	44.4	32.5	8.7	.523	.651	10.58	11 Dec., 1929, to 13 Jan., 1930	1930	4 in. to 5 in.; odd stems in seed.
12 February, 1930	30	1,409	13.8	1.6	45.5	30.0	9.1	.570	.680	26.43	14 Jan. to 12 Feb., 1930	..	6 to 7 in.; very even; thick succulent growth.
18 March, 1930	34	875	15.0	1.6	45.1	28.1	10.2	.654	.777	7.52	13 Feb., to 18 Mar., 1930	..	4 in. long; fairly even; thick growth.
30 April, 1930	43	557	16.3	1.3	45.5	26.2	10.7	.438	.649	7.88	19 March to 30 April, 1930	..	3 to 4 in. long; fairly even.
28 May, 1930	28	177	18.8	1.5	44.8	25.5	9.4	.480	.781	16.20	1 May to 28 May, 1930	..	2 to 3 in. long; even.
Total	265	5,525	13.9	1.6	45.9	29.3	9.3	.561	.643	79.23	..	..	True Average.
PLOT 1S.—WITHOUT FERTILISER; NOT PLOUGHED; NOT CULTIVATED.													
6 November, 1929	62	977	14.5	1.9	43.5	31.2	8.9	.632	.552	6.64	5 Sept. to 6 Nov., 1929	..	Cutting considered fair.
10 December, 1929	34	733	11.2	1.7	48.6	29.6	8.9	.958	.453	3.98	7 Nov. to 10 Dec., 1929	..	Thick growth, 3 in. to 4 in.
13 January, 1930	34	450	13.0	1.9	35.0	41.2	8.9	.784	.544	10.58	11 Dec., 1929, to 13 Jan., 1930	1930	4 in. to 5 in.; odd stems in seed.
12 February, 1930	30	1,272	13.9	1.7	48.2	26.8	9.4	.840	.660	26.43	14 Jan. to 12 Feb., 1930	..	5 to 7 in.; irregular growth; odd stems in seed.
18 March, 1930	34	884	14.9	1.8	46.3	26.6	10.4	.825	.636	7.52	13 Feb. to 18 March, 1930	..	4 in. long; fairly even; thick growth.
30 April, 1930	43	627	16.4	1.3	46.8	25.1	10.4	.753	.658	7.88	19 March to 30 April, 1930	..	About 4 in. long; fairly even growth.
28 May, 1930	28	139	19.7	1.6	45.5	23.9	9.3	.632	.764	16.20	1 May to 28 May, 1930	..	2 to 3 in.; fairly even.
Total	265	5,082	14.2	1.7	45.6	29.0	9.5	.833	.656	79.23	..	..	True Average.
PLOT 2N.—PLOUGHED, HARROWED, FERTILISED WITH NAURU PHOSPHATES AND SUPERPHOSPHATES (3/4-CWT. EACH PER ACRE).													
6 November, 1929	62	713	15.5	2.0	47.9	36.8	7.8	.715	.555	6.64	5 Sept. to 6 Nov., 1929	..	Cutting considered fair.
10 December, 1929	34	1,043	11.4	1.5	48.1	31.4	7.6	.696	.463	3.98	7 Nov. to 10 Dec., 1929	..	6 in. high; succulent growth with few seedheads.
13 January, 1930	34	964	13.1	1.4	44.0	31.3	10.2	1.601	.603	10.58	11 Dec., 1929, to 13 Jan., 1930	1930	7 in.; odd stems in seed.
12 February, 1930	30	1,330	14.1	1.4	47.4	28.7	8.4	.670	.710	26.43	14 Jan. to 12 Feb., 1930	..	9 in. to 10 in.; fairly even thick succulent growth.
18 March, 1930	34	992	15.0	1.5	45.6	28.4	9.5	.819	.727	7.52	13 Feb. to 18 March, 1930	..	4 in. to 5 in.; dark-green succulent growth.
30 April, 1930	43	694	17.5	1.1	46.7	24.0	10.7	.781	.615	7.88	19 March to 30 April, 1930	..	3 in. long; even; good colour.
28 May, 1930	28	208	20.3	1.2	45.5	24.0	9.0	.660	.659	16.20	1 May to 28 May, 1930	..	2 in. long; fairly even.
Total	265	5,944	14.4	1.5	47.6	27.6	8.9	.868	.621	79.23	..	..	True Average.



PLOT 2s.—PLOWED, HARROWED, FERTILISED WITH NAURU PHOSPHATES AND SUPERPHOSPHATES ( $\frac{1}{2}$ -CWT. EACH PER ACRE).

6 November, 1929	..	62	1,213	12.2	1.6	50.8	27.3	8.1	.333	.503	6.64	5 Sept. to 6 Nov., 1929	..	Cutting considered fair.
10 December, 1929	..	34	1,096	10.0	1.5	47.3	31.5	9.7	.574	.464	3.98	7 Nov. to 10 Dec., 1929	..	6 in. high; succulent growth with few seedheads.
13 January, 1930	..	34	896	11.9	1.7	45.6	32.6	8.4	.422	.546	10.58	11 Dec., 1929, to 13 Jan., 1930	..	7 in.; odd stems in seed.
12 February, 1930	..	30	1,335	14.3	1.4	45.7	30.0	8.6	.540	.660	26.43	14 Jan. to 12 Feb., 1930	..	9 in. to 10 in.; fairly even thick succulent growth.
18 March, 1930	..	34	1,058	13.4	1.0	43.8	29.9	11.9	.434	.654	7.52	13 Feb. to 18 March, 1930	..	4 in. to 5 in.; dark-green succulent growth.
30 April, 1930	..	43	558	16.0	1.2	45.0	23.9	13.9	.621	.616	7.88	19 March to 30 April, 1930	..	2 to 3 in.; even growth.
28 May, 1930	..	28	241	18.7	1.3	44.9	23.8	11.3	.541	.663	16.20	1 May to 28 May, 1930	..	2 in.; fairly even growth.
Total	..	265	6,397	12.9	1.4	47.9	29.2	9.4	.477	.559	79.23	..	..	True Average.

PLOT 3N.—WITHOUT FERTILISER; PLOWED AND HARROWED.

6 November, 1929	..	62	421	14.5	1.6	50.7	26.5	6.7	.692	.528	6.64	5 Sept. to 6 Nov., 1929	..	Cutting considered fair.
10 December, 1929	..	34	696	10.3	1.6	48.4	31.4	8.3	.735	.444	3.98	7 Nov. to 10 Dec., 1929	..	6 in. high; succulent growth with few seedheads.
13 Jan., 1930	..	34	593	11.3	1.6	40.4	38.8	7.9	.607	.545	10.58	11 Dec., 1929, to 13 Jan., 1930	..	7 in.; odd stems in seed.
12 February, 1930	..	30	895	14.0	1.7	47.8	28.6	7.9	.640	.680	26.43	14 Jan. to 12 Feb., 1930	..	9 in. to 10 in.; fairly even thin growth.
18 March, 1930	..	34	861	14.3	1.3	44.3	30.3	9.8	.794	.760	7.52	13 Feb. to 18 March, 1930	..	4 in. to 5 in.; dark-green succulent growth.
30 April, 1930	..	43	416	16.9	1.2	46.0	25.1	10.8	.807	.742	7.88	19 March to 30 April, 1930	..	2 in to 3 in.; fairly even.
28 May, 1930	..	28	104	18.7	1.2	45.1	25.2	9.6	.685	.772	16.20	1 May to 28 May, 1930	..	1½ in. to 2 in.; poor growth.
Total	..	265	3,986	13.5	1.5	48.6	27.8	8.6	.694	.629	79.23	..	..	True Average.

PLOT 3s.—WITHOUT FERTILISER; PLOWED AND HARROWED.

6 November, 1929	..	62	1,068	13.1	1.7	48.0	28.3	8.9	.547	.546	6.64	5 Sept. to 6 Nov., 1929	..	Cutting considered fair.
10 December, 1929	..	34	1,112	10.1	1.2	49.5	31.9	7.3	.720	.476	3.98	7 Nov. to 10 Dec., 1929	..	6 in. high; succulent growth with few seedheads.
13 January, 1930	..	34	765	11.8	1.4	46.0	32.5	8.3	.511	.573	10.58	11 Dec., 1929, to 13 Jan., 1930	..	7 in.; odd stems in seed.
12 February, 1930	..	30	1,199	13.5	1.4	45.7	30.8	8.6	.660	.660	26.43	14 Jan. to 12 Feb., 1930	..	9 in. to 10 in.; fairly even thick succulent growth.
18 March, 1930	..	34	861	14.2	1.2	46.8	27.4	10.4	.811	.683	7.52	13 Feb. to 18 March, 1930	..	4 in. to 5 in.; dark-green succulent growth.
30 April, 1930	..	43	488	15.6	1.1	46.2	23.5	13.6	.705	.661	7.88	19 March to 30 April, 1930	..	2 in. to 2½ in.; growth fairly even.
28 May, 1930	..	28	87	17.9	1.0	47.0	23.3	10.8	.755	.706	16.20	1 May to 28 May, 1930	..	2 in.; growth fairly even.
Total	..	265	5,580	12.9	1.4	47.4	29.5	8.8	.658	.575	79.23	..	..	True Average.



Table VI.

## PASPALUM PASTURE IMPROVEMENT PLOTS AT ATHERTON.

Date of Cutting.	Grass—Days Old.	Weight per Acre of Water-free Material.	COMPOSITION OF WATER-FREE MATERIAL.							Remarks.
			Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime—CaO.	Phosphoric Acid—P <sub>2</sub> O <sub>5</sub> .	
		Lb.	%	%	%	%	%	%	%	
PLOT 1.—PLOUGHED AND TOPDRESSED WITH NAURU PHOSPHATE AND SUPERPHOSPHATE— $\frac{3}{4}$ -CWT. EACH PER ACRE.										
12 Dec., 1929	108	620	11.3	1.6	50.8	27.3	9.0	.993	.516	First cut after placing binder in position 26th August, 1929.
3 Feb., 1930	53	854	8.3	1.2	45.5	36.8	8.1	.549	.525	Not cut January on account of heavy rains; good rank growth and in seed.
27 Mar., 1930	52	648	8.7	1.6	51.8	30.7	7.2	.703	.378	Grass yellowing.
Total ..	213	2,122	9.3	1.4	49.1	32.2	8.0	.726	.477	True average.
PLOT 2.—PLOUGHED AND TOPDRESSED WITH NAURU PHOSPHATE AND SUPERPHOSPHATE— $\frac{3}{4}$ -CWT. EACH PER ACRE.										
3 Feb., 1930	53	568	8.9	1.3	45.1	33.6	8.9	.549	.497	Grass eaten out by accident. Plot was probably eaten again.
27 Mar., 1930	52	717	9.0	1.3	51.9	30.3	7.5	.687	.332	Grass yellowing.
Total ..	105	1,285	8.9	1.3	49.9	31.8	8.1	.618	.405	True average.
PLOT 3.—PLOUGHED ONLY.										
12 Dec., 1929	108	696	13.0	1.5	48.4	27.7	9.4	.75.7	.419	First cut since 26th August, 1929.
3 Feb., 1930	53	704	7.7	1.0	46.4	36.7	8.0	.390	.394	Not cut January on account of rain; good growth.
27 Mar., 1930	52	611	9.2	1.6	51.1	29.6	8.5	.582	.408	Grass yellowing.
Total ..	213	2,011	10.3	1.4	48.2	31.5	8.6	.575	.407	True average.
PLOT 4.—PLOUGHED ONLY.										
12 Dec., 1929	108	582	13.5	1.6	46.3	28.2	10.4	.862	.396	First cut.
3 Feb., 1930	53	925	6.9	1.1	45.4	37.9	8.7	.397	.553	Not cut January on account of rain good growth.
27 Mar., 1930	52	676	8.8	1.4	51.6	30.5	7.7	.607	.322	Grass yellowing.
Total ..	213	2,183	9.2	1.3	47.7	33.0	8.8	.586	.348	True average.
PLOT 5.—ORDINARY PASTURE.										
12 Dec., 1929	108	295	13.8	1.7	48.5	26.0	9.7	.954	.518	First cut.
3 Feb., 1930	53	568	10.6	1.5	45.1	32.6	10.2	.623	.617	Not cut January on account of rain; good growth.
27 Mar., 1930	52	488	9.2	1.3	52.2	26.9	10.4	.851	.389	Grass yellowing.
Total ..	213	1,351	10.6	1.5	48.8	28.9	10.2	.777	.513	True average.
PLOT 6.—ORDINARY PASTURE.										
12 Dec., 1929	108	197	11.8	1.5	48.2	25.6	12.9	1.058	.446	First cut.
3 Feb., 1930	53	357	10.4	1.5	46.3	30.8	11.0	.695	.595	Not cut January on account of rain; good growth.
27 Mar., 1930	52	293	9.9	1.5	51.3	27.7	9.6	.823	.414	Grass yellowing.
Total ..	213	847	10.5	1.5	49.8	27.3	10.9	.823	.357	True average.



Table VII.

## ANALYSIS OF KIKUYA GRASSES AT MALENY.

Date of Cutting.	Grass—Days Old.	Weight per Acre of Water-free Material.	COMPOSITION OF WATER-FREE MATERIAL.						RAINFALL.		Remarks.		
			Crude Protein.	Crude Fat.	Carbohydrates.	Crude Fibre.	Crude Ash.	Lime, CaO.	Phosphoric Acid, P <sub>2</sub> O <sub>5</sub> .	In Inches.		Between Dates.	
No. 1.—GRASS ESTABLISHED THREE YEARS.													
6 November, 1929	62	612	13.1	1.7	47.1	28.1	10.0	.403	.544	6.64	5 Sept. to 6 Nov., 1929	..	Fair growth.
10 December, 1929	34	423	10.9	1.3	52.1	28.1	7.6	.627	.534	3.98	7 Nov. to 10 Dec., 1929	..	Poor growth; 1½ in. to 2 in.
13 January, 1930	34	416	10.4	1.5	50.0	29.9	8.2	.391	.624	10.58	11 Dec., 1929, to 13 Jan., 1930	..	Very even thick growth, 2 in. to 3 in.; beginning to recover.
12 February, 1930	30	1,392	13.1	1.6	49.7	27.0	8.6	.470	.720	26.43	14 Jan. to 12 Feb., 1930	..	6 in. to 7 in.; fairly even thick succulent growth.
18 March, 1930	34	805	12.7	1.2	49.2	28.0	8.9	.406	.759	7.52	13 Feb. to 18 March, 1930	..	6 in.; fairly even succulent growth.
30 April, 1930	43	746	13.2	1.5	48.2	28.4	8.7	.449	.849	..	..	..	..
28 May, 1930	28	103	15.2	1.0	48.1	27.1	8.6	.394	.890	..	..	..	..
Total	265	4,497	12.6	1.5	48.3	27.9	8.7	.452	.699	..	..	..	True average.
No. 2.—GRASS ESTABLISHED FIVE YEARS.													
6 November, 1929	62	216	12.0	1.8	50.1	26.8	9.3	.446	.555	6.64	5 Sept. to 6 Nov., 1929	..	Poor growth.
10 December, 1929	34	279	8.7	1.5	55.3	26.6	7.9	.580	.496	3.98	7 Nov. to 10 Dec., 1929	..	Poor growth; 1 in. to 1½ in.
13 January, 1930	34	485	10.9	1.7	50.8	28.7	7.9	.416	.687	10.58	11 Dec., 1929, to 13 Jan., 1930	..	Very even thick growth; 2 in. to 3 in.; beginning to recover.
12 February, 1930	40	1,191	13.9	1.6	45.8	27.8	10.9	.470	.990	26.43	14 Jan. to 12 Feb., 1930	..	6 in. to 7 in.; fairly even thick succulent growth.
18 March, 1930	34	1,110	12.4	1.1	47.6	28.4	10.5	.516	.936	7.52	13 Feb. to 18 March, 1930	..	6 in.; fairly even succulent growth.
30 April, 1930	43	894	13.5	1.4	46.7	27.8	10.6	.517	1.052	..	..	..	..
28 May, 1930	28	138	17.8	1.3	46.1	25.1	9.7	.515	1.226	..	..	..	..
Total	265	4,313	12.8	1.4	50.1	27.6	10.1	.493	.662	..	..	..	True average.







Table IX.  
POULTRY FEEDING EXPERIMENTS.

For Month Ending—	Pen.	Feed.	Lb. of Protein Fed.	No. of Eggs.	Oz. of Protein to Produce One Egg.	Per Cent. of Nitrogen in Air-dried Excreta.	Lb. of Excreta.
17th June, 1929 .. ..	A	Maize ..	53.6	1,571	1.649	..	..
Ditto .. ..	A	Mash ..	108.3				
Ditto .. ..	B	Wheat ..	128.0	1,304	2.258	..	..
Ditto .. ..	B	Mash ..	56.0				
Ditto .. ..	C	Barley ..	60.7	1,235	1.837	..	..
Ditto .. ..	C	Mash ..	81.1				
30th September, 1929 .. ..	A	Maize ..	27.9	1,398	0.899	..	..
Ditto .. ..	A	Mash ..	50.7				
Ditto .. ..	B	Wheat ..	70.2	1,602	0.967	..	..
Ditto .. ..	B	Mash ..	26.6				
Ditto .. ..	C	Barley ..	40.0	1,470	0.883	..	..
Ditto .. ..	C	Mash ..	41.1				
26th November, 1929 .. ..	A	Maize ..	25.4	1,458	0.842	3.01	228
Ditto .. ..	A	Mash ..	51.3				
Ditto .. ..	B	Wheat ..	59.6	1,349	1.314	4.07	251
Ditto .. ..	B	Mash ..	51.2				
Ditto .. ..	C	Barley ..	26.0	928	1.155	3.03	225
Ditto .. ..	C	Mash ..	41.0				
18th December, 1929 .. ..	A	Maize ..	26.2	1,162	0.990	3.09	143
Ditto .. ..	A	Mash ..	45.7				
Ditto .. ..	B	Wheat ..	64.4	1,122	1.200	3.53	161
Ditto .. ..	B	Mash ..	19.8				
Ditto .. ..	C	Barley ..	27.3	1,017	0.993	2.83	158
Ditto .. ..	C	Mash ..	35.8				
13th January, 1930 .. ..	A	Maize ..	23.8	801	1.116	3.32	122
Ditto .. ..	A	Mash ..	32.1				
Ditto .. ..	B	Wheat ..	58.0	1,080	1.096	3.88	142
Ditto .. ..	B	Mash ..	16.0				
Ditto .. ..	C	Barley ..	30.2	1,096	0.983	2.41	175
Ditto .. ..	C	Mash ..	37.1				
12th February, 1930 .. ..	A	Maize ..	27.3	454	1.702	2.91	133
Ditto .. ..	A	Mash ..	21.0				
Ditto .. ..	B	Wheat ..	49.0	835	1.253	2.86	139
Ditto .. ..	B	Mash ..	16.4				
Ditto .. ..	C	Barley ..	30.1	653	1.524	3.19	174
Ditto .. ..	C	Mash ..	32.1				
4th April, 1930 .. ..	A	Maize ..	27.5	415	2.078	2.86	167
Ditto .. ..	A	Mash ..	26.4				
Ditto .. ..	B	Wheat ..	55.1	603	1.855	4.19	193
Ditto .. ..	B	Mash ..	14.8				
Ditto .. ..	C	Barley ..	24.9	459	2.165	2.72	206
Ditto .. ..	C	Mash ..	37.2				

Average number of eggs laid per bird over entire period:—Pen A, 137.2; Pen B, 145.7; Pen C, 129.0.

Average ounces of protein to produce one egg:—Pen A, 1.204; Pen B, 1.389; Pen C, 1.271.



Table X.

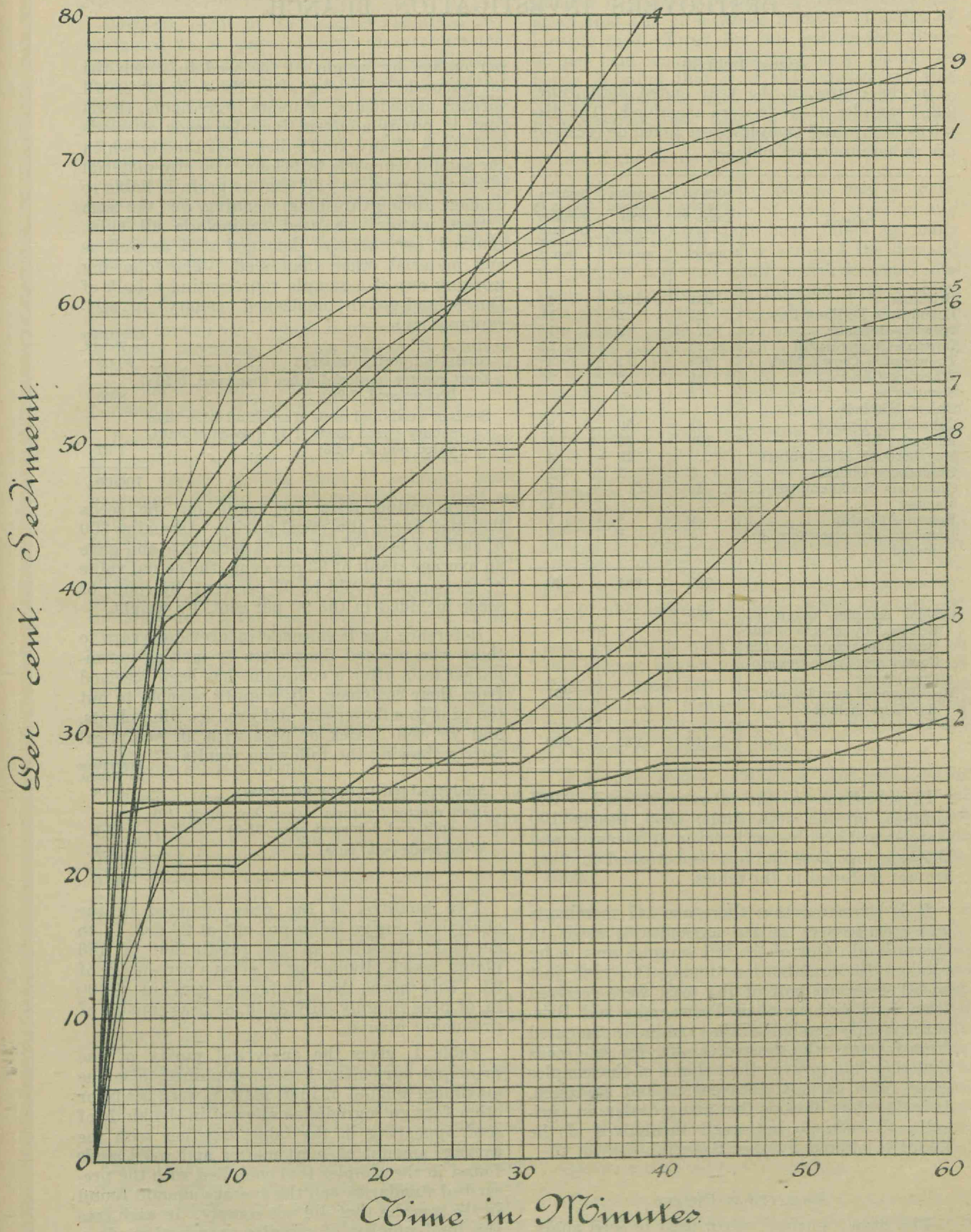
## COMPLETE ANALYSIS OF ASH OF GRASSES.

	COMPOSITE SAMPLES OF PASPALUM, FROM MALENY EXPERIMENTS, CUT 1930.											
	Untreated Control.				Top Dressed and Cultivated.				Cultivated Only.			
	No. 1 N.		No. 1 S.		No. 2 N.		No. 2 S.		No. 3 N.		No. 3 S.	
	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.
Carbon	36	..	06	..	03	..	10	..	18	..	11	..
Silica	28.2	2.38	31.4	2.69	28.4	2.31	28.2	2.46	27.7	2.24	28.0	2.35
Lime	6.5	55	7.5	65	6.9	56	4.4	37	6.8	55	7.1	59
Iron	2.1	18	1.5	14	3.0	28	8.3	72	2.3	18	4.0	34
Alumina	3.3	28	1.5	15	4.0	33	5.6	49	2.7	22	4.5	37
Magnesia	5.4	46	7.4	64	7.60	62	6.0	52	6.1	49	5.80	49
Potash	23.3	1.96	22.7	1.95	25.2	2.05	24.9	2.17	25.6	2.07	27.0	2.27
Soda	3.6	30	2.9	25	1.6	13	2.3	20	2.7	22	2.6	22
Manganese	3	024	3	03	3	023	3	027	2	015	2	013
Copper	04	003	03	0026	01	tr.	01	tr.	01	tr.	01	tr.
Sulphuric acid	11.3	95	10.60	91	8.5	69	10.4	91	8.7	70	10.1	86
Phosphoric acid	6.4	54	6.3	54	6.7	54	5.9	51	7.1	58	6.6	55
Chlorine	7.5	63	7.9	68	9.8	80	6.7	58	9.0	73	7.9	66
Carbonic acid	N. det.	..	N. det.	..	N. det.	..	N. det.	..	N. det.	..	N. det.	..
Total Sulphur in Grass	..	467	..	438	..	386	..	433	..	378	..	400
				Composite Sample Rhodes Grass, 1929.	Composite Sample Mitchell Grass, 1929.	Composite Sample Paspalum, Atherton Exper. Cut 1929.	Composite Sample Paspalum, Maleny Exp. Cut 1929.					Composite Sample Paspalum, Maleny Exp. Cut 1929.
				Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.	Per Cent. in Dry Material of Grass.	Per Cent. in Ash.
				3.5	..	2.5	..	1.6	..	1.8	..	..
				67.8	8.27	45.0	4.91	31.7	2.63	26.4	2.01	2.01
				4.5	55	6.0	65	5.1	42	7.3	56	56
				6	07	6	07	1.4	11	1.6	12	12
				9	12	9	09	3.8	32	2.8	21	21
				1.5	18	2.3	25	3.9	32	5.7	43	43
				6.9	85	23.2	2.53	31.6	2.62	29.6	2.25	2.25
				2.1	26	1.65	18	1.9	16	2.4	18	18
				07	009	07	007	30	03	50	04	04
				082	01	06	006	06	0048	06	0046	0046
				3.1	38	4.25	46	7.9	66	79	60	60
				1.9	23	3.6	39	5.5	46	6.8	52	52
				6.9	84	10.0	1.09	5.4	45	7.5	57	57
				2	02	35	04	4	04	3	02	02
				..	174	..	287	..	285	..	376	376



# Lead Arsenate, Rate of Settling.

Table XI.





REPORT OF SEEDS, STOCK FOODS, FERTILISERS, AND PEST DESTROYERS INVESTIGATION BRANCH.

SEEDS, 1929-30.

In the course of the year ended 30th June, 2,287 samples of seeds were examined. The districts from which samples were taken or received are as hereunder set out:—

Districts.	Official Samples Taken by Officers of this Branch.	Samples Received from Vendors for Examination.	Samples Sent in by Farmers for Free Examination.
Brisbane .. .. .	243	102	14
Beaudesert-Redland Bay ..	22	2	1
Ipswich-Boonah .. ..	..	2	1
Lowood-Toogoolawah .. ..	..	..	2
Toowoomba-Crow's Nest ..	268	71	3
Warwick-Clifton .. ..	10	8	6
Stanthorpe .. .. .	2	..	..
Oakey-Mitchell .. ..	..	9	..
Caboolture-Gympie .. ..	45	30	3
Kingaroy Line .. .. .	109	23	1
Maryborough-Mundubbera ..	..	29	3
Bundaberg-Childers .. ..	3	3	1
Gladstone-Rockhampton ..	45	..	1
Mackay .. .. .	..	..	1
Bowen-Atherton .. ..	9	1	1
Districts not elsewhere included	3	1	1
	759	281	39
Official samples taken at Brisbane by officers of this Branch for purposes of the Commerce (Trade Descriptions) Acts	957	..	..
Miscellaneous samples not elsewhere included	..	..	251
	1,716	281	290

In addition to the abovementioned 2,287 samples, on the 30th June, 1930, nearly 100 samples had been recently taken at Warwick and Brisbane; as these had not been worked out they are not included in the tables.

It is estimated that there are 147 merchants and storekeepers selling agricultural seeds in Queensland. Out of the 281 samples sent in by vendors for examination during the year just ended, over one-half of the total were received from four merchants in Toowoomba and Brisbane. Nearly one-half of the remainder emanated from farmers who desired to offer for sale seeds that they had grown; the balance of the samples came from various storekeepers and seedsmen. It is therefore obvious that many dealers in agricultural seeds do not avail themselves of the facilities offered by this Branch.

ANALYTICAL PURITY.

The term "purity" when used in seed analysis means analytical purity; that is to say, the

percentage by weight of the seed to which the lot purports to belong after the removal of all foreign ingredients. Foreign ingredients, therefore, in purity analysis, includes seeds of weeds and seeds of any kind other than that to which the sample purports to belong, also any material other than seed. As all seed or grain is liable to damage during threshing, cleaning, &c., the term "inert matter" is used to include all split, crushed, or otherwise damaged seed as well as any material other than seed. The following working out of a sample representing a bulk of Queensland-grown uncleaned canary is self-explanatory:—

	Percentage by Weight.
Analytical purity (canary) .. .. .	90.03
Inert matter (material other than seed, 0.10; broken seed, 7.90) .. .. .	8.00
Seeds of weeds and seeds of any kind other than canary (weed seeds, 1.71; seeds of cultivated plants, 0.26) .. .. .	1.97
	100.00

Germination tests are made on the seeds included in the analytical purity. Assuming 300 of such seeds were put out to germinate and gave an average result of 93 per cent., the actual value of the sample would be 93 per cent. by count of seeds included in the 90 per cent. by weight.

Reference has been made in previous years to those who mislead themselves by making germination tests after a complaint has been received from their customer. It is quite possible to put ten peas in a flower-pot and produce nine plants, and yet sell a sack of peas with an analytical purity showing the following results:—

	Percentage by Weight.
Analytical purity (grey field peas) .. .. .	36.8
Inert matter (material other than seeds, 1.6; split and damaged peas, 61.5) .. .. .	63.1
Weed seeds (wild oats) .. .. .	0.1
	100.0

Two hundred of the peas included in the analytical purity being put out at 20 deg. C. to germinate resulted in the production of 186 plants, which, divided by 2, gives a percentage of 93. This means that the farmer gets out of 100 lb. of peas roughly only 34 lb. of peas capable of producing plants.

Table I. gives the analytical purity of the principal agricultural seeds examined, also the maximum amount of inert matter, weed seeds, or other foreign ingredients allowed in the kinds of seed appearing in the table, together with the average amount of inert matter and weed seeds found in the samples that complied with the prescribed standards, and the average amount found in the samples that did not comply. In each case the total number of samples examined is given as well as the number that complied with the



standards, those that did not, and the number of samples that contained prohibited seeds, such as *Datura* (thorn apple), *Cuscuta* (dodder), or contained insect-infested seeds. The weed seeds in order of frequency of occurrence are also given, and the prohibited weed seeds found are set out in heavy type.

On reference to the analytical purity table it will be noted that in the case of—

*Cowpeas*.—Out of 15 samples examined five contained an excessive amount of inert matter, principally composed of split or otherwise broken cowpeas. It is possible with the use of suitable sieves to remove this excess of inert matter. Samples showing an excessive amount of split or damaged cowpeas invariably show a lowered percentage of actual germination on account of the damage to the apparently sound seeds which appears after they have taken up sufficiency of moisture to germinate. This means a considerable reduction of the actual percentage of plants that the sample should produce.

*Canary*.—Out of 9 samples examined 3 contained an excessive amount of inert matter, principally broken seed, which is probably the result of faulty threshing. In this respect, it is advisable to note that the imported seed does not have this characteristic. One sample contained the poisonous seeds of *Datura* sp. (thorn apple).

*Paspalum dilatatum*.—Last year the number of paspalum samples was 53. During the year under review no less than 96 samples were examined. Eleven of such samples contained an average weed seed content of 2.8 per cent. by weight. The weed seeds are set out in the table, from which it will be noted that they do not greatly differ from those found last year except in the important fact of quantity, which unfortunately during the year under review is double that found during 1928 and 1929.

*Prairie Grass*.—As in the case of paspalum, the number of samples examined are nearly double that of the previous year. Six samples unfortunately contained a larger percentage of weed seeds than is allowed. None contained the poisonous seeds of *Datura*.

*Rhodes Grass*.—Out of the 137 samples of Rhodes grass examined, 19 contained a larger proportion of weed seeds than is allowed; the increasing frequency of forms of chloris other than (*Chloris gayana*) Rhodes grass is to be regretted. Recently two samples not included in last year's work contained over 7 per cent. of these close allies to the Rhodes grass of commerce. It is frequently overlooked by those who reluctantly pay 2s. 6d. for examination of a Rhodes grass sample that the actual cost in time for a purity analysis and germination test is about £2 per sample.

*Lucerne*.—During the year ended June, 1929, 44 samples of lucerne seed were examined. In the year under review 106 samples were worked out; of this number unfortunately 32 contained the prohibited seeds of dodder (*Cuscuta* sp.) and 10 samples a larger amount of inert matter than is allowed, the average content of such material being over 8 per cent. It is to the credit of merchants owning efficient seed-cleaning

machinery that they seldom have trouble with dodder-infested samples, as they are quite aware that, however good their machinery may be, it is impossible to get out every dodder seed from lucerne. Those, unfortunately, who have a less acquaintance with agricultural seeds generally possess seed-cleaning machinery of a non-efficient character, which makes the proper cleaning of any agricultural seeds impossible. The excessive number of samples containing dodder does not mean that out of a whole number of bulks of lucerne seed offered for sale within this State 30 per cent. contain this pest, as it should be borne in mind that it is the function of this branch to find out such occurrences, and not to unnecessarily take samples representing bulks that are known to fully comply with the requirements of the Seeds Acts.

Partly, the presence of dodder can be attributed to the greater use of motor traction and the beneficial rains that have fallen in many areas. These jointly have reduced the demand for lucerne hay and chaff, which in many districts are known to be infested with dodder. The growers, with the idea of turning their crop into money, probably save many dodder-infested paddocks for seed: this at a time when there is an overabundant supply of absolutely first-class lucerne seed. The position is so bad that growers would be well advised to only obtain their supplies from merchants known to possess efficient seed-cleaning machinery, or who are able to absolutely prove that the lucerne seed offered is free from dodder.

*Foxtail Millet* (*Setaria italica*).—Only twenty-two samples of Hungarian millet were examined during the year, all of which complied with the prescribed standards of purity. Large quantities of Foxtail millet are sold for feeding purposes, particularly so when canary seed reaches a high price. Unfortunately, in this respect buyers and sellers miscall this seed Panicum, and any particularly clean looking sample Giant Panicum, overlooking the fact that *Panicum maximum*, in plain English Giant Panicum, is "Guinea" grass.

*Japanese Millet* (*Panicum crus-galli*).—Out of the thirty-seven samples examined, one contained the poisonous seeds of *Datura*, and five others a larger percentage of both inert matter and weed seeds than is allowed by the Regulations.

*White Panicum* (*Panicum frumentaceum*).—Reference has been made on several occasions to the need for a careful examination of all samples of White Panicum, as in many instances, it has been found that bulks vary from bag to bag. In particular, this relates to freshly harvested samples that have not been properly dried out. Out of the thirty-nine samples examined, five contained a larger amount of weed seeds than is allowed by the Regulations. In each instance the sample represented seed that was quite innocent of a cleaning machine, and held in storage by merchants who rely too much on a superficial examination of the top of one bag.

*Sorghum*.—Out of 77 samples examined, 12 contained over 5 per cent. of inert matter prin-



cipally composed of broken seed which could easily have been removed by efficient seed cleaning machinery.

*Sudan Grass (Sorghum sudanense).*—Only half the samples examined were up to the prescribed standard of purity. Two samples contained the poisonous seeds of *Datura* sp. (thorn apple), and 28 contained a large proportion or amount of both inert matter and weed seeds than is allowed. This again brings up the necessity of a good seed-cleaning machine and the will to use it. Merchants handling seeds cannot expect the average farmer to turn out a sample with a degree of efficiency that should be possible with any merchant equipped with an up-to-date plant.

*Oats.*—Complaints are frequently received from merchants dealing in oats, from which it appears that the average buyer seldom asks for seed oats, being content to purchase the cheapest possible oats probably not even fit for feeding purposes. A leading merchant recently stated that with the ordinary Algerian oats of which he was selling a considerable quantity of clipped and clean seed, he is often passed by buyers who can obtain material at probably 6d. to 9d. per bushel less. Such oats are neither cleaned, graded, clipped, or in any way fit for seed purposes; as a matter of fact, produce merchants dealing in such material are particularly careful to sell them as oats. In this way, the oats are exempt by the farmers' own action from any Regulations prescribed by the Pure Seeds Acts.

Some few weeks since, a large Toowoomba merchant sent a sample of the cleanings that he was getting out from a consignment of Southern-grown oats. It was at the time stated that the sample represented an average of seven pounds weight of weed seeds to each bag.

The following brief extract from my reply sets out not only the Regulations prescribed in the case of oats, but the actual numbers of weed seeds and oats that would be in the sample referred to. The letter reads as follows:—

"The sample submitted contains the following weed seeds:—*Rumex acetosella* (Sorrel), *Spergula arvensis* (Corn Spur-rey), and *Rumex* sp. (Dock), all of which will pass through a 2 m.m. sieve. Assuming the bulk contains 5 per cent. by weight of these weed seeds, with an average sample of Algerian oats, it would mean that in each pound a farmer would sow about 14,730 oat seeds and 31,995 weed seeds.

"The standard of analytical purity prescribed for oats is that they shall not contain more than 2 per cent. by weight of inert matter, or more than 1 per cent. by weight of seeds of weeds, or seeds of any cultivated plant not included in Schedule A (which refers to barley, oats, rye, and wheat only) that will *not* pass through a metal sieve perforated with round holes 2 m.m. in diameter, and in the case of seeds that will pass *none* are allowed. Seeds of any cultivated plant mentioned in Schedule A, other than the seeds to which the sample purports to belong, must not exceed 2 per cent. by weight; in other words, in the case

of oats, 2 per cent. of barley and/or wheat would be allowed.

"Under the circumstances, you would be well advised to inform your suppliers in the Southern States of the standards required by the Queensland Seeds Acts, which are definite. The use by the trade of such loose terms as A Grade, B Grade, F.A.Q. Grade, may be good sales talk; the terms, however, are meaningless, as they carefully avoid any exact information as to the sample's weed seed content or percentage of germination."

The merchant to whom the above letter was sent, in reply stated:—

"I appreciate the information contained therein.

"It is just a further example of the number of weed seeds in proportion to oat seed that would have been planted in this case, if one were not in a position to clean the line.

"Thanks for further batch of Regulations. I am sending a copy to each of my suppliers for their perusal and benefit."

#### GERMINATION.

Table II. gives the germinating capacity of the principal seeds examined during 1929-1930 for the purposes of the Queensland Seeds Acts. With each kind of seed the highest germination recorded during the year is given, the minimum germination required by the Regulations under the Acts, the average germination of samples up to the standard, and the average germination of samples below standard, also the lowest recorded during the year. The total number of samples of each kind is also given.

For the better understanding of the Table, it is advisable to divide the seeds therein referred to into agricultural and vegetable seeds. In the case of agricultural seeds, it is pleasing to put on record the action taken by the Fiji Government, who gazetted on Friday, the 13th December, 1929, a regulation dealing with the export of Mauritius beans from Fiji. The standards prescribed are similar to those provided by the Regulations under the Queensland Seeds Acts; that is to say, a germination of not less than 60 per cent., with an inert matter content of not more than 2 per cent.

The seeds of Mauritius beans are not produced in Queensland, therefore our cane-growers depend on seeds grown in Fiji and New Guinea, all of which are obviously not landed at Brisbane; this does not prevent sugar mills or other importers from submitting samples for examination before sending out the beans to cane-growers. In this respect it is advisable to note that a cursory examination of such beans does not reveal their germination quality; this can only be ascertained by actual test, and it is quite possible for a sample to obtain a prize at an agricultural show and still fail to germinate.

If users took the precaution to inform their suppliers of their intention to submit samples to this branch, and insisted on an invoice as required by the Seeds Acts, vendors would be



inclined to take as much care as that exercised by the four leading seed merchants before referred to.

In the case of cowpeas, thirteen samples had an average germination of 92 per cent., one badly harvested sample a germination of 54 per cent. when tested in sand; this percentage included many weaklings that would fail to produce plants under field conditions. The same remarks apply to badly insect-infested samples.

*Paspalum dilatatum*.—One sample of heavy handshaken seed germinated 77 per cent., seventy-one samples had an average germination of 37 per cent., twenty-five samples an average of 9 per cent. only. One of these produced 24 seedlings from 800 seeds or, in other words, 3 per cent. only. During the early part of each year a number of freshly harvested samples of *Paspalum* are sent in by growers and merchants; such samples lack maturation, that is to say, they are not germination ripe. Seeds stored for a few months, say, from March to September, give in the case of *Paspalum*, White Panicum, and some others, time to undergo nature's own process of after-ripening, which renders the seed readily germinable. To make any accurate determination with freshly harvested seed is a somewhat lengthy process and entails considerable expense. As before explained, germination tests are made on the seeds included in the analytical purity; that is to say, material that a seed merchant or farmer would consider as seed, in the case of *Paspalum* only a portion of the seeds are formed; that is, contain caryopses. Assuming a sample contained 53 per cent. of caryopses, it is reasonable to assume that at least 90 per cent. of the caryopses would on maturation germinate. A sample received last March of apparently good seed, when put out to germinate with the right temperature and moisture, failed to produce any signs of growth in 14 days. The sample after being dried at a high temperature for 10 days, germinated 17 per cent. in 10 days; after being treated for 14 days, it germinated 47 per cent. in 8 days. If this time is added up it will be seen that even if the full facts as to date of harvesting were known when the sample arrived, it would take 22 clear days to get a result; it therefore follows that in many cases the result cannot reach a merchant until one month from the date of his sending a sample of *Paspalum*.

*Prairie Grass*.—The standard for *Prairie Grass* is a germination of not less than 50 per cent. Out of fifty-four samples examined, forty-eight had an average germination of 83 per cent., one went 99 per cent., six samples were below the prescribed minimum with an average germination of 35 per cent. As in the case of *Paspalum*, freshly harvested prairie grass usually lacks maturation; nearly every sample received during its period of harvest has to be kept for some months before it is readily germinable at the optimum temperature, which is a low one, quite the reverse to the high temperatures required by *Paspalum* and *Rhodes*. It therefore follows that it is frequently necessary to treat samples of freshly harvested prairie grass seed at a high temperature for quite a number of days before any determination can be made;

the results therefore may take a month before they are available. In this respect it should be noted that although merchants and sellers may be dealing in prairie seeds during the very hot weather, farmers would not obtain supplies until the sowing season had arrived.

*Rhodes Grass*.—Out of 137 samples examined, one hundred and twenty had an average germination of 41 per cent. (the standard prescribed by the Regulations is 30 per cent) and seventeen samples had an average germination of 20 per cent. All samples on the border line or below standard are tested again; taking these retests into account the actual number of commercial *Rhodes* seeds put out during the year for germination test is a little over 154,000 seeds. The foregoing remarks with regard to seeds not being germination ripe also applies to *Rhodes*, hence the delay with many samples representing seed just off the plant.

*Lucerne*.—Sixty-eight samples of lucerne had an average germination of 78 per cent. with an average hard seed content of 11 per cent. The term "hard seeds" is used to denote sound seeds with seed coats so impervious to water that they do not germinate within six days. In the case of samples that did not germinate up to the prescribed minimum of 65 per cent., one contained 32 per cent. of hard seeds. The average percentage of such hard seeds in the samples below standard was 12 per cent. With samples representing old seed of low germination, hard seeds seldom occur.

*Foxtail Millet (Setaria italica)*.—Out of 22 samples tested for germination, 19 had an average germination of 88 per cent. and three an average of 49 per cent. only. Buyers and sellers of this seed should use the commonly accepted names of Hungarian millet, Liberty millet, or Foxtail millet. Although Siberian millet seed is not at present offered for sale within this State, it should be noted that true Siberian millet is a form of Foxtail millet with reddish seeds. *Panicum frumentaceum* (White Panicum) is often sold as "Siberian," and it has been necessary on several occasions during the year under review to draw the attention of merchants and others to the differences in these plants. The Regulations under the Pure Seeds Acts are definite as to the kind of seed indicated, and all invoices should strictly follow the Regulations to avoid a breach of the Acts and Regulations thereunder.

*Japanese Millet (Panicum crus-galli)*.—Out of 37 samples only 25 germinated up to the prescribed standard. One sample failed to germinate, and the average of the remainder was only 36 per cent. Buyers and sellers would therefore be well advised to submit samples of any stocks that they are holding or desire to purchase, and to remember that even in the case of Japanese millet, large bulks of absolutely worthless seed are sometimes offered by dealers not in the habit of submitting samples to this branch.

*White Panicum (Panicum frumentaceum)*.—Thirty-five samples had an average germination of 85 per cent. when tested under laboratory



conditions. Unfortunately, many of these samples represent seed not germination ripe. A typical example is a sample obtained from a produce merchant in the Kingaroy district. The sample in the condition as received only germinated 4 per cent. in 8 days. After being dried for 5 days the sample germinated 86 per cent. in 16 days; when dried for 21 days it germinated 89 per cent. in 5 days. This means that only after 21 days storage at a high temperature, the sample reached that degree of maturity to enable the seeds to readily germinate. By nature's own process of after-ripening, the seed would have reached its proper condition after 3 or 4 months storage in a dry airy shed. It is therefore obvious that growers should not thresh out seed until it is properly ripe, and merchants refrain from buying until the seed has reached that degree of maturity required for germination. Although this matter has been explained to many produce merchants, it is not understood except by those who have more than a superficial acquaintance with the seed trade.

#### VEGETABLE SEEDS.

*Pumpkin.*—Out of 21 samples, five did not germinate up to the prescribed standard of 65 per cent., and many complaints were received from buyers as to the pumpkin seed supplied; one sample from Bowen germinated 1 per cent. only. This appears to have been sold through a string of dealers and produce merchants, all of whom are so self-confident that Pumpkin Seed will grow for years that they probably overlook the obvious fact that only seed from ripe pumpkins when stored under suitable dry conditions would germinate 70 per cent. or better after several years storage. In the case of seed harvested in a rough manner and allowed to ferment, it is possible to kill even new seed; this would be at once apparent to the grower, seller, or user if they made any attempt to ascertain the germination before sowing. Several complaints were received from buyers who desire the variety known in Queensland as Beaudesert pumpkin or Queensland Blue, and found that their crop consisted of some of the American varieties not suitable for long storage or of a shape that will reach the Southern markets and still keep a good appearance. It is known that several of the large seed merchants are going to considerable trouble in the selection of Beaudesert pumpkin. This will enable them in the near future to offer seed of known origin saved from pumpkins that have been true to type during at least two or more generations. The ordinary pumpkin seed offered for sale by produce merchants often represents seed from pumpkins not good enough in a farmer's opinion to send to market. This accounts to a great extent for the nondescript appearance of many crops.

*French Beans.*—Thirty-seven samples of Canadian Wonder beans were tested for germination. One sample failed to grow and 4 others had an average germination of 22 per cent. only, with the result that it has been necessary to take action for the destruction of many lots of French beans. These include several sacks from the Murgon district, and a quantity of small lots in the Caboolture-Gympie district. This again

shows the importance of both sellers and buyers submitting samples to this branch, as in every case the beans referred to could be traced to persons who never submit samples and are content with their own opinion, with disastrous results to the actual users.

*Cabbage, Cauliflower, Onion, Parsnip, and Turnip.*—Owing to several complaints from buyers purchasing half-ounce and ounce lots of these seeds from florists and small shopkeepers, 122 samples were taken. Out of this number 64 failed to comply with the prescribed standard. These include 21 samples of cabbage, with an average germination of 31 per cent., 7 samples of cauliflower, with an average germination of 23 per cent., 10 samples of onion, with an average germination of 27 per cent., 9 samples of parsnip, with an average germination of 2 per cent. only, and 17 samples of turnip, with an average germination of 29 per cent. As a result of these findings, over 50 lots of seed were destroyed. To get some idea of the average germination of good seed, reference should be made to Table III., which deals with the samples representing imported seed taken from bulk before the Queensland seller had delivery. Out of the 750 bulk samples therein referred to nearly 700 of the samples represented goods imported by the five largest seedsmen dealing in vegetable seeds.

#### OVERSEA OR IMPORTED SEEDS.

Table III. gives the germinating capacity of the principal seeds imported from overseas during 1929-30, also the country from which the goods were imported.

The Regulations under the Commerce (Trade Descriptions) Act, 1905, require the trade description to state the seeds' condition as to soundness, cleanness, and newness, "soundness" being described as freedom from disease and from damage or decay; "cleanness" as freedom from seeds other than those named in the trade description and from other foreign substances, such as chaff, stalks, soil, &c.; and "newness," that the seed has been gathered during the immediately preceding harvest time in the country or place named in the trade description.

In the absence of definite standards other than that for lucerne, a seed not imported in bulk, the minimum percentage of germination required by the Queensland Seeds Acts has been the basis of examination.

On reference to the table it will be noted that some of the samples examined were not up to the requirements of the Regulations under the Queensland Seeds Acts. The necessary action was therefore taken to prevent the goods being offered for sale within this State.

Each year a number of small consignments are imported by market gardeners and others for their own sowing. Taking them on the whole, they are not up to the purity and germination of bulk lots imported by merchants.

#### SEEDS SUITABLE FOR MARKET GROWERS.

In previous reports attention has been directed to the necessity of buying only strains of vege-



table seeds suitable for Queensland climatic conditions and general market requirements.

New seeds of beet, cabbage, cauliflower, carrot, cucumber, lettuce, marrow, rock melon, water melon, swede, and turnip should have a high germination when imported, and if stored in a cool, dry place will usually retain their germinative faculty over one year. Market gardeners would therefore be well advised to obtain their requirements of such seeds and put in a row alongside their main crop. If the seed proves to be of the strain best suited for their market requirements, they have enough on hand for the next year's main crop. Should, however, it prove unsatisfactory, their loss is little more than the cost of the seed.

#### SEEDS EXAMINED FREE OF COST TO BUYERS.

It is to be regretted that both farmers and others who buy seeds for their own sowing do not avail themselves of the facilities for getting seeds tested before sowing. During the year under review only thirty-nine samples were sent in for free examination. In nearly every instance they were forwarded because the seed had failed to grow. It is obvious that samples sent in many months after purchase will, in many cases, not be truly representative of the goods on delivery. In the buyer's own interest samples should be drawn from the seed actually delivered, and forwarded to this Department for examination before such seeds are sown. If this were done many complaints, in particular regarding Rhodes grass, Paspalum, Mauritius beans, and other farm seeds, would never occur. It would facilitate all investigations if the purchaser set out the actual facts in his first letter, in particular the date of delivery, quantity purchased, and name and address of seller.

#### Stock Foods, 1929-30.

The 440 samples of stock foods examined for purposes of the Stock Foods Acts were derived from the following sources:—

Districts.	Samples Received under Section 3 of Stock Foods Acts.	Samples Taken by Officers of this Branch.	Samples Sent in by Sellers.	Samples Received from Users.
Brisbane .. .. .	166	65	41	9
Ipswich-Boonah .. ..	2	..	2	..
Toowoomba-Pittsworth ..	4	9	..	1
Warwick-Clifton .. ..	4	..	7	1
Stanthorpe .. .. .	3	2	2	..
Oakey-Mitchell .. ..	2	..	..	1
Caboolture-Gympie .. ..	..	7	..	..
Kingaroy Line .. .. .	..	31	4	..
Maryborough-Mundubbera	2	..	..	..
Bundaberg .. .. .	..	3	..	..
Gladstone-Rockhampton ..	2	3	2	..
Mackay .. .. .	6	6	3	..
Bowen-Townsville .. ..	10	10	2	..
Cairns-Atherton .. ..	6	..	22	..
	207	136	85	12

In addition to the 440 samples examined for the purposes of the Stock Foods Act, the 49

samples as set out in Table IV., should be considered, the samples in question were received for examination from the Chief Quarantine Officer, Plants, Brisbane, and represent large lots of seeds imported for the feeding of birds. In the absence of any definite standard for such material the work is carried out on the standard prescribed by the Regulations under the Stock Foods Acts, which are set out in the table.

Last year, comment was made on the large quantities of such seeds imported from overseas, with the result that several bird fanciers have volunteered information as to their preference for imported canary seed. From their statements it appears that canaries and other small birds prefer to shell their own seed, and reject much of the broken and shelled seed so common in Queensland samples. It was also stated by several careful observers that small birds, as a rule, do not take kindly to the so-called Red French millet, and on the whole much prefer sound new seed. In confirmation of these opinions, it should be noted that the Red Millet seed imported is usually of very poor germination, with indications of it being very old. On the other hand, many samples of canary are of strong germination and of a good bright appearance. Although the loss of cage birds may occasionally be due to poisonous seeds such as *Datura* (thorn apple) found sometimes in Queensland-grown canary, the feeding of mouldy seed or grain should be carefully avoided.

During July, 1929, several complaints were received from poultry keepers regarding the quality of the feed wheat offered for sale by many produce merchants; on samples being taken it was found that many were mouldy, insect-infested, and quite unfit for feed purposes. The same remarks also apply to several small lots of so-called wheat meal then being offered for sale. The loss of poultry in many instances could no doubt be traced to this cause; if buyers were as keen on getting sound grain as they are on paying low prices, many of these losses would not occur.

Any grain or other feeding stuff that has an objectionable foreign odour, is mouldy, heating, hot, sour, or infested with live insects, or material in any way injurious to poultry or stock, is not only of distinctly low quality but not safe to feed. It is provided by the Regulations under the Stock Foods Acts that meal shall consist of the ground, or finely crushed product of entire, clean, sound grain, cereal, seed, or material of which such meal purports to be made. If users of poultry foods would call on any of the merchants whose names appear in this report and satisfy themselves of the care now being exercised by the principal manufactures, they would in future avoid many of their present troubles. Good foods can only be produced from sound raw materials.

The Regulations under the Stock Foods Acts declare the following to be of low food value:—Rice hulls, oat hulls, maize cobs, peanut shells, clipped oat refuse, cotton seed hulls, sweepings of mill floors, grain sheds, ship holds, and produce stores, ground screenings, damaged grain, and ground straw.



Every person dealing in any of the materials before referred to is required to keep a register open to inspectors during business hours, setting out the following particulars:—

Date Received.	Kind of Stock Food.	Quantity.	From whom Received.	Disposed of to—	Quantity.	Date.

It has recently been necessary to direct several produce merchants' attention to these clauses and requirements of the Stock Foods Acts, and this report will serve as a further warning that greater care should be taken by dealers in foods of low food value and a careful record kept of the quantities received, and the names and addresses to whom such material was supplied, as in several cases it has been found that farmers and other buyers have been grossly misled by verbal representations made by sellers of such inferior material.

#### BRAN AND POLLARD.

Tables V. and VI. give particulars of the chemical and physical analyses of the bran and pollard samples examined during the year. On reference to the summary of chemical analyses from 1923 to 1930 it will be observed that the average crude protein content is lower than last year.

In 1927 bran had an average crude protein content of 14.9, as against 16.3 in the current year. In the case of pollard the average protein in 1927 was 14.7, as against 15.4 in 1930.

Bran is defined by the Regulations as the outer skin or coating of the wheat grain or berry, pure and without admixture of any kind, obtained in the usual commercial milling process from which there shall have been removed all impurities by cleaning and scouring. It is also provided that it shall not contain whole or broken wheat grain and not more than 1 per cent. of any substance of a non-deleterious character other than the by-products of wheat.

The definition of pollard is that it shall consist of the products of the wheat grain or berry (other than flour or bran) obtained in the usual commercial milling process from wheat from which there shall have been removed all impurities, and shall be of such fineness as to permit of 99 per cent. passing through a metal sieve perforated with round holes 1.5 mm. (one and a-half millimetres) in diameter. It is also provided that pollard shall not contain more than one-half of 1 per cent. by weight of any substance of a non-deleterious character other than the by-products of wheat; further, that it shall not contain more than 1 per cent. of wheat by-products that will not pass through the prescribed sieve. The amount of bunt and smut present in bran or pollard must not exceed one-tenth of 1 per cent. by weight.

Any person desiring to purchase bran and pollard from the Southern States would be well

advised to keep these standards before them, and to remember that when such by-products are purchased outside the State, for sale within the State of Queensland, section 3 of the Acts must be complied with by the Queensland dealer responsible for bringing in the material.

The quality of mill by-products produced by Queensland mills is usually better than that obtained from the Southern States, where it is possible to purchase both bran and pollard of a lower feeding value than the average set out in this report.

The following small table sets out the average protein, fat, and fibre content of five samples of meal made from Queensland-grown wheat, and five samples each of bran and pollard, the produce of Queensland mills from Queensland-grown wheat, as against the true average of all samples of these by-products for the year ended 30th June, 1930:—

	Wheat Meal. (Queensland Wheat.)	Bran. (Queensland Wheat.)	Bran. (Average all samples.)	Pollard. (Queensland Wheat.)	Pollard. (Average all samples.)
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Crude protein ..	13.6	17.3	16.3	16.7	15.4
Crude fat ..	1.4	2.4	2.5	3.4	3.3
Crude fibre ..	2.5	10.0	10.1	5.7	5.8

It will thus be seen that an average sample of good wheat meal contains less protein and fat than bran or pollard. The matter does not end here, as the average protein and fat content of the wheat ground by produce merchants, often at the poultry feeders' own request, seldom contains more than 11 per cent. of protein; should the protein content be high, it can often be put down to impurities such as dead weevils. When these are present there is a great increase in the fibre and ash content of the sample.

The question is often asked as to the feeding value of meals made from whole grain, lucerne hay, &c.; some of these will be found in Table VIII., others are set out in the following table giving the average protein, fat, and fibre content in round figures, which are near enough for fair average samples free from an excessive amount of foreign matter.



Kind of Material.	Crude Protein.	Crude Fat.	Crude Fibre.	Remarks.
	Per Cent.	Per Cent.	Per Cent.	
Barley, Cape and malting ..	11	1.5	5	Barley suitable for malting should have a low protein content; it therefore follows that good malting barley is of less feeding value than ordinary samples.
Barley, Skinless ..	12	1.0	3	
Barley of good malting quality ..	9	1.5	5	
Canary seed ..	15	5	6	Dried yeast is not at present on the market; supplies will shortly be available.
Dried buttermilk powder ..	40	5	..	
Dried yeast ..	..	..	..	
Dried blood ..	75	Trace	..	The new process linseed meal contains less fat than meal produced by the old process.
Hemp ..	18	32	15	
Linseed, whole ..	21	35	10	
Linseed oil meal, old process ..	28	6	12	The crude ash content should be less than 11 per cent.; when it exceeds this figure it is a clear indication of an admixture of foreign material, usually soil.
Linseed meal, new process ..	28	2	13	
Lucerne hay, good ..	20	1	20	
Lucerne hay, ordinary quality ..	16	1	28	Analyses of these materials vary; the figures given are an average of five samples.
Lucerne meal, good ..	20	1	20	
Lucerne meal, ordinary ..	14	Trace	30	
Maize ..	9	4	3	The long light-weight Queensland-grown oats are of less feeding value than the analyses given.
Maize oil meal ..	15	17	15	
Maize gluten feed ..	23	2	9	
Millet, French ..	11	3	8	Hand-picked blue peas contain more protein and less fibre.
Millet, Japanese ..	12	4	10	
Millet, Foxtail ( <i>Setaria</i> ) ..	11	3	14	
Oats, heavy, feeding ..	10	5	9	A by-product of rice.
Oats, Algerian type ..	8	5	11	
Peas, blue ..	17	1	7	
Rape ..	19	45	6	Feterita and milo grown for the grain. Varieties such as Imphee and Saccaline. Black hulled such as Amber cane.
Rice meal ..	12	18	7	
Rye ..	11	1.5	2	
Sorghum, grain varieties ..	10	2.5	3	The ordinary soy bean meal of commerce is made from beans after the extraction of part of the oil.
Sorghum ..	9	2.5	3	
Sorghum, black hulled ..	8	2.5	5	
Sorghum, var. broom millet ..	11	3	8	Not at present on market. Note the high protein content as compared with wheat meal.
Soy beans ..	40	15	10	
Wheat germ meal, 1930 ..	20	5	4	

#### GRAIN AND MEAL STORAGE.

The misadventures that occur each year in the storage of maize, sorghum, and cowpeas would not happen if ordinary precautions were taken by merchants and others desiring to store grain for future sale. In many cases no attempt is ever made to thoroughly clean out the tanks or storage bins, with the result that both the sides and bottom are encrusted with rotten material. Where bisulphide of carbon is used there is frequently no provision for an aperture at the bottom to let this gas out, or clearance enough beneath the container to get it away from the shed. Failure to remove the carbon bisulphide ( $CS_2$ ) from the bottom of the container results in the grain becoming tainted; loss of germination also ensues. Maize, irrespective of its moisture content or general condition, is often shot direct into tanks without any attempt to get it into good condition before storage.

Maize suitable for storage in closed containers should have a moisture content of less than 12 per cent. and be free from insects and mouldy grain. It therefore follows that the moisture content of each delivery should be ascertained before storage, as one poor lot may have disastrous results on the remainder of the grain in the container.

Any moist material put into a closed container will heat and liberate moisture, which condenses on the sides and trickles down to the bottom, setting up conditions ideal for rapid decay. With weevil-infested grain the working of these insects causes sufficient heat to liberate moisture. Moisture is always given off when the temperature rises above that to which the material had been previously subjected, particularly so in the tropics, where the difference between the day and night temperatures makes conditions inside a closed tank or bin ideal for condensation.

It is therefore necessary to fumigate to kill insects, also to reduce (by drying) the moisture content to safe figures before final storage.

All forms of storage should be of such character as will permit of the ready clearance of the bisulphide of carbon, and in a manner to reduce the danger of explosion or fire to the absolute minimum. A suitable insect-proof outlet at the top will let out much of the hot moisture-laden air, and provide facilities for ascertaining the inside temperatures by the use of thermometers in the manner now adopted for peanut storage.

Buyers should always remember that maize may be mouldy and insect-infested before it leaves the farm, or become so in transit and storage before it reaches the merchant's store.



Only grain free from mould should be fed to animals. It is possible by the proper use of bisulphide of carbon to kill weevils. It is also possible to reduce the moisture content by storing in dry areas of low humidity or by artificial means. It is not, however, possible to make bad material good; the most that can be done is to prevent damage to good grain.

Bisulphide of carbon has proved an effective and cheap fumigant; the quantity required must relate to the cubic content of the fumigation chamber, which should be filled with the material to be fumigated.

The approximate cubic content of a round tank can be roughly ascertained by the following method:—

Diameter of tank, say ..	10 feet
Multiply by diameter ..	10
	100
Less one-fifth ..	20
	80
Multiply by height ..	12½
	1,000 cubic feet

If absolute accuracy is required the square of the diameter should be multiplied by 0.7854 and the result multiplied by the height.

The following table gives a rough idea of the cubic content of the round tanks usually sold, also the quantity of bisulphide of carbon required for each size.

CUBIC CONTENT OF ROUND TANKS.

Tanks Usually Sold as—	Usual Measurement.				Content in Cubic Feet.	Approximate Quantity of Bisulphide of Carbon Required
	Diameter.		Height.			
Gallons.	Ft.	in.	Ft.	in.		
500	4	0	6	0	75	5 oz.
600	4	4	6	0	86	6 oz.
800	5	0	6	0	118	9 oz.
1,000	6	0	6	0	170	$\frac{1}{2}$ -pint
	10	0	12	6	981	3 pints
	11	0	11	0	1,044	3 pints
	12	0	9	0	1,017	3 pints
	12	6	8	3	1,012	3 pints

One ton of maize is approximately 52 cubic feet.  
One ton of meal is approximately 75 cubic feet.  
Three pints (4½ lb.) bisulphide of carbon is required for 1,000 cubic feet.

Fumigate in an airtight chamber, pour bisulphide of carbon on cotton waste at top of chamber and close aperture quickly. Leave material with fumigant for at least twenty-four hours, at most thirty hours, and then store in a clean tank or chamber as airtight as possible. Remember some of the fumigant will remain in the fumigation chamber and may explode if a cigarette or other light is dropped in.

*Bisulphide of Carbon—Caution.*

Users of bisulphide of carbon are warned of explosion when a naked light is brought near air charged with its fumes. As a precaution against such occurrence it is advisable to place the fumigation chamber in a position that does not exclude daylight. Further it must not be overlooked that, when the fumes of bisulphide of carbon are present in the fumigation chamber for a longer period than is suggested, the material may retain the smell of the fumigant and give an objectionable taste. This will not occur if the fumigant is used in the manner recommended.

MISCELLANEOUS STOCK FOODS.

Tables VII. and VIII. set out the various calf foods and miscellaneous stock foods examined during 1929-30. The seller's guarantees are given, also the average findings, which make the tables self-explanatory.

STOCK LICKS AND MINERAL FEEDS REGISTERED FOR 1930.

Under the Stock Foods Acts it is provided that the seller must affix to every package a plainly printed label which must clearly certify in the case of stock licks or mineral feeds—

- The number of net pounds in the package;
- The distinguishing name or trade mark of the material;
- The name and principal address of the Queensland wholesale seller; and
- The chemical analysis expressed in the following manner:—
  - The minimum percentage of phosphoric acid ( $P_2O_5$ ), and the name of the material from which it is derived;
  - The minimum percentage of lime when such material has been added;
  - The minimum percentage of magnesia, which can best be expressed by giving the actual percentage by weight of the magnesium sulphate present;
  - The minimum percentage of iron and the form in which it occurs. This can best be expressed by giving the actual percentage by weight of the material in the form of, say, iron sulphate or iron carbonate;
  - The minimum percentage of sulphur as flowers of sulphur or as ground sulphur;
  - The maximum percentage of salt (sodium chloride); and
  - Where potassium iodide has been added to the mixture, the number of ounces that would be in one ton.

In all stock licks or mineral feeds to which any mixed, concentrated, or prepared stock food or prescribed by-product has been added, the percentage by weight of such added stock food must be expressed on the label. In other words, if the ingredients of the stock lick include molasses, peanut meal, cocoa meal, bran, or other by-products, the percentage of such material must appear on the label.

The label is also required to give the specific name of each of the original materials or ingredients and the proportion or amount of the foreign ingredients.

It is now provided that bone meal, bone dust, or bone flour, under whatever name sold, for use in stock licks or for feeding purposes must only be made from bones obtained from animals slaughtered for human consumption, and shall be subjected for at least two hours to a steam heat at a temperature of not less than 250 deg. Fahr., equal to an indicated steam pressure of 30 lb. per square inch, and then ground to such fineness as will permit of all passing through an aperture of one-sixteenth of an inch, and at least 95 per cent. through an aperture of one-twenty-fifth of an inch.



Nauru or Ocean Island phosphate is defined as a mineral phosphate from Nauru or Ocean Island containing not less than 37 per cent. of phosphoric acid ( $P_2O_5$ ) and ground to such fineness as will permit of all passing through an aperture of one-fortieth of an inch, and at least 95 per cent. through an aperture of one-hundredth of an inch.

The stock licks and mineral feeds registered for the current year are as set out in Tables IX. and X.

The labels now attached to the various stock licks have been a revelation to many buyers, in particular with preparations which differ from those sold under the same name in previous years.

For the better understanding of the materials now being offered for sale, a list of the stock licks and mineral feeds was published in the May issue of the "Queensland Agricultural Journal," and reprints forwarded to several hundred inquirers, from whose replies it is evident that the information appearing in this report is not only of interest, but of great value for their future guidance.

#### FERTILISERS, 1929-30.

Since 1st January 115 dealers in fertilisers obtained licenses. During the same period 602 certificates of registration of fertilisers were received from licensed dealers, also 124 returns in the form of Schedule B. from producers (wholesale dealers) within the meaning of the Regulations.

The following small table sets out the districts in which the licensed dealers carry on business, also the districts from which samples were obtained:—

Districts.	Licensed Dealers.	Official Samples Taken by Inspectors of this Branch.	Samples Sent in by Dealers.	Samples Received from Users.
Brisbane .. .. .	43	65	39	2
Beaudesert-Beenleigh .. .. .	2	..	..	..
Ipswich-Boonah .. .. .	2	6	..	..
Lowood-Toogoolawah .. .. .	1	..	..	..
Rosewood-Forest Hill .. .. .	1	..	..	..
Toowoomba .. .. .	3	12	..	..
Warwick .. .. .	1	..	..	..
Stanthorpe .. .. .	5	4	..	..
Caboolture-Gympie .. .. .	10	37	..	..
Maryborough .. .. .	3	..	..	..
Bundaberg-Childers .. .. .	6	31	..	..
Gladstone-Rockhampton .. .. .	6	9	..	1
Mackay .. .. .	3	6	..	..
Bowen-Ayr .. .. .	5	15	2	..
Townsville-Ingham .. .. .	9	26	2	..
Innisfail-Cairns .. .. .	15	28	3	..
	115	239	46	3

It is frequently overlooked that a fertiliser is any substance or compound produced or prepared in any manner for fertilising the soil or supplying nutriment to plants, also any excrement of animals or any natural substance or natural product which is used for fertilising the soil or supplying nutriment to plants. It will,

therefore, be noted that any soil or any natural substance or natural product claimed to supply nutriment to plants comes under the Fertilisers Acts, and is required to be labelled setting out the percentage of nitrogen, phosphoric acid, and potash.

Farmers and others would be well advised never to accept delivery of any material unless it has affixed to every package a plainly printed label setting out the percentages of nitrogen, phosphoric acid, potash, and the forms in which they occur. The buyer should also receive an invoice certificate setting out the particulars that should appear on the labels. Such certificate is the seller's guarantee as to the quality of the material. In the absence of a label or invoice certificate it is obvious that the buyer should refuse delivery.

*Fertilisers Below Dealer's Guarantee.*—Under the Acts it is provided that every dealer who sells a fertiliser which upon analysis under the Act is found to contain a smaller percentage of nitrogen, potash in readily soluble form, water soluble, or citrate soluble, or total phosphoric acid, or lime than the proportions thereof respectively stated in the certificate in the form of the schedule hereto delivered by such dealer in respect of such fertiliser, and such deficiency—

As to nitrogen, amounts to five per centum of the total nitrogen certified to be present in such fertiliser; or

As to phosphoric acid, amounts to seven per centum of the total phosphoric acid certified to be present in such fertiliser; or

As to potash, amounts to five per centum of the total potash certified to be present in such fertiliser; or

As to lime, amounts to seven per centum of the total lime certified to be present in such fertiliser;

such dealer is liable to a penalty.

From the foregoing it will be seen that if a fertiliser guaranteed to contain 10 per cent. of phosphoric acid ( $P_2O_5$ ) as bone, and on analysis only found to contain 8.3 per cent., would have a deficiency of 17 per cent. of the total phosphoric acid certified to be present in the fertiliser. Assuming the fertiliser was also guaranteed to contain 10.9 per cent. of potash as sulphate, and found on analysis to only contain 9.1 per cent., there is a deficiency of 16.5 per cent. of the total potash certified to be present. Although this matter should be quite clear, unfortunately several fertiliser dealers in other States who from time to time supply fruitgrowers and others within Queensland, fail to appreciate the Acts' requirements, asserting in one instance in the case of potash that as 10.9 of  $K_2O$  was guaranteed, that it was impossible to get a deficiency of 16.5, overlooking the plain fact that their material on analysis was 16.5 per cent. deficient of the amount that they guaranteed to be present. Further, the material in question was not labelled in the manner required by the Queensland Fertilisers Acts. During the early part of 1930 several complaints were received as to the quality of alleged fertilisers *supposed to contain secret ingredients*. Buyers, unfortunately, were reluctant to give such information as would enable prompt action to be taken. Although the investigations started at Brisbane, the sources of



supply were traced to Ipswich, Toowoomba, and Cairns. Many samples of the material were taken with the average analyses as set out in the following table:—

District from which Sample was Obtained.	Sample consisted of—	Nitrogen Unspecified, 12s. per unit.	Phosphoric Acid Unspecified, 2s. per unit.	Potash Unspecified, 2s. 6d. per unit.	Maximum Price that may be Charged per ton.	Actual Price Charged by Seller per ton.
		Per Cent.	Per Cent.	Per Cent.	£ s. d.	£ s. d.
Ipswich .. ..	Horse manure, sawdust, vegetable matter	1.2	0.9	0.9	0 18 5	12 0 0
Toowoomba .. ..	Town refuse .. ..	0.4	3.4	0.1	0 11 10	4 10 0
Toowoomba .. ..	Sewerage sludge (Firto)	0.8	1.1	0.3	0 12 7	2 2 0
Stanthorpe .. ..	Town refuse .. ..	0.2	3.4	0.1	0 9 6	4 10 0
Stanthorpe .. ..	Sheep manure .. ..	1.0	0.6	0.3	0 14 0	2 10 0
Cairns .. ..	Filter press, incinerator ash, trace of burnt bone	0.9	2.5	0.4	0 16 10	12 0 0

In order to get the matter into the right perspective, the actual price charged by the sellers is given, also the maximum price that may be charged per ton under Prices Notification No. 1227, the average findings expressed in nitrogen, phosphoric acid, and potash, also the kind of actual material found in the sample. Several buyers who called at this branch were rightly indignant as to the rubbish that they had purchased. One who had paid £12 per ton for material valued at 16s. 10d. suggested the advisability of publishing a table setting out what in his opinion were “bogus fertilisers.” On reference to the table, it will be noticed that sheep manure is included in this list, not that it is a bogus fertiliser *as sheep manure*, but the actual value of the material on the analysis given does not merit a greater price than 14s. per ton; anyone paying £2 10s. is taken down.

*Guano.*—The term “guano” should only be applied to guanos proper, such as those obtained from islands off the Peruvian coast, or from the Ichaboe Islands, all of which have a high nitrogen content; when applied to phospho guanos or to rock phosphate, the term is misleading.

For commercial purposes the term “guano” should not be used for material containing less than 4 per cent. of nitrogen and 12 per cent. of phosphoric acid; such material is not at present on the Queensland market. The term “phospho-guano” should apply to material containing more than 1 per cent. of nitrogen but less than 4 per cent., with a phosphoric acid content of not less than 12 per cent.; the term “rock phosphate” to material containing phosphoric acid and less than 1 per cent. of nitrogen. These figures mean the actual analysis of the natural material, not low-grade rock phosphate with a small quantity of added sulphate of ammonia to bring up the nitrogen.

The following small table gives a clear indication of the low-grade materials from time to time offered for sale within this State; the figures given are the averages of many samples. For purposes of comparison, the analyses of Nauru

phosphate, bone meal, and sulphate of ammonia are given:—

Kind of Material.	Nitrogen.	Phosphoric Acid.
Rock phosphates—	Per cent.	Per cent.
The Caves, Rockhampton ..	Trace	14.8
Holbourn Island phosphate ..	..	18.5
The Caves, Stanthorpe .. ..	0.6	4.1
Nauru phosphate .. ..	..	38.0
Bone meal .. ..	3.6	23.0
Sulphate of ammonia .. ..	20.6	..

*Maximum Prices.*—When the question of price is taken into consideration, it must not be overlooked that superphosphate is not manufactured within the State of Queensland; the nearest works are at Cockle Creek, near Newcastle, and at Port Kembla, south of Sydney. In the case of imported sulphate of ammonia, this is subject to a duty of 15 per cent., also to a primage duty of 2½ per cent. Potash, all of which is imported, is subject to a primage of 2½ per cent. From the Prices Notification issued in July, it will be noted that a considerable reduction has been made in the maximum unit values for ammonium sulphate and nitrate of soda. A reduction is made in the price of super, with the proviso that the price charged is to be based only on its water soluble phosphoric acid content. It is also provided that in the case of complete mixed fertilisers, for which a mixing charge is allowed, the maximum fixed prices are subject to a discount of 7s. 6d. per ton for payment within thirty days from date of invoice certificate; fertilisers for which no mixing charge is allowed are subject to a discount of 2½ per cent. for payment within thirty days.

*Registered Fertilisers.*—The fertilisers registered by producers (wholesale dealers) have, for convenience of reference, been divided into—

Nitrogen only .. ..	Table XI.
Phosphoric acid only .. ..	Table XII.
Potash only .. ..	Table XIII.
Fertilisers the products of bone mills, meatworks, and bacon factories ..	Table XIV.
Mixed fertilisers .. ..	Table XV.

The tables fully set out the dealers’ guarantees and the analyses of official samples taken during the year. In cases where any deficiency greater than that allowed by the Act was found, or any other matter not in accordance with the requirements of the Acts and Regulations thereunder, suitable action has been taken.



## PEST DESTROYERS. 1929-30.

During the year ended 30th June, 1930, 331 samples of pest destroyers were obtained from the following sources:—

Districts.	Samples Received under Section 3 of Pest Destroyers Act.	Samples Taken by the Inspector under Pest Destroyers Act.	Samples Sent in by Dealers.	Samples Received from Users.
Brisbane .. ..	290	3	14	..
Ipswich .. ..	1	..	..	..
Toowoomba .. ..	2	..	..	..
Stanthorpe .. ..	2	..	..	1
Maryborough .. ..	6	..	2	..
Rockhampton .. ..	2	2	..	..
Mackay .. ..	..	..	1	..
Bowen .. ..	..	3	..	..
Townsville .. ..	..	1	..	..
Cairns .. ..	..	1	..	..
	303	10	17	1

In addition to the samples, statutory declarations, registration forms, and specimen invoices received from wholesale dealers, 256 retail dealers sent in Schedules I. and II., setting out the names of pest destroyers that they are at present selling, and the name and address of the wholesale dealer from whom such pest destroyers were obtained.

A "wholesale dealer" within the meaning of the Act is any person who, whether as manufacturer, importer, or wholesale seller, is primarily responsible for the putting of any pest destroyer on the market in Queensland.

In cases where the manufacturer or merchant putting the material on the market is not resident in the State of Queensland, the requirements of section 3 of the Act may be complied with by a duly authorised agent resident in Queensland; and such agent is, for the purposes of the Act, deemed to be the wholesale dealer.

When a wholesale dealer in any pest destroyer has complied with the provisions of section 3 of the Act relating to the registration, and such pest destroyer has been duly registered within the current year, it is permissible for any other dealer to sell such registered pest destroyer without payment of any fee. The retail dealer is nevertheless bound to comply with all other provisions relating to the sale of pest destroyers.

For the information of both wholesale and retail dealers, a leaflet of instructions was posted to every known Queensland seller of these articles last January.

Both wholesale and retail dealers should not overlook the fact that failure to give notice in writing on the prescribed forms within thirty days of commencing business, and thereafter in each year on or before the thirty-first day of January, renders them liable to proceedings.

*Registered Pest Destroyers.*—Table XVI. sets out the principal pest destroyers registered since the 1st January, 1930. For convenience of reference, the kind of pest destroyer is given, together with the standards prescribed for the principal kinds, the trade name under which the various preparations are sold, the active constituents as declared on the label affixed by the wholesale dealer, and the name and address of the dealer putting the material on the Queensland market.

Many of the samples have been analysed by the Agricultural Chemist, with the results as set out in the table.

Although Table XVI. is substantially complete for the year ending December, 1930, it should be noted that the actual work under this Act (or under the Stock Foods and Fertilisers Acts) cannot be fully shown, as the pest-destroyer year is from January to December, and this report is written in July before some of the analyses have been made, the results of which determine future action.

During every week statutory declarations or other papers are submitted by callers making application for registration. In most cases the proposed labels do not set out the active constituents, and many documents purporting to be statutory declarations fail to give the required particulars. The amount of work involved in such applications is quite out of proportion to that necessary for articles that can be registered.

The Regulations now in force were issued in December, 1923, some weeks before the Pest Destroyers Act came into operation. The experience gained during the last six years inclines me to the opinion that it is now imperative to amend the Regulations in such a manner as will cover the whole of the material now on the market, and at the same time simplify the forms to be filled in by wholesale and retail dealers.

## ACTIVITIES OF BRANCH.

As the activities of this branch can best be described as work in connection with the Acts regulating the sale of seeds, stock foods, fertilisers, and pest destroyers within the State of Queensland, it follows that our large yearly increasing correspondence is with merchants and others dealing in these commodities.

A considerable amount of time is taken up by the inspection and examination of peanut samples representing material delivered to the Peanut Board at Kingaroy, also with the selection of pumpkins, &c., for seed purposes, and in the examination of stock foods supposed to contain poisonous weeds, which necessitates long trips into the country. As far as possible, other matters are looked into on these occasions; the small table at the beginning of this report gives some idea of the large area covered.

FRED. F. COLEMAN.  
Officer in Charge.



Table I.  
ANALYTICAL PURITY OF THE PRINCIPAL AGRICULTURAL SEEDS EXAMINED DURING 1929-30 FOR PURPOSES OF THE PURE SEEDS ACTS.

Kind of Seed.	PRESCRIBED STANDARD.		SAMPLES THAT COMPLIED WITH STANDARD CONTAINED.				SAMPLES THAT DID NOT COMPLY WITH STANDARD CONTAINED.				Total Number of Samples Examined.	Weed Seeds in Order of Frequency of Occurrence. Prohibited Weed Seeds in Heavy Type.
	Inert Matter.	Seeds of weeds or seeds of any kind other than that to which the sample purports to belong.	Seeds of <i>Cuscuta</i> spp. (Dodder), <i>Datura</i> spp. (Thorn apple), <i>Ricinus communis</i> (Castor oil plant), and diseased or insect-infested seeds.	Average Amount of Inert Matter.		Average Amount of Weed Seeds.						
				%	%	%	%					
Cowpeas	2	1	Nil	0.6	..	..	9	5	1	15	<i>Panicum sanguinale</i> .	
Grasses— Canary	2	1	Nil	0.8	0.4	7.3	0.7	3	1	9	<i>Polygonum convolvulus</i> , <i>Avena fatua</i> , <b><i>Datura</i> sp.</b> , <i>Lithospermum arvense</i> , <i>Amarantus</i> sp., <i>Hibiscus trionum</i> , <i>Chenopodium</i> sp., <i>Rumex</i> sp., <i>Tribulus terrestris</i> , <i>Boerhaavia diffusa</i> , <i>Panicum</i> sp.	
Couch	2	1	Nil	0.3	0.1	..	..	..	..	3	<i>Sonchus</i> sp., <i>Chenopodium</i> sp., <i>Cnicus lanceolatus</i> , <i>Verbena</i> sp.	
<i>Paspalum dilatatum</i>	4	1	Nil	0.9	0.2	2.6	2.8	11	..	96	<i>Panicum sanguinale</i> , <i>Verbena</i> sp., <i>Andropogon</i> sp., <i>Panicum</i> sp., <i>Eleusine</i> sp., <i>Kyllinga</i> sp., <i>Eragrostis</i> sp., <i>Chloris divaricata</i> , <i>Sida rhombifolia</i> , <i>Fimbristylis</i> sp., <i>Eriochloa</i> sp., <i>Paspalum compressum</i> , <i>Tricholena Teneriffa</i> , <i>Paspalum scrobiculatum</i> , <i>Rumex</i> sp., <i>Eriogon</i> sp., <i>Stipa</i> sp., <i>Setaria glauca</i> , <i>Chenopodium</i> sp.	
Prairie	5	1	Nil	1.9	0.2	4.7	1.2	6	..	54	<i>Marrubium vulgare</i> , <i>Avena fatua</i> , <i>Medicago denticulata</i> , <i>Sonchus</i> sp., <i>Apium</i> sp., <i>Malva parviflora</i> , <i>Polygonum aviculare</i> , <i>Daucus</i> sp., <i>Lepidium ruderae</i> , <i>Rumex</i> sp., <i>Melilotus parviflora</i> , <i>Stachys arvensis</i> , <i>Lithospermum arvense</i> , <i>Centaurea melitensis</i> ,	
Rhodes	6	1	Nil	2.4	0.1	6.4	1.9	19	..	137	<i>Chloris divaricata</i> , <i>Andropogon</i> sp., <i>Panicum sanguinale</i> , <i>Stipa</i> sp., <i>Panicum</i> sp., <i>Tricholena teneriffa</i> , <i>Eriochloa</i> sp., <i>Rhagodia nutans</i> , <i>Setaria</i> sp., <i>Verbena</i> sp., <i>Eriogon</i> sp., <i>Eleusine</i> sp., <i>Sida rhombifolia</i> , <i>Chloris truncata</i> , <i>Sida subspicata</i> , <i>Fimbristylis</i> sp., <i>Aristida</i> sp., <i>Salsola Kali</i> , <i>Chloris virgata</i> , <i>Helichrysus</i> sp., <i>Eragrostis</i> sp., <i>Tragus racemosus</i> .	
Lucerne	2	1	Nil	0.6	0.1	8.4	2.1	10	32	106	<b><i>Cuscuta</i> sp.</b> , <i>Amarantus</i> sp., <i>Chenopodium</i> sp., <i>Polygonum aviculare</i> , <i>Rhagodia nutans</i> , <i>Panicum sanguinale</i> , <i>Panicum</i> sp., <i>Lepidium ruderae</i> , <i>Boerhaavia diffusa</i> , <i>Eragrostis</i> sp., <i>Euphorbia</i> sp., <i>Marrubium vulgare</i> , <i>Portulaca oleracea</i> , <i>Melilotus parviflora</i> , <i>Argemone mexicana</i> .	
Millet— <i>Setaria italica</i> (Foxtail Millet)	2	1	Nil	0.6	0.1	..	..	..	..	22	<i>Hibiscus trionum</i> , <i>Amarantus</i> sp., <i>Polygonum aviculare</i> , <i>Panicum sanguinale</i> , <i>Portulaca oleracea</i> , <i>Chenopodium</i> sp., <i>Stachys arvensis</i> .	



<i>Panicum crus-galli</i> (Japanese Millet)	2	1	Nil	0.7	0.1	2.1	1.9	31	5	1	37	<i>Hibiscus trionum</i> , <i>Panicum sanguinale</i> , <i>Amarantus</i> sp., <i>Setaria glauca</i> , <i>Rumex</i> sp., <i>Malva parviflora</i> , <b>Datura</b> sp., <i>Portulaca oleracea</i> , <i>Stachys arvensis</i> .
<i>Panicum frumentaceum</i> (White Panicum)	2	1	Nil	0.8	0.1	1.6	1.4	34	5	..	39	<i>Panicum sanguinale</i> , <i>Amarantus</i> sp., <i>Sida rhombifolia</i> , <i>Eleusine</i> sp., <i>Stachys arvensis</i> , <i>Eriochloa</i> sp., <i>Verbena</i> sp., <i>Chenopodium</i> sp., <i>Ipomoea</i> sp., <i>Tribulus terrestris</i> , <i>Hibiscus trionum</i> .
Sorghum .. .. .	2	1	Nil	0.6	..	5.6	..	65	12	..	77	Inert matter only.
Sudan ( <i>Sorghum sudanense</i> ) .. .	2	1	Nil	1.0	0.1	3.7	1.6	30	28	2	60	<i>Hibiscus trionum</i> , <i>Panicum sanguinale</i> , <i>Panicum</i> sp., <i>Amarantus</i> sp., <i>Zinnia</i> sp., <i>Xanthium spinosum</i> , <b>Datura</b> sp., <i>Setaria glauca</i> , <i>Oniscus lanceolatus</i> , <i>Haloragis</i> sp., <i>Convolvulus</i> sp.

PREScribed STANDARD FOR BARLEY, OATS, AND RYE. MAXIMUM AMOUNT ALLOWED BY REGULATIONS :—

Inert Matter .. .. . 2 per cent.  
Weed seeds that will not pass a 2 mm. sieve .. .. . 1 per cent.  
Weed seeds that will pass a 2 mm. sieve, and seeds of *Datura* (Thorn Apple), insect-infested seeds, or diseased seeds .. .. . None  
Seeds of Barley and Wheat in Oats or Oats and Wheat in Barley .. .. . 2 per cent.

Kind of Seed.	Samples that complied with Standard contained.				Samples that did not comply with Standard contained.			Number of Samples that complied with standard.	Number of Samples that contained a larger proportion of Inert Matter and/or weed seeds than is allowed.	Number of Samples that contained weed seeds that will pass a 2 mm. sieve, or diseased or insect-infested seeds.	Total number of Samples examined.	Weed Seeds in Order of Frequency of Occurrence. Prohibited Weed Seeds in Heavy Type.
	Average amount of Inert Matter.	Average amount of weed seeds that will not pass a 2 mm. sieve.	Average amount of barley and wheat in oats or oats and wheat in barley.	%	Average amount of Inert Matter.	Average amount of barley and wheat that will not pass a 2 mm. sieve.	Average amount of barley and wheat in oats or oats and wheat in barley.					
Barley, Cape and Malting .. .. .	0.5	0.3	0.2	..	..	..	..	17	..	..	17	<i>Polygonum convolvulus</i> , <i>Hibiscus trionum</i> , <i>Lithospermum arvense</i> , <i>Avena fatua</i> , <i>Lolium temulentum</i> .
Barley, Skinless .. .. .	0.5	0.3	..	5.7	0.7	0.2	5.7	13	..	1	14	<i>Avena fatua</i> , <i>Lithospermum arvense</i> , <i>Lolium temulentum</i> , <i>Polygonum convolvulus</i> , <i>Rumex</i> sp.
Oats .. .. .	0.5	0.1	..	2.7	1.7	0.6	2.7	43	1	..	44	<i>Avena fatua</i> , <i>Lolium temulentum</i> , <i>Rumex</i> sp., <i>Lithospermum arvense</i> , <i>Lepidium rudemale</i> , <i>Festuca</i> sp., <i>Chenopodium</i> sp.
Rye .. .. .	0.5	0.3	..	..	..	..	..	7	..	..	7	<i>Lithospermum arvense</i> , <i>Avena fatua</i> , <i>Polygonum convolvulus</i> .

*Claviceps purpurea* (Ergot), *Cuscuta* spp. (Dodder), *Datura* spp. (Thorn Apple), *Ricinus communis* (Castor Oil Plant), *Papaver* sp. (Poppy), *Alternanthera Achyrantha* (Khaki Weed), *Agrostemma Githago* (Corn Cockle), *Xanthium spinosum* (Bathurst Burr), *Xanthium strumarium* (Noogoora Burr), are prohibited under the Stock Foods Acts.



Table II.

GERMINATING CAPACITY OF THE PRINCIPAL SEEDS EXAMINED DURING 1929-30 FOR PURPOSES OF THE  
PURE SEEDS ACTS.

Kind of Seed.	A†.	B.	C.	D.	E.	OK.	BS.	P.	T.
	%	%	%	%	%				
French Beans .. .. .	99	75	93	22	0	32	5	..	37
Beet .. .. .	90	*55	79	46	34	6	4	..	10
Cabbage .. .. .	96	65	77	31	0	20	21	..	41
Carrot .. .. .	82	55	68	22	15	16	4	..	20
Cauliflower .. .. .	82	60	84	23	0	5	7	..	12
Clover, Subterannean .. .. .	89	50	83	..	79	4	..	..	4
Clover, White Dutch .. .. .	81	50	77	..	74	5	..	..	5
Cotton .. .. .	80	70	73	60	44	28	119	..	147
Cowpeas .. .. .	97	65	92	54	47	13	1	1	15
Cowpeas (average percentage of hard seeds not included in germination)	..	..	5	9	..	..	..	..	..
Cucumber .. .. .	86	65	82	..	..	7	..	..	7
Grasses—									
Canary .. .. .	94	70	89	..	82	8	..	1	9
Couch .. .. .	38	30	35	19	19	2	1	..	3
<i>Paspalum dilatatum</i> .. .. .	77	20	37	9	3	71	25	..	96
Prairie .. .. .	99	50	83	35	18	48	6	..	54
Rhodes .. .. .	78	30	41	20	11	120	17	..	137
Lettuce .. .. .	96	65	84	51	51	9	1	..	10
Lucerne .. .. .	92	65	78	52	5	68	6	32	106
Lucerne (average percentage of hard seeds not included in germination)	..	..	11	12	..	..	..	..	..
Mangel .. .. .	72	*55	62	..	55	15	..	..	15
Marrow .. .. .	86	65	86	34	0	1	3	..	4
Millets—									
<i>Setaria italica</i> (Foxtail Millet) .. .. .	97	70	88	49	31	19	3	..	22
<i>Panicum crus-galli</i> (Japanese Millet) .. .. .	98	70	86	36	0	25	11	1	37
<i>Panicum frumentaceum</i> (White Panicum) .. .. .	96	70	85	56	38	35	4	..	39
Onion .. .. .	90	60	76	27	0	20	10	..	30
Parsnip .. .. .	72	25	55	2	0	7	9	..	16
Peanuts .. .. .	99	80	93	..	82	35	..	..	35
Peas, Field ( <i>Pisum arvense</i> ) .. .. .	99	75	98	..	97	4	..	..	4
Peas, Garden ( <i>Pisum sativum</i> ) .. .. .	99	75	94	46	0	42	9	1	52
Pumpkin .. .. .	99	65	89	36	1	16	5	..	21
Radish .. .. .	95	65	90	38	28	7	5	..	12
Rape .. .. .	98	70	87	..	73	12	..	..	12
Rice .. .. .	89	80	89	..	85	3	..	..	3
Sorghum .. .. .	98	70	85	21	1	43	34	..	77
Sudan ( <i>Sorghum sudanense</i> ) .. .. .	90	70	75	53	11	38	20	2	60
Swede .. .. .	81	65	71	37	0	6	8	..	14
Tares .. .. .	99	75	98	..	97	5	..	..	5
Tomato .. .. .	92	65	80	38	1	18	4	..	22
Turnip .. .. .	93	65	82	29	6	6	17	..	23
Barley, Cape and Malting .. .. .	99	85	97	..	90	17	..	..	17
Barley, Skinless .. .. .	98	85	94	..	90	14	..	..	14
Oats .. .. .	99	80	94	..	84	44	..	..	44
Rye .. .. .	97	80	89	65	61	5	2	..	7
Samples representing small lots not elsewhere included	..	..	..	..	..	..	..	..	32
									1,330
	A†.	B.	C.	D.	E.	OK.	BS.	P.	T.

\* Germinable clusters.

A†. Highest germination recorded during 1929-30.

B. Minimum percentage of germination required by Acts.

C. Average germination of samples up to standard.

D. Average germination of samples below standard.

E. Lowest germination recorded during 1929-30.

OK. Number of samples up to standard of germination.

B.S. Number of samples below standard.

P. Number of samples that contained prohibited weed seeds or diseased or insect-infested seeds.

T. Total number of samples examined.



Table III.

GERMINATING CAPACITY OF THE PRINCIPAL SEEDS FOR SOWING IMPORTED INTO QUEENSLAND (PORT OF BRISBANE) DURING 1929-30. SAMPLES EXAMINED FOR THE PURPOSES OF THE COMMERCE (TRADE DESCRIPTIONS) ACT, 1905.

Kind of Seed.	Imported from—	Highest Germination recorded during 1929-30.	Minimum percentage of Germination required by Queensland Seeds Acts.	Average Germination of Samples up to Queensland Standard.	Average Germination of Samples below Queensland Standard.	Lowest Germination recorded during 1929-30.	Number of Samples up to Queensland Standard.	Number of Samples below Queensland Standard.	Total number of Samples examined.
Beans—									
Broad .. ..	England, Germany .. ..	% 98	% 75	% 97	% ..	% 96	2	..	2
French .. ..	U.S.A., England, France, Germany .. ..	99	75	95	..	84	21	..	21
Lima .. ..	U.S.A. .. ..	98	75	94	..	83	10	..	10
Mauritius .. ..	Fiji, Papua .. ..	89	60	82	..	65	9	..	9
Soy .. ..	U.S.A. .. ..	99	75	98	..	96	11	..	11
Beet .. ..	England, Germany, France, U.S.A., Holland .. ..	91	55	75	48	47	60	2	62
Cabbage .. ..	U.S.A., Holland, England, France, Germany .. ..	97	65	86	63	63	85	3	88
Carrot .. ..	England, Germany, U.S.A., Holland, France .. ..	90	55	74	42	42	61	1	62
Cauliflower .. ..	Italy, Holland, England, France, Germany .. ..	94	60	83	48	48	33	1	34
Cucumber .. ..	U.S.A., England, Germany, France .. ..	99	65	93	..	81	44	..	44
Kohlrabi .. ..	Italy, England, France .. ..	91	50	84	..	72	4	..	4
Leek .. ..	Italy, Holland, France .. ..	86	50	70	..	78	6	..	6
Lettuce .. ..	U.S.A., England, France, Germany, Holland .. ..	99	65	93	28	28	53	1	54
Mangel .. ..	England, France, Germany, Holland .. ..	87	55	71	51	51	22	1	23
Marrow .. ..	England, France, U.S.A., Holland, Germany .. ..	98	65	84	36	13	32	2	34
Rock Melon .. ..	U.S.A. .. ..	98	65	91	..	68	15	..	15
Water Melon .. ..	U.S.A. .. ..	96	60	83	..	64	63	..	63
Onion .. ..	Italy, France, Holland .. ..	60	97	82	38	38	17	1	18
Parsnip .. ..	New Zealand, England .. ..	65	25	53	..	41	3	..	3
Parsley .. ..	Germany, England, France .. ..	68	50	60	45	45	4	1	5
Peas .. ..	Germany, France, Holland .. ..	99	75	95	..	84	7	..	7
Pumpkin .. ..	U.S.A. .. ..	96	65	83	..	70	3	..	3
Radish .. ..	England, Germany, Holland, France, U.S.A. .. ..	98	65	85	..	66	38	..	38
Swede .. ..	Germany, England, Holland, U.S.A., France .. ..	95	65	81	58	58	16	1	17
Sweet Corn .. ..	U.S.A. .. ..	96	75	80	..	66	10	..	10
Tomato .. ..	U.S.A. .. ..	97	65	85	56	56	82	1	83
Turnip .. ..	Germany, England, Holland, U.S.A. .. ..	97	65	86	45	35	39	5	44
Small consignments not elsewhere included	.. ..	..	..	..	..	..	..	..	187
									957

Table IV.

SAMPLES EXAMINED REPRESENTING SEEDS IMPORTED FOR FEEDING PURPOSES ONLY.

The Regulations under the Queensland Stock Foods Acts, in the case of seeds or grain, prohibit the following foreign ingredients:—

*Claviceps purpurea* (Ergot), plants, parts of plants, and seeds of *Cuscuta* spp. (Dodder), *Datura* spp. (Thorn Apple), *Ricinus communis* (Castor Oil Plant), *Jatropha* spp. (Physic Nut), *Papaver* spp. (Poppy), *Alternanthera Achyrantha* (Khaki Weed), *Agrostemma Githago* (Corn Cockle), *Xanthium spinosum* (Bathurst Burr), *Xanthium strumarium* (Noogoora Burr), or any substance of whatever character in itself deleterious to the life or health of stock.

The proportion or amount of weed seeds other than those of a deleterious character must not exceed 1 per cent. by weight.

Kind of Seed.	Imported from—	Number of Samples Examined.	Average % of Analytical Purity.	Average % of Material other than Seed.	Average % of Seeds other than kind named.	Seeds other than kind named include:—
Canary (Phalaris canariensis)	Argentina, Turkey, Germany	14	98.8	0.8	0.4	Polygonum convolvulus, Polygonum aviculare, Brassica sp., Convolvulus sp., Lolium temulentum, Allium sp., Rumex sp., Melilotu sp., Cnicus sp., Galium aparine, Chenopodium sp., Saponaria vaccaria, Arthrolobium scorpioides, Panicum sp., Anagallis arvensis, Amarantus sp., Lolium sp.
Millet (Panicum miliaceum) White and Red seeded French Millets	Japan, China ..	12	98.6	0.4	1.0	Hibiscus sp., Panicum sp., Setaria sp., Ipomoea sp., Chenopodium sp., Amarantus sp., Wheat, Sorghum, Buckwheat.
Hemp (Cannabis sativa)	Japan, China ..	11	97.9	1.8	0.3	Panicum sp., Sorghum sp., Phaseolus sp., Buckwheat, Hibiscus sp., Setaria sp., Soy Bean. (Polygonum Persicaria).
Linseed (Linum usitatissimum)	New Zealand, India	7	97.3	1.4	1.3	Spergula arvensis, Rumex sp., Agrostis sp., Hypochaeris sp., Brassica sp., Lolium sp., Polygonum aviculare, Cnicus sp., Polygonum Persicaria, Bromus sp., Vicia sp., Eruca sp., Asphodelus sp., Leontodon sp., Wheat.
Rape (Brassica spp.)	Japan, France ..	5	99.1	0.8	0.1	Panicum sp., Chenopodium sp., Amarantus sp., Silene sp.



Table V.

## STOCK FOODS, 1930

SAMPLES EXAMINED FOR PURPOSES OF THE STOCK FOODS ACTS. Bran, A BY-PRODUCT OF MILLING WHEAT.

Queensland Wholesale Seller.	Manufactured in—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	Whole and Broken Wheat Grains.	Non-deteriorous Substances other than Wheat By-products.	
										—	Substances.
Barnes and Co., Ltd., Stanley street, South Brisbane	Queensland	Guarantee Found (average)	3	9.6	15.5	3.0	9.0	5.6	Nil	%	Straw and Glumes.
Barnes and Co., Ltd., Warwick..	ditto	Guarantee	3	10.4	17.0	3.3	8.8	5.2	Nil	0.07	Straw and Glumes.
The Brisbane Milling Co., Ltd., Stanley street, South Brisbane	ditto	Guarantee Found (average)	3	10.0	13.5	2.3	12.0	5.9	Nil	0.20	Straw, Glumes, <i>Polygonum</i> sp.
Dalby Milling Co., Ltd., Dalby	ditto	Guarantee Found (average)	2	12.3	16.0	2.6	11.0	5.4	Nil	0.04	Straw.
The Defiance Milling Co., Toowoomba..	ditto	Guarantee Found	3	10.4	15.7	3.2	10.5	5.8	Nil	0.01	Straw.
The Dominion Milling Co., Ltd., Stanley street, South Brisbane	ditto	Guarantee Found (average)	2	9.7	18.1	2.4	9.5	5.8	Nil	0.12	Straw, Glumes, <i>Polygonum</i> sp.
Warwick Farmers' Milling Co., Ltd., Warwick	ditto	Guarantee Found (average)	3	10.6	15.0	2.5	12.0	5.8	Nil	0.09	Straw and Glumes.
Burns, Philp, and Co., Ltd., Cairns	New South Wales (Gillespie Bros., Ltd., Sydney)	Guarantee Found (average)	3	11.5	16.2	2.5	10.8	5.4	Nil	0.12	Straw, Glumes, <i>Polygonum</i> sp.
Bolands Ltd., Cairns	ditto	Guarantee Found	3	11.4	16.0	2.4	11.0	5.1	Nil	0.15	Straw and Glumes.
Bartlams Ltd., Townsville	ditto	Guarantee Found	3	11.2	16.2	2.5	10.6	4.9	Nil	0.30	Straw and Glumes.
Thomas Brown and Sons, Ltd., Townsville	ditto	Guarantee Found	3	11.1	15.0	2.4	11.0	5.0	Nil	0.40	Straw and Glumes.
Cummins and Campbell, Ltd., Townsville	ditto	Guarantee Found	3	11.0	16.2	2.5	10.6	4.9	Nil	0.71	Glumes, <i>Medicago</i> sp., <i>Panicum</i> sp., Insects.
Joseph Pease, Ltd., Townsville	ditto	Guarantee Found	3	11.1	16.0	2.4	11.0	5.0	Nil	0.16	Glumes.
Samuel Allen and Sons, Ltd., Townsville	ditto	Guarantee Found	3	10.9	15.0	2.4	10.8	5.1	Nil	0.30	Straw and Glumes.
Lamberts Ltd., Mackay	ditto	Guarantee Found	3	11.1	16.3	2.5	10.6	4.9	Nil	0.60	Straw and Glumes.
Warry's Ltd., Maryborough	ditto	Guarantee Found	3	11.2	15.0	2.4	10.7	5.0	Nil	0.30	Straw and Glumes.
New Zealand Loan and Mercantile Agency Co., Brisbane	ditto	Guarantee Found	3	11.3	16.1	2.5	10.5	5.0	Nil	0.25	Straw and Glumes.
W. Johnson and Markwell, Roma street, Brisbane	New South Wales (New South Wales Flour Millers' Produce Co., Ltd., Sydney)	Guarantee Found (average)	3	11.3	15.0	2.4	10.7	4.8	Nil	0.20	Straw and Glumes.
Samuel Allen and Sons, Ltd., Albert street, Brisbane	New South Wales (Geo. Fielder and Co., Tamworth)	Guarantee Found (average)	2	11.5	14.0	2.0	10.0	5.3	Nil	0.08	Straw and Glumes.
					15.3	2.2	10.5		0.30	0.06	Glumes.



Jas. F. McKenzie and Co. Pty., Ltd., 448-450 Ann street, Brisbane	New South Wales (Brunton and Co., Sydney)	Guarantee ..	15.5	2.3	11.0	..	0.07	0.10	..
Henry Dean and Sons, Ltd., Roma street, Brisbane..	Southern States	Found (average) ..	16.7	2.3	9.3	..	4.8	..	Straw and Glumes.
Orchard Supply Agency, Stanthorpe ..	New South Wales	Guarantee ..	14.5	2.5	11.0	..	Nil	0.45	Glumes.
J. Michelmore and Co., Mackay	dittô	Found ..	16.4	2.3	10.1	..	4.6	..	..
Cummins and Campbell, Ltd., Cairns ..	New South Wales (Great Western Milling Co., Sydney)	Found (average) ..	14.0	2.5	10.0	..	5.2	0.05	Straw and Glumes.
		Guarantee ..	17.3	2.2	10.3	..	0.03	..	..
		Found (average) ..	14.5	2.4	11.0	..	5.1	0.41	Straw and Glumes.
		Guarantee ..	15.8	3.1	9.5	..	Nil	0.32	..
		Found (average) ..	14.0	2.5	10.0	..	4.8	0.07	Glumes.
		Guarantee ..	16.5	2.1	9.5	..	..	..	..

SUMMARY OF CHEMICAL ANALYSES FROM 1923 TO 1930.

	Year.	Number of Analyses.	Average Moisture.	Average Crude Protein.	Average Crude Fat.	Average Crude Fibre	Average Crude Ash.
1923	..	49	% 9.9	% 15.9	% 2.6	% 10.0	% 4.8
1924	..	61	10.0	15.6	2.8	10.0	4.3
1925	..	25	11.8	15.8	2.4	9.5	5.7
1926	..	28	11.5	15.5	2.3	10.0	4.8
1927	..	55	10.8	14.9	2.5	9.6	4.9
1928	..	37	10.3	16.8	2.8	10.9	4.9
1929	..	53	10.2	17.5	2.5	10.1	5.2
1930	..	43	10.7	16.3	2.5	10.1	5.2



Table VI.

STOCK FOODS, 1930.

SAMPLES EXAMINED FOR PURPOSES OF THE STOCK FOODS ACTS. Pollard, a BY-PRODUCT OF MILLING WHEAT.

Queensland Wholesale Seller.	Manufactured in—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	WHEAT BY-PRODUCTS.		Substances.	
									That will pass 1½ mm. Sieve.	That will not pass 1½ mm. Sieve.		
Barnes and Co., Ltd., Stanley street, South Brisbane	Queensland ..	Guarantee ..	..	..	14.3	3.2	7.0	..	99.9	0.07	0.03	Straw and Glumes.
Barnes and Co., Ltd., Warwick..	ditto ..	Found (average) ..	3	9.3	15.8	3.2	5.5	3.2	..	..	..	..
The Brisbane Milling Co., Ltd., Stanley street, South Brisbane	ditto ..	Guarantee ..	..	..	16.0	3.2	7.0	..	99.11	0.87	0.02	Straw and Glumes.
Dalby Milling Co., Ltd., Dalby ..	ditto ..	Found (average) ..	4	10.4	15.3	3.1	5.1	3.0	99.73	0.26	0.01	Straw and Glumes.
The Defiance Milling Co., Toowoomba..	ditto ..	Guarantee ..	10	10.6	13.0	2.5	10.0	..	99.83	0.12	0.05	Straw, Glumes, and Insects.
The Dominion Milling Co., Ltd., Stanley street, South Brisbane	ditto ..	Found (average) ..	2	11.2	16.8	3.3	4.1	3.0	99.83	0.15	0.02	Straw and Glumes.
Warwick Farmers' Milling Co., Ltd., Warwick ..	ditto ..	Guarantee ..	..	9.4	14.5	3.3	8.0	..	98.94	1.03	0.03	Straw and Glumes.
Burns, Philp, and Co., Ltd., Cairns ..	ditto ..	Found (average) ..	3	10.6	15.9	3.3	4.7	3.5	99.22	0.76	0.02	Straw and Glumes
Bolands, Ltd., Cairns ..	New South Wales (Gillespie Bros., Ltd., Sydney) ditto ..	Guarantee ..	..	..	17.0	3.0	7.0	..	99.60	0.32	0.08	Straw and Glumes.
Burns, Philp, and Co., Ltd., Townsville ..	ditto ..	Found (average) ..	2	11.3	15.7	3.1	6.5	3.5	99.62	0.36	0.02	Glumes.
Bartlams, Ltd., Townsville ..	ditto ..	Guarantee ..	..	..	15.0	3.0	8.0	..	99.69	0.13	0.18	Glumes.
Thomas Brown and Sons, Ltd., Townsville ..	ditto ..	Found ..	..	10.9	15.4	3.3	6.3	3.0	..	..	..	..
Cummins and Campbell, Ltd., Townsville ..	ditto ..	Guarantee ..	..	..	15.0	3.5	8.0	..	99.85	0.10	0.05	Glumes.
Joseph Pease, Ltd., Townsville ..	ditto ..	Found ..	..	10.8	15.3	3.4	6.2	3.1	99.86	0.10	0.04	Glumes.
Samuel Allen and Sons, Ltd., Townsville ..	ditto ..	Guarantee ..	..	10.8	15.4	3.4	6.1	3.1	99.72	0.18	0.10	Glumes.
Lamberts, Ltd., Mackay..	ditto ..	Found ..	..	10.6	16.0	3.5	8.0	..	99.81	0.15	0.04	Straw and Glumes.
Warry's, Ltd., Maryborough ..	ditto ..	Guarantee ..	..	..	15.7	3.2	6.4	3.2	99.71	0.19	0.10	Straw and Glumes.
New Zealand Loan and Mercantile Agency Co., Ltd., Brisbane	ditto ..	Found ..	..	10.5	15.0	3.3	6.4	3.4	99.81	0.17	0.03	Straw and Glumes.
	ditto ..	Guarantee ..	..	11.2	15.4	3.4	6.2	3.2	96.71	0.18	0.11	Straw and Glumes.
	ditto ..	Found ..	..	10.9	15.0	3.4	6.3	3.1	99.69	0.19	0.12	Straw and Glumes.
	ditto ..	Guarantee ..	..	11.1	15.5	3.5	8.0	..	99.69	0.19	0.12	Straw and Glumes.



W. Johnson and Markwell, Roma street, Brisbane	New South Wales (New South Wales Flour Millers' Produce Co., Ltd., Sydney)	Guarantee Found (average)	..	5	9.4	14.0	3.0	7.0	3.1	98.03	1.49	0.48	..	Straw, Glumes, portions of Oat Grains, <i>Rumex sp.</i> , Insects.
Samuel Allen and Sons, Ltd., Albert street, Brisbane	New South Wales (Geo. Fielder and Co., Tamworth)	Guarantee Found	..	..	11.3	14.0	3.0	7.0	3.0	99.36	0.61	0.03	..	Glumes.
Jas. F. McKenzie and Co., Pty., Ltd., 448-450 Ann street, Brisbane	New South Wales (Brunton and Co., Sydney)	Guarantee Found (average)	..	3	11.0	14.5	2.8	8.0	2.8	99.35	0.63	0.02	..	Straw, Glumes, Insects.
Henry Dean and Sons, Ltd., Roma street, Brisbane	Southern States	Guarantee Found (average)	..	3	11.0	15.6	3.4	6.1	2.8	99.71	0.28	0.01	..	Straw and Glumes.
Orchard Supply Agency, Stanthorpe	New South Wales	Guarantee Found	..	..	11.3	14.0	3.0	7.0	2.9	99.49	0.42	0.09	..	Straw and Glumes.
J. Michelmore and Co., Mackay	ditto	Guarantee Found	..	..	10.8	14.3	3.0	8.0	4.0	98.52	1.47	0.01	..	Straw.
Cummins and Campbell, Ltd., Cairns	New South Wales (Great Western Milling Co., Sydney)	Guarantee Found (average)	..	3	11.5	16.0	3.4	6.4	3.1	99.74	0.23	0.03	..	Glumes.

SUMMARY OF CHEMICAL ANALYSES FROM 1923 TO 1930.

Year.	Number of Analyses.	Average Moisture.	Average Crude Protein.	Average Crude Fat.	Average Crude Fibre.	Average Crude Ash.
1923	51	% 9.8	% 15.5	% 3.8	% 6.6	% 2.9
1924	69	9.9	15.4	3.5	5.8	2.8
1925	21	11.4	16.3	3.4	4.9	3.5
1926	26	11.0	15.7	3.3	5.4	3.0
1927	61	10.5	14.7	3.3	6.0	3.2
1928	42	10.1	16.0	3.7	6.5	3.6
1929	59	10.1	17.2	3.5	6.1	3.4
1930	56	10.6	15.4	3.3	5.8	3.1



Table VII.

## CALF FOODS.

Prescribed Standard.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	Composition as Declared by Seller.	Foreign Ingredients.		Queensland Wholesale Seller.	
										Percentage by Weight of Material that will not Pass 2 mm. Sieve.	Whole Seeds or Grains.		
Calf Food ..	Denham's Calf Food	Guarantee ..	..	..	15.0	5.0	7.0	..	Wheat Meal, Pollard, Oat Meal, Barley Meal, Maize Meal, Linseed Meal, Dried Blood, Cod Oil, Anise Oil	0.7 per cent. of Crushed Linseed	Nil	Denhams Ltd., Roma street, Brisbane	
	Ditto ..	Found ..	..	9.7	20.0	7.9	5.1	3.0					
Under the Regulations Calf Food must not contain any whole seeds or grains, and be of such fineness as to permit of all passing through a metal sieve perforated with round holes 2 mm. in diameter.	Farmer's Calf Food	Guarantee ..	..	..	22.6	5.2	5.0	..	Milk Solids, Pollard, Linseed Meal, 0.5 per cent. Aniseed, Whiting	3.81 per cent. Crushed Linseed and Milk Solids	0.16 per cent. Linseed	The Queensland Farmers' Co-operative Association, Ltd., Booval. Robert Harper and Co., Ltd., Albert street, Brisbane. Parsons Bros. and Co. Pty., Ltd., Elizabeth street, Brisbane. J. Jackson and Co. (Produce and Seeds), Ltd., Roma street, Brisbane. Webster and Co., Ltd., Mary street, Brisbane.	
	Ditto ..	Found (average)	2	7.4	24.5	6.9	5.1	4.3					
	Star Brand Calf Food	Guarantee ..	..	..	12.5	10.0	7.5	..	Oat, Rice, Linseed, Maize, Barley, Meals, Condiments	0.7 per cent. of Crushed Linseed	Nil		
	Ditto ..	Found ..	..	8.9	12.4	13.6	4.8	7.4					
	Parson's Calf Food	Guarantee ..	..	..	12.0	8.0	4.0	..	Rice, Oat and Barley Pollard, Corn Gluten, and Germ Meal, Wheat Meal, and Crushed Linseed	1.1 per cent. of Crushed Linseed	Nil		
	Ditto ..	Found (average)	2	9.7	12.3	12.0	3.9	3.6					
	Taylor's National Calf Food	Guarantee ..	Guarantee ..	..	..	10.0	2.9	6.6	..	Wheat, Barley, Linseed, Sugar, Whiting, Oil Anise, Ground Cinnamon	Nil		Nil
	Ditto ..	Found (average)	3	10.3	10.7	3.5	4.6	3.4					
	Kaf-O-Vite	Guarantee ..	Guarantee ..	..	..	13.0	10.0	8.0	..	Sterilised Bone, Lime, and the by-products of Rice and Linseed, and also contains flavouring matter	4.7 per cent. of Crushed Linseed		Nil
	Ditto ..	Found (average)	4	9.5	16.0	13.2	8.8	11.9					



**Table VIII.**  
**STOCK FOODS, 1930.**  
**MISCELLANEOUS STOCK FOODS EXAMINED FOR PURPOSES OF "THE STOCK FOODS ACTS, 1919-28."**

Kind of Stock Food.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Seller.
Barley Meal	Barley Meal	Guarantee	..	%	%	%	%	%	%	Barley	Henry Dean and Sons, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	12.2	11.0	1.0	6.0	2.4	..	..	Denhams Ltd., Roma street, Brisbane
Ditto	ditto	Guarantee	..	..	9.1	1.2	3.3	..	..	..	Denhams Ltd., Roma street, Brisbane
Ditto	ditto	Found (average)	2	9.6	11.0	1.0	6.0	2.7	..	..	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	"Red Comb" Barley Meal	Guarantee	..	..	14.3	2.0	5.0	..	..	..	Denhams Ltd., Roma street, Brisbane
Ditto	ditto	Found	..	11.6	10.0	1.9	4.6	2.5	..	..	Denhams Ltd., Roma street, Brisbane
Blood Meal	Dried Blood..	Guarantee	..	..	75.0	0.3	..	..	2.0	Blood	Swift Australian Co., Ltd., 181 Eagle street, Brisbane
Ditto	ditto	Found ..	..	9.6	78.9	0.3	..	4.9	2.2	..	Charles Taylor and Co., Roma street, Brisbane
Ditto	Taylor's Champion Dried Blood	Guarantee	..	..	76.0	..	..	..	..	Blood	Charles Taylor and Co., Roma street, Brisbane
Ditto	ditto	Found ..	..	9.5	79.8	0.2	..	4.8	..	..	Borthwick and Sons (Australasia), Ltd., Wharf street, Brisbane
Ditto	Borthwick's Moreton Dried Blood	Guarantee	..	..	75.0	..	..	..	..	Blood	Borthwick and Sons (Australasia), Ltd., Wharf street, Brisbane
Ditto	ditto	Found ..	..	9.6	76.3	2.5	..	..	..	..	Borthwick and Sons (Australasia), Ltd., Wharf street, Brisbane
Bone Meal, Nauru Phosphate, Stock Lick, and Mineral Feeds. See Tables IX-X.											
Buttermilk Powder	"Jacaranda" Dried Buttermilk Powder	Guarantee	..	..	35.0	4.0	..	10.0	..	Buttermilk	The Queensland Farmers' Co-operative Association, Ltd., Booval
Ditto	ditto	Found (average)	2	11.7	41.1	6.0	..	7.8	..	..	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Cotton Seed Meal	B.A.C.A.L. Decorticated Cotton Seed Meal	Guarantee	..	..	40.0	6.0	15.0	..	..	Decorticated Cotton Seed Cake	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Ditto	ditto	Found ..	..	8.2	44.4	6.7	6.3	7.1	..	Cotton Seed	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Ditto	ditto	Guarantee	..	..	30.0	5.0	20.0	..	..	..	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Ditto	ditto	Found ..	..	8.4	41.5	6.4	9.0	5.9	..	..	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Ditto	Linseed Meal	Guarantee	..	..	19.0	36.0	11.5	..	..	Made from Linseed	R. W. Thurlow and Co., Ltd., Wharf street, Brisbane
Ditto	ditto	Found ..	..	6.9	23.3	36.2	8.4	2.5	..	..	W. Siemon and Sons, Ltd., Roma street, Brisbane
Ditto	ditto	Guarantee	..	..	18.0	32.0	14.0	..	..	Made from Linseed	W. Siemon and Sons, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	7.4	20.3	34.0	9.4	2.7	..	..	Denhams Ltd., Roma street, Brisbane
Ditto	Meggitt's Linseed Oil Meal	Guarantee	..	..	27.0	6.0	13.0	..	..	Manufactured by the old process from Flaxseed	Denhams Ltd., Roma street, Brisbane
Linseed Oil Meal (old process)											
Ditto	ditto	Found ..	..	8.8	30.1	7.4	9.2	6.9	..	..	Corser and Co., Ltd., Ellena street, Maryborough
Ditto	ditto	Guarantee	..	..	27.0	6.0	13.0	..	..	Manufactured by the old process from Flaxseed	Denham Bros. (Rockhampton), Ltd. Rockhampton
Ditto	ditto	Found ..	..	10.0	29.2	6.6	9.2	6.4	..	..	Denham Bros. (Rockhampton), Ltd. Rockhampton
Ditto	ditto	Guarantee	..	..	27.0	6.0	13.0	..	..	Manufactured by the old process from Flaxseed	Cummins and Campbell, Ltd., Townsville
Ditto	ditto	Found ..	..	9.7	28.1	6.3	9.2	6.4	..	..	Cummins and Campbell, Ltd., Townsville
Ditto	ditto	Guarantee	..	..	27.0	6.0	13.0	..	..	Manufactured by the old process from Flaxseed	E. J. Lewis, Ryan House, Eagle street, Brisbane
Ditto	ditto	Found ..	..	11.0	28.5	4.8	9.5	6.4	..	..	E. J. Lewis, Ryan House, Eagle street, Brisbane
Ditto	Barnes' Linseed Meal	Guarantee	..	..	26.0	8.0	12.0	..	..	Manufactured from Linseed	E. J. Lewis, Ryan House, Eagle street, Brisbane
Ditto	ditto	Found (average)	2	9.9	27.7	9.5	10.6	6.3	..	..	E. J. Lewis, Ryan House, Eagle street, Brisbane



Table VIII.—continued.  
STOCK FOODS, 1930.  
MISCELLANEOUS STOCK FOODS EXAMINED FOR PURPOSES OF "THE STOCK FOODS ACTS, 1919-28."

Kind of Stock Food.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Seller.
Linseed Oil Meal (old process)	Kitchen's Linseed Oil Meal	Guarantee	..	% ..	% 27.0	% 7.0	% 12.0	% ..	% ..	Manufactured by the old process from Flaxseed	Kitchen and Sons Pty., Ltd., Newstead, Brisbane
Ditto	ditto	Found ..	..	9.2	27.8	10.4	12.1	6.3	..	..	..
Ditto	Thorpe's Linseed Oil Meal	Guarantee	..	..	25.0	10.0	10.0	..	..	Manufactured by the old process from Flaxseed	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto	Found ..	..	8.4	27.6	7.6	14.8	10.0	..	Made from Linseed ..	Thomas Brown and Sons, Ltd., East street, Rockhampton
Linseed Oil Meal (new process)	Halmeg Linseed Oil Meal	Guarantee	..	..	25.0	0.6	14.0	..	..	..	..
Ditto	ditto	Found (average)	6	10.7	28.8	3.3	12.6	6.4	..	Composed of Prime Lucerne Hay	E. C. Chambers and Co., Edward street, Brisbane
Lucerne Meal	Thorpe's Lucerne Meal	Guarantee	..	..	12.0	2.0	30.0	..	..	Lucerne Hay ..	Denham's Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	11.2	15.7	1.3	26.4	8.5	..	..	..
Ditto	Denham's Lucerne Meal	Guarantee	..	..	15.0	1.2	30.0	..	..	Manufactured from Lucerne Hay	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	ditto	Found (average)	2	9.0	15.1	1.2	29.1	10.3	..	..	..
Ditto	"Red Comb" Lucerne Meal	Guarantee	..	..	15.0	1.2	30.0	..	..	..	..
Ditto	ditto	Found ..	..	11.7	15.8	1.9	21.6	8.0	..	..	..
Wheat Meal	Wheat Meal	Guarantee	..	..	13.0	1.4	3.0	..	..	Wheat ..	Denham's Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	9.8	16.0	1.5	2.8	1.7	..	..	..
Ditto	ditto	Guarantee	..	..	12.0	1.5	5.0	..	..	Wheat ..	Henry Dean and Sons, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	10.7	13.5	1.6	2.3	1.7	..	Maize ..	Henry Dean and Sons, Ltd., Roma street, Brisbane
Maize Meal	Maize Meal	Guarantee	..	..	9.5	3.8	3.0	..	..	..	..
Ditto	ditto	Found ..	..	12.0	9.3	4.0	2.3	1.2	..	Maize ..	Denham's Ltd., Roma street, Brisbane
Ditto	ditto	Guarantee	..	..	9.5	3.5	4.0	..	..	..	..
Ditto	ditto	Found (average)	2	11.4	10.0	4.6	2.5	2.0	..	Maize ..	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	ditto	Guarantee	..	..	10.0	3.5	3.5	..	..	..	..
Ditto	"Red Comb" Maize Meal	Guarantee	..	11.6	9.2	4.4	2.2	1.5	..	..	..
Ditto	ditto	Found ..	..	..	..	..	..	..	..	Meat and Bone	Swift Australian Co., Ltd., 181 Eagle street, Brisbane
Meat and Bone Meal	Protein Meal	Guarantee	..	..	52.0	13.5	..	..	3.5	..	..
Ditto	ditto	Found ..	..	7.3	50.4	10.4	..	27.3	2.2	Meat and Bone	..
Ditto	Borthwick's Moreton Protein Meal	Guarantee	..	..	52.0	10.0	..	..	..	..	..
Ditto	ditto	Found ..	..	8.1	51.1	10.8	..	25.7	..	Meat and Bone	Borthwick and Sons (Australasia), Ltd., Wharf street, Brisbane
Ditto	ditto	Guarantee	..	..	50.0	10.0	..	..	..	..	..
Ditto	ditto	Found ..	..	8.2	47.4	10.2	..	..	..	Meat and Bone	..
Ditto	Borthwick's Moreton Mcbo Meal	Guarantee	..	..	54.0	10.0	..	..	..	..	..
Ditto	ditto	Found ..	..	9.3	54.1	10.9	..	24.8	..	Extract and Residue of Meat	Poultry Farmers' Co-operative Society, Ltd., Roma Street, Brisbane
Ditto	M.I.B. Protein Meal	Guarantee	..	..	66.0	3.0	..	..	..	..	..
Ditto	ditto	Found (average)	2	10.0	68.2	3.2	..	11.9	..	Made from Coconut	Kitchen and Sons Pty., Ltd., Newstead, Brisbane
Oil Cake, Cubes, and Nuts	Oil Cake	Guarantee	..	..	17.0	6.5	10.0	..	..	..	..
Ditto	ditto	Found ..	..	11.6	18.5	7.3	7.6	5.4	..	..	..



Oil Cake, Cubes, and Nuts	Sunlight Oil Cake	Guarantee	..	..	16.5	9.0	11.0	..	..	Made from Coconut	..	Lever Bros., Ltd., Charlotte street, Brisbane
Ditto	ditto	Found (average)	..	2	12.0	9.0	8.4	..	5.3	Decorticated Cotton Seed	..	
Ditto	B.A.C.A.L. Decorticated Cotton-seed Cake	Guarantee	..	..	40.0	6.0	15.0	..	..			
Ditto	ditto	Found	..	..	44.6	7.3	6.3	7.5	..			
Ditto	B.A.C.A.L. Compound Sheep Cubes	Guarantee	..	..	30.0	3.0	15.0	..	5.0	Decorticated Cottonseed Meal, 15 per cent. Cotton Seed Hull Bran, 10 per cent. Molasses	..	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Ditto	ditto	Found (average)	..	2	11.1	5.2	8.8	9.4	3.2			
Ditto	B.A.C.A.L. Special Sheep Cubes	Guarantee	..	..	30.0	3.0	10.0	..	..	Soya Bean Meal, 25 per cent. Wheat Offal, 10 per cent. Molasses	..	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Ditto	ditto	Found	..	..	34.8	3.8	3.9	5.7	..			
Ditto	Thorpe's Kubettes for Sheep	Guarantee	..	..	13.0	3.0	10.0	..	1.0	Gluten Feed, Linseed Oil Meal, Barley, Wheat and Maize	..	
Ditto	ditto	Found	..	..	18.6	5.7	7.8	6.6	0.8	Meals, Bran, Rice Meal, Pollard, Meat and Bone Meals, Calcium Carbonate, Sulphur, Molasses and Lucerne Meal, Salt	..	E. C. Chambers and Co., Edward street, Brisbane
Pea Meal	Pea Meal	Guarantee	..	..	17.0	1.3	7.0	..	..	Peas	..	Henry Dean and Sons, Ltd., Roma street, Brisbane
Ditto	ditto	Found	..	..	17.3	1.3	6.9	2.6	..			
Peanut Meal	Eta Brand Peanut Meal (Decorticated)	Guarantee	..	..	43.0	9.0	5.0	..	..	Decorticated Peanuts	..	Denhams Ltd., Roma street, Brisbane
Ditto	ditto	Found (average)	..	2	6.8	10.5	5.4	7.2	..			
Rice Meal	Harper's Star Rice Meal	Guarantee	..	..	11.0	11.0	8.0	..	..	Rice	..	Robert Harper and Co., Ltd., Albert street, Brisbane
Ditto	ditto	Found (average)	..	2	9.2	18.6	6.9	9.9	..			
Dairy Cattle Food	Thorpe's O.K. Dairy Feed	Guarantee	..	..	16.0	3.0	10.0	..	1.0	Bran, Maize, Gluten, Linseed, Barley, Maize and Meat Meals, Bone Flour, Malt Culms, Molasses, Sulphur, Calcium Carbonate, and Salt	..	
Ditto	ditto	Found	..	..	19.1	3.8	7.6	8.5	0.5	Gluten Feed, Linseed Oil Meal, Barley, Wheat and Maize	..	E. C. Chambers and Co., Edward street, Brisbane
Sheep Food (Meal)	Thorpe's Special Sheep Meal	Guarantee	..	..	13.0	3.0	10.0	..	1.0			
Ditto	ditto	Found	..	..	16.2	4.3	8.9	7.8	1.6			
Pig Food	Thorpe's Standard Pig Feed	Guarantee	..	..	13.0	3.0	9.0	..	1.0	Bran, Pollard, Linseed, Maize, Barley, Wheat, Oat, Rice, Gluten, Lucerne and Meat Meals, Bone Flour, Molasses, Sulphur, Calcium Carbonate, and Salt	..	
Ditto	ditto	Found	..	..	18.6	4.1	7.5	6.5	1.3	Soya Beans	..	British Australian Cotton Association, Ltd., Whinstanes, Brisbane
Miscellaneous Stock Foods	B.A.C.A.L. Soya Bean Meal	Guarantee	..	..	43.0	5.0	10.0	..	..			
Ditto	ditto	Found	..	..	43.2	4.9	4.5	5.3	..			
Ditto	Osmond's Codliverine for Poultry	Guarantee	..	..	14.0	16.0	8.0	..	..	Rice, Locust Beans, Linseed By-products, Soya Beans, Fenu-greek, Carraway, Cod Liver Oil, Peas, Liquorice Root, Soda Bicarbonate, and Colouring Matter	..	
Ditto	ditto	Found	..	..	16.7	16.0	6.7	7.7	..			
Ditto	Osmond's Codliverine for Pigs	Guarantee	..	..	12.0	16.0	8.0	..	..	Rice, Locust Beans, Linseed By-products, Soya Beans, Fenu-greek, Cod Liver Oil, Peas, Liquorice Root, Black Antimony, Soda Bicarbonate, Flowers of Sulphur	..	T. W. Moss and Co., 121 Eagle street, Brisbane
Ditto	ditto	Found	..	..	19.0	16.8	7.1	8.5	..			



Table VIII.—continued.

## STOCK FOODS, 1929.

## MISCELLANEOUS STOCK FOODS EXAMINED FOR PURPOSES OF "THE STOCK FOODS ACTS, 1919-28."

Kind of Stock Food.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Seller.
Miscellaneous Stock Foods	Osmond's Codliverine for all Stock	Guarantee ..	..	% ..	% 14.0	% 16.0	% 8.0	% ..	% ..	Rice, Locust Beans, Linseed By-products, Soya Beans, Fenu-greek, Caraway, Cod Liver Oil, Peas, Liquorice Root, Soda Bicarbonate, and Colouring Matter	T. W. Moss and Co., 121 Eagle street, Brisbane
Ditto	ditto .. ..	Found ..	..	7.8	17.2	15.8	6.8	7.3	..		
Chick Food	Chicken Mixture ..	Guarantee ..	..	..	13.0	2.5	5.0	..	..	Maize, Wheat, Barley, Oats, Peas	Addis Bros., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	11.5	12.6	3.0	3.7	1.9	..		
Ditto	Denham's Chick Food ..	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat Kibbled, Maize Kibbled, Peas Kibbled, Rolled Oats, and Maize By-products	Denhams Ltd., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	9.0	15.6	2.8	3.2	2.0	..		
Ditto	Parsons' Chicken Food ..	Guarantee ..	..	..	11.0	2.0	3.0	..	..	Maize, Oat, Wheat, Rice, and Pea Meals, Millet Seeds	Parsons Bros. and Co. Pty., Ltd., Elizabeth street, Brisbane
Ditto	ditto ..	Found ..	..	12.5	9.9	2.3	2.4	1.6	..	Kibbled Wheat, Maize, Peas, Maize Gluten Meal, Rolled Oats, and Biscuit Grit made from Wheat Products, Meat and Bone Meals	
Ditto	Thorpe's Extra Special Chick Food	Guarantee ..	..	..	13.0	3.0	5.0	..	..	Kibbled Wheat, Maize, Peas, Maize Gluten Meal, Rolled Oats, and Biscuit Grit made from Wheat Products, Meat and Bone Meals	
Ditto	ditto ..	Found (average)	2	11.6	14.3	2.4	3.0	2.2	..		
Ditto	Thorpe's Week Old Chick Food ..	Guarantee ..	..	..	11.0	1.9	4.5	..	..	Kibbled Wheat, Peas, Rolled Oats, Maize Gluten Feed, and Biscuit Grit made from Wheat Products, Meat and Bone Meal	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	9.2	13.6	2.4	2.5	2.5	..		
Ditto	McCartney's Special Chick Food ..	Guarantee ..	..	..	12.5	3.8	5.0	..	..	Maize, Oat, Wheat, Linseed, and Pea Meals, Millet Seed	McCartney and Sons, Stanley street, South Brisbane
Ditto	ditto ..	Found (average)	2	11.5	12.5	3.6	4.0	3.3	..		
Ditto	Chook Chick Food ..	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat Kibbled, Maize Kibbled, Peas Kibbled, Rolled Oats, and Maize By-product	Queensland Stock and Poultry Foods, Ltd., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	9.8	15.4	2.6	3.2	1.7	..		
Ditto	Red Comb Chick Feed ..	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Oats, Wheat, Maize, Peas	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	ditto ..	Found (average)	2	11.5	12.5	3.6	4.0	3.3	..		
Ditto	Taylor's Champion Chicken Mixture	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Maize, Wheat, Setaria, Linseed, Millets, Hemp, Canary Seed, Peas	Charles Taylor and Co., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5	Maize, Wheat, Barley, Oats, and Peas	Henry Dean and Sons, Ltd., Roma street, Brisbane
Ditto	H.D.S. Chick Food ..	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Maize, Wheat, Barley, Oats, Rye, and Sorghum	Charles Taylor and Co., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Taylor's Champion Grain Mixture	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Thorpe's Scratch Grain Feed ..	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's Laying Mash ..	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	Denham's X.L.N.T. Laying Mash	Guarantee ..	..	..	14.0	2.0	4.5	..	..	Wheat, Cracked Maize, Barley, Oats	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	8.5	21.4	6.3	8.2	6.6	1.5		
Ditto	ditto ..										



Laying and Growing Mash	Thorpe's Laying Mash	Guarantee	..	..	14-0	4-0	9-0	..	1-0	Bran, Pollard, Linseed, Rice, Wheat, Barley, Maize, Lucerne and Meat Meals, Bone Flour, Molasses, Calcium, Carbonate, Sulphur, Salt	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto	Found (average)	..	2	9-9	4-6	5-7	6-6	0-7		
Ditto	Thorpe's Egglo (Protein Food)	Guarantee	..	..	40-0	7-5	5-0	..	5-0	Meat, Linseed, Blood and Bone Meals, Calcium Carbonate, Sulphur, Salt	
Ditto	ditto	Found ..	..	..	40-4	7-4	6-1	24-3	4-1		
Ditto	Skinner's Allegg	Guarantee	..	..	38-0	8-0	7-0	..	5-0	Meat, Bone, Blood, Cod Oil, Linseed Meal, Charcoal, and Salt	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	..	47-4	8-5	4-6	17-4	6-4		
Ditto	Moregg Laying Mash	Guarantee	..	..	19-0	3-5	8-0	..	0-7	Bran, Pollard, Maize, Lucerne Meals and Charcoal, Meat and Bone Meal, Salt	McCartney and Sons, Stanley street, South Brisbane
Ditto	ditto	Found (average)	..	2	18-8	3-8	8-2	8-3	0-7		
Ditto	Taylor's Champion Laying Mash Mixture	Guarantee	..	..	21-0	3-0	6-0	..	..	Bran, Pollard, Sterilised Bone Meal, Dried Blood, Linseed, Maize Meals	Charles Taylor and Co., Roma street, Brisbane
Ditto	ditto	Found ..	..	..	22-2	3-9	5-0	9-7	..		
Ditto	H.D.S. Brand Laying Mash	Guarantee	..	..	18-0	3-0	9-0	..	1-0	Pollard, Bran, Maize, Lucerne, Barley Meal and Bone Meals, Buttermilk, Sulphur, Charcoal, Iron Sulphate, Cod Liver Oil, Salt	
Ditto	ditto	Found ..	..	..	19-8	3-4	6-1	8-9	0-7		
Ditto	H.D.S. Brand Laying Mash concentrate	Guarantee	..	..	23-0	3-0	9-0	..	2-0	Pollard, Bran, Maize, Lucerne, Meat, Blood, and Bone Meals, Buttermilk, Sulphur, Iron Sulphate, Cod Liver Oil, Salt	Henry Dean and Sons, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	..	22-8	4-5	6-3	11-4	1-0		
Ditto	Chook Laying Mash	Guarantee	..	..	20-0	4-5	9-0	..	1-0	Wheat Meal, Bran, Pollard, Barley Meal, Peanut Meal, Rice Meal, Maize Meal, Linseed Meal, Lucerne Meal, Dried Buttermilk, Maize By-product, Meat, Bone, and Blood Meal, Sulphur, Salt	Queensland Stock and Poultry Foods, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	..	21-1	6-2	8-6	7-3	1-3		
Ditto	Spur Laying Mash	Guarantee	..	..	16-0	2-8	11-0	..	1-0	Bran, Pollard, Lucerne Meal, Meat, Bone, and Blood Meal, Salt	
Ditto	ditto	Found ..	..	..	18-8	3-4	9-5	6-3	1-3		
Ditto	Red Comb Laying Mash	Guarantee	..	..	17-0	4-0	9-0	..	0-5	Bran, Pollard, Maize, Barley, Linseed, Lucerne, Meat and Bone Meals, Cod Liver Oil, Charcoal, Salt	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	ditto	Found ..	..	..	20-8	4-0	6-9	6-3	0-7		
Ditto	Laying Mash	Guarantee	..	..	20-0	3-0	11-5	..	1-5	Wheat By-products, Lucerne and Pea Meal, Meat Meal, Dried Milk, Salt	Addis Bros., Roma street, Brisbane
Ditto	ditto	Found ..	..	..	18-8	2-9	9-3	7-3	1-5		
Ditto	Non-stop Growing Mash	Guarantee	..	2	17-0	3-0	7-0	..	0-7	Oatmeal, Dried Buttermilk, Wheatmeal, Pollard, Bran, Maize Meal, Lucerne Meal, Linseed Meal, Charcoal, Meat and Bone Meal, Salt	McCartney and Sons, Stanley street, South Brisbane
Ditto	ditto	Found (average)	..	..	16-8	3-3	6-7	9-3	0-6		
Ditto	Thorpe's Growing Mash	Guarantee	..	..	15-0	4-0	9-0	..	1-0	Bran, Pollard, Linseed, Rice, Barley, Wheat, Maize, Lucerne and Meat Meals, Bone Flour, Molasses, Sulphur, Calcium Carbonate, Salt	
Ditto	ditto	Found ..	..	..	16-0	4-2	6-4	8-2	0-8		
Ditto	Thorpe's All-Mash	Guarantee	..	..	13-0	4-0	9-0	..	1-0	Bran, Pollard, Oat, Maize, Barley and Lucerne Meals, Meat Meal, Bone Flour, Linseed Oil Meal, Molasses, Sulphur, Calcium Carbonate, Salt	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto	Found ..	..	..	16-8	4-8	5-6	7-4	1-3		



Table VIII.—continued.

STOCK FOODS, 1930.

MISCELLANEOUS STOCK FOODS EXAMINED FOR PURPOSES OF "THE STOCK FOODS ACTS, 1919-28."

Kind of Stock Food.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Moisture.	Crude Protein.	Crude Fat.	Crude Fibre.	Crude Ash.	Salt.	Composition as Declared by Seller.	Queensland Wholesale Seller.
Laying and Growing Mash	Denham's Growing Mash ..	Guarantee ..	..	% ..	% 18.0	% 4.5	% 6.0	% ..	% 1.0	Wheatmeal, Bran, Pollard, Barley Meal, Rice Meal, Maize Meal, Linseed Meal, Peanut Meal, Dried Buttermilk, Meat, Bone, and Blood Meal, Maize By-product, Sulphur, Salt	Denhams Ltd., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	9.1	21.2	6.1	6.0	6.3	1.1		
Ditto	Red Comb Growing Mash ..	Guarantee ..	..	% ..	% 15.0	% 3.0	% 9.0	% ..	% 0.2	Bran, Pollard, Maize, Barley, Pea, Wheat, Linseed, Meat, and Bone Meals, Buttermilk, Charcoal, Salt	The Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
Ditto	ditto ..	Found (average) ..	2	8.4	17.2	3.4	4.5	5.2	1.0		
Ditto	H.D.S. Brand Growing Mash ..	Guarantee ..	..	% ..	% 18.5	% 3.0	% 9.0	% ..	% 1.0	Bran, Pollard, Maize, Peanut, Meat, Blood, and Bone Meals, Buttermilk, Sulphur, Iron Sulphate, Cod Liver Oil, Salt	Henry Dean and Sons, Ltd., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	10.9	22.8	4.2	5.6	11.0	0.8		
Ditto	Chook Growing Mash ..	Guarantee ..	..	% ..	% 18.0	% 4.5	% 6.0	% ..	% 1.0	Wheat Meal, Bran, Pollard, Barley Meal, Rice Meal, Maize Meal, Linseed Meal, Peanut Meal, Dried Buttermilk, Meat, Bone and Blood Meal, Maize By-product, Sulphur, Salt	Queensland Stock and Poultry Foods, Ltd., Roma street, Brisbane
Ditto	ditto ..	Found ..	..	9.0	20.9	5.9	5.8	5.6	1.3		
Poultry Pellets.	Thorpe's Poultry Pellets ..	Guarantee ..	..	% ..	% 13.0	% 4.0	% 9.0	% ..	% 1.0	Bran, Pollard, Oat, Maize, Barley, and Lucerne Meals, Meat Meal, Bone Flour, Linseed Oil Meal, Molasses, Sulphur, Calcium Carbonate, Salt	E. C. Chambers and Co., Edward street, Brisbane
Ditto	ditto ..	Found ..	..	10.2	20.6	4.3	6.2	5.5	0.6		
Bird Seeds	Star Brand Bird Seed ..	Guarantee ..	..							Canary, Foxtail Millet, Hemp, Rape, Millet, Linseed, Chillies	Robert Harper and Co., Ltd., Albert street, Brisbane
Ditto	Bird Seed ..	Found ..	..							Canary, Millet, Hemp, Rape, Linseed	R. W. Thurlow and Co., Ltd., Wharf street, Brisbane
Ditto	Parsons' Mixed Bird Seed ..	See Footnote *	..							Canary, Foxtail Millet, French Millet, Hemp, Rape, Chillies	Parsons Bros. and Co. Pty., Ltd., Elizabeth street, Brisbane
Ditto	Simpson's Canary Food ..		..							Canary, Foxtail Millet, French Millet, Hemp, Rape, Linseed, Chillies	
Ditto	Simpson's Parrot Seed Mixture ..		..							Maize, Wheat, Oats, Hemp, Millet, Sunflower, Peanuts, Linseed, Chillies	Simpson Bros., Ltd., Ann street, Brisbane
Ditto	Star Brand Parrot Food ..		..							Maize, Sunflower, Barley, Wheat, Oats, Millet, Peanuts, Peas, Linseed, Chillies	Robert Harper and Co., Ltd., Albert street, Brisbane

\* The protein fat and fibre content need not be given when the mixture consists of whole seeds.

† Foods that contain more than 20 per cent. by weight of crushed material that will pass a 2 m.m. sieve, should be labelled in the manner prescribed for meals.



Table IX.

## STOCK LICKS AND MINERAL FEEDS:

STOCK LICKS AND MINERAL FEEDS REGISTERED UNDER "THE STOCK FOODS ACTS, 1919 TO 1928," DURING JANUARY-JUNE, 1930, FOR THE YEAR ENDING 31ST DECEMBER, 1930.

Queensland Wholesale Seller.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Minimum Phosphoric Acid P <sub>2</sub> O <sub>5</sub> %	Maximum Salt %	Composition as Declared by Seller.
A.C.F. and Shirleys Fertilizers, Ltd., Little Roma street, Brisbane	Kwik-Lik	Guarantee .. Found ..	14.0 13.3	45.0 40.6	Ground rock phosphate, sterilised bone meal, salt, magnesium sulphate, flowers of sulphur, sulphate of iron, and 5 per cent. molasses.
Australian Disinfectant Co., Albert street, Brisbane	Wagstaff's Medicated Stock Salt	Guarantee .. Found ..	.. ..	90.0 83.2	Salt, flowers of sulphur, soda bicarbonate, aloes, flavouring matter, a trace of iron, 4 per cent. bran, 3 per cent. molasses, and contains 20 oz. potassium iodide to the ton.
Thos. Borthwick and Sons (Australasia), Ltd., Wharf street, Brisbane	Borthwicks' Bomo Poultry Tonic	Guarantee .. Found ..	12.0 13.1	35.0 32.2	Sterilised bone meal, lime, salt, powdered sulphur, iron, magnesium sulphate, and contains 1½ oz. potassium iodide per 100 lb.
Ditto	Moreton Bonolik for Stock	Guarantee .. Found ..	12.0 14.2	45.0 31.3	Sterilised bone meal, salt, powdered sulphur, iron, magnesium sulphate, and contains 1½ oz. potassium iodide per 100 lb.
Ditto	Moreton Salbolik	Guarantee .. Found ..	8.0 13.5	66.0 49.9	Sterilised bone meal and salt.
Brabant and Co., Charlotte street, Brisbane	Brablick	Guarantee .. Found ..	14.0 13.0	42.0 30.5	Sterilised bone meal, fine Nauru phosphate, salt, flowers of sulphur, sulphate of iron, magnesium sulphate, 6 per cent. molasses, and contains 14 oz. potassium iodide to the ton.
Buzacotts (Qld.), Ltd., Adelaide street, Brisbane	"Lix-all" Vitality Stock Lick	Guarantee .. Found ..	10.0 7.8	50.0 54.8	Salt, bone char, sulphur, sulphate of iron, magnesium sulphate, 4 per cent. of wheat by-products, 4 per cent. molasses, and contains 2 oz. potassium iodide to the ton.
Dalgaty and Co., Ltd., Elizabeth street, Brisbane	Dalco Stock Lick I.	Guarantee .. Found ..	16.5 17.7	35.0 37.5	Ground rock phosphate, sterilised bone meal, salt, magnesium sulphate, flowers of sulphur, sulphate of iron, 5 per cent. molasses, and contains 16 oz. potassium iodide to the ton.
Ditto	Prophylactic Blue Cross Stock Lick	Guarantee .. Found ..	.. ..	83.0 86.7	Salt, sulphur, magnesium sulphate, ferrous sulphate, sodium bicarbonate; calcium sulphate, and 4 per cent. molasses.
Denhams Ltd., Roma street, Brisbane	Iodolik—Mineral Supplement for Sheep—Concentrate	Guarantee .. Found ..	24.0 28.1	.. ..	Sterilised bone meal, Nauru phosphate, magnesium sulphate, sulphate of iron, flowers of sulphur, 10 per cent. peanut meal, 5 per cent. molasses, and contains 30 oz. potassium iodide to the ton.
Ditto	Iodolik—Mineral Supplement for Sheep—Dry Grass Formula	Guarantee .. Found ..	13.0 17.5	30.0 27.5	Sterilised bone meal, Nauru phosphate, salt, magnesium sulphate, sulphate of iron, flowers of sulphur, 10 per cent. peanut meal, 5 per cent. molasses, and contains 20 oz. potassium iodide to the ton.
Ditto	Iodolik—Mineral Supplement for Sheep—Green Grass Formula	Guarantee .. Found ..	17.0 21.3	32.5 29.8	Sterilised bone meal, Nauru phosphate, salt, magnesium sulphate, sulphate of iron, flowers of sulphur, 6 per cent. peanut meal, 5 per cent. molasses, and contains 20 oz. potassium iodide to the ton.
Ditto	Iodolik—Mineral Supplement for Cattle	Guarantee .. Found ..	16.0 19.2	32.5 31.9	Sterilised bone meal, Nauru phosphate, salt, magnesium sulphate, sulphate of iron, flowers of sulphur, 5 per cent. peanut meal, 5 per cent. molasses, and contains 20 oz. potassium iodide to the ton.



Table IX.—continued.  
STOCK LICKS AND MINERAL FEEDS.  
STOCK LICKS AND MINERAL FEEDS REGISTERED UNDER "THE STOCK FOODS ACTS, 1919 TO 1928," DURING JANUARY-JUNE, 1930, FOR THE YEAR ENDING 31ST DECEMBER, 1930.

Queensland Wholesale Seller.	Sold Under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Minimum Phosphoric Acid P <sub>2</sub> O <sub>5</sub> %	Maximum Salt %	Composition as Declared by Seller.
Denhams Ltd., Roma street, Brisbane ..	Iodolik—Mineral Supplement for Pigs ..	Guarantee .. Found ..	% 12.0 14.4	% 15.0 13.3	Sterilised bone meal, Nauru phosphate, carbonate of lime, magnesium sulphate, sodium sulphate, flowers of sulphur, sulphate of iron, bicarbonate of soda, salt, charcoal, 10 per cent. meat meal, and contains 20 oz. potassium iodide to the ton.
A. Victor Leggo and Co., 72 Albert street, Brisbane	Vigoreen (already mixed) for Sheep ..	Guarantee .. Found ..	1.8 2.1	85.0 76.2	Salt, di-calcic phosphate, calcium carbonate, magnesium sulphate, iron sulphate, ground sulphur, and contains 7 oz. potassium iodide to the ton.
Ditto ..	Vigoreen (concentrated) ..	Guarantee .. Found ..	10.9 15.5	15.0 6.5	Salt, di-calcic phosphate, calcium carbonate, magnesium sulphate, iron sulphate, ground sulphur, and contains 43 oz. potassium iodide to the ton.
Ditto ..	Dairy Vigoreen ..	Guarantee .. Found ..	11.4 12.2	32.0 30.5	Salt, di-calcic phosphate, calcium carbonate, magnesium sulphate, iron sulphate, ground sulphur, and contains 7 oz. potassium iodide to the ton.
Ditto ..	Pig Vigoreen ..	Guarantee .. Found ..	7.2 8.4	17.0 9.9	Salt, di-calcic phosphate, calcium carbonate, magnesium sulphate, iron sulphate, ground sulphur, and contains 7 oz. potassium iodide to the ton.
Ditto ..	Poultry Vigoreen ..	Guarantee .. Found ..	17.0 18.7	.. ..	Di-calcic phosphate, calcium carbonate, magnesium sulphate, iron sulphate, ground sulphur, and contains 10 oz. potassium iodide to the ton.
R. B. Lawson and Co., Stanthorpe ..	Guyra Stock Lick ..	Guarantee .. Found ..	2.9 3.3	85.0 76.3	Salt, copper sulphate, Nauru phosphate, sterilised bone meal, magnesium sulphate, Stockholm tar, 1 per cent. molasses, and contains 6 oz. potassium iodide to the ton.
Mactaggart's Co-operative Association, Ltd., 64 Eagle street, Brisbane	Phospho Sheep and Cattle Lick ..	Guarantee .. Found ..	18.0 17.5	50.0 46.3	Nauru phosphate, salt, and contains 20 oz. potassium iodide to the ton.
New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane	Cooper's Medico ..	Guarantee ..	..	..	Ground sulphur, iron, potassium salts, nicotine, vegetable spices and tonics.
Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane	Hibiscus Stock Lick ..	Guarantee .. Found ..	14.5 15.7	40.0 37.4	Salt, Nauru phosphate, magnesium sulphate, sulphate of iron, flowers of sulphur, and 6 per cent. molasses.
Ditto ..	Hibiscus Iodised Stock Lick ..	Guarantee .. Found ..	14.5 15.4	40.0 37.4	Salt, Nauru phosphate, magnesium sulphate, sulphate of iron, flowers of sulphur, 6 per cent. molasses, and contains 16 oz. potassium iodide per 2,000 lb.
Ditto ..	Hibiscus Concentrated Nutrient Stock Lick—Iodised	Guarantee .. Found ..	21.0 24.0	.. ..	Nauru phosphate, sulphate of iron, magnesium sulphate, flowers of sulphur, 18 per cent. cottonseed meal, 14 per cent. molasses, and contains 16 oz. potassium iodide per 2,000 lb.
Ditto ..	Hibiscus Salt Lick Sulphurized ..	Guarantee .. Found ..	.. ..	97.0 94.8	Salt and sulphur.
Queensland Primary Producers' Co-operative Association, Ltd., Eagle street, Brisbane	"Lix-all" Vitality Stock Lick ..	Guarantee .. Found ..	10.0 8.7	50.0 54.4	Salt, bone char, sulphur, sulphate of iron, magnesium sulphate, 4 per cent. wheat by-products, 4 per cent. molasses, and contains 2 oz. potassium iodide to the ton.



Webster and Co., Ltd., Mary street, Brisbane ..	Vita Lick Concentrated "D"	..	Guarantee Found	..	11.7 12.2	..	Sterilised bone, superphosphate, magnesium sulphate, flowers of sulphur, sulphate of iron, 35 per cent. of rice and cocoa by-products, and contains 16 oz. potassium iodide to the ton.
Ditto	Vita Lick Concentrated "G"	..	Guarantee Found	..	18.5 21.1	..	Sterilised bone, superphosphate, magnesium sulphate, flowers of sulphur, sulphate of iron, 15 per cent. of rice and cocoa by-products, and contains 16 oz. potassium iodide to the ton.
Ditto	Vita Lick Mixed "D"	..	Guarantee Found	..	2.1 2.7	78.0 76.3	Salt, sterilised bone, superphosphate, magnesium sulphate, flowers of sulphur, sulphate of iron, 7 per cent. of rice and cocoa by-products, 5.5 per cent. molasses, and contains 3 oz. potassium iodide to the ton.
Ditto	Vita Lick Mixed "G"	..	Guarantee Found	..	3.4 4.6	78.0 77.2	Salt, sterilised bone, superphosphate, magnesium sulphate, flowers of sulphur, sulphate of iron, 3 per cent. of rice and cocoa by-products, 5.5 per cent. molasses, and contains 3 oz. potassium iodide to the ton.
Ditto	Special Cattle Lick Concentrated "D"	..	Guarantee Found	..	20.0 24.3	..	Sterilised bone, superphosphate, magnesium sulphate, sulphate of iron, 15 per cent. of rice and cocoa by-products, and contains 16 oz. potassium iodide to the ton.
Ditto	Special Cattle Lick Concentrated "G"	..	Guarantee Found	..	22.0 27.2	..	Sterilised bone, superphosphate, sulphate of iron; 15 per cent. of rice and cocoa by-products, and contains 16 oz. potassium iodide to the ton.
Ditto	Carbofos Medicated Blocks (black)	..	Guarantee Found	..	2.7 4.5	82.0 72.3	Salt, superphosphate, Nauru phosphate, calcium hydrate, sulphate of iron, sterilised bone, and magnesium sulphate.
Ditto	Vita Lick Medicated Blocks (white)	..	Guarantee Found	..	1.5 2.5	86.0 76.6	Salt, superphosphate, Nauru phosphate, calcium hydrate, sulphate of iron, and magnesium sulphate.
Ditto	Por-Co-Vite	..	Guarantee Found	..	12.0 13.7	35.0 28.4	Salt, sterilised bone, carbonate of lime, flowers of sulphur, sulphate of iron, magnesium sulphate, and contains 46 oz. potassium iodide to the ton.
Ditto	Chic-A-Vite	..	Guarantee Found	..	19.0 18.7	..	Sterilised bone, superphosphate, magnesium sulphate, sulphate of iron, flowers of sulphur, 15 per cent. of peanut meal, and rice by-products, and contains 16 oz. potassium iodide to the ton.



**Table X.**  
**STERILISED BONE MEAL AND FINELY GROUND NAURU PHOSPHATES.**  
 Registered under the Stock Foods Acts during January-June, 1930.

Prescribed Standard.	Sold under the Name of—	Guaranteed by Seller or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	Phosphoric Acid. (P <sub>2</sub> O <sub>5</sub> ) %	Crude Protein. %	Fineness.			Composition as Declared by Seller.	Queensland Wholesale Seller.
						Through $\frac{3}{16}$ inch. %	Over $\frac{1}{16}$ inch and through $\frac{3}{16}$ inch. %	Over $\frac{1}{16}$ inch and through $\frac{3}{16}$ inch. %		
“Bonemeal, Bone Dust, or Bone Flour” under whatever name sold, for use in stock licks, shall be made only from bones obtained from animals slaughtered for human consumption, and shall be subjected for at least two hours to a steam heat at a temperature of not less than 250 deg. F., equal to an indicated steam pressure of 30 lb. per square inch, and then ground to such fineness as will permit of all passing through an aperture of one-sixteenth of an inch, and at least 95 per cent. through an aperture of one-twenty-fifth of an inch	Gladstone Sterilised Bone Meal ..	Guarantee .. Found ..	.. ..	28.0 29.3	17.0 17.8	.. 99.9	.. 0.1	..	Sterilised Bones ..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
	Zillmere Sterilised Bone Meal ..	Guarantee .. Found (average)	.. 4	24.0 24.3	22.0 24.3	.. 99.8	.. 0.2	..	Sterilised Bones ..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
	Borthwick's Sterilised Bone Meal	Guarantee .. Found (average)	.. 3	24.0 25.0	24.0 24.6	95.0 98.8	.. 1.2	..	Sterilised Bones ..	Borthwick and Sons (Australasia), Ltd., Wharf street, Brisbane
	Red Comb Sterilised Bone Meal ..	Guarantee .. Found ..	.. ..	24.0 23.5	22.0 25.6	.. 99.8	.. 0.2	..	Sterilised Bones ..	Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
“Nauru or Ocean Island Phosphate” is a mineral phosphate from Nauru or Ocean Island, containing not less than 37 per cent. of phosphoric acid (P <sub>2</sub> O <sub>5</sub> ), and ground to such fineness as will permit of all passing through an aperture of one-fortieth of an inch, and at least 95 per cent. through an aperture of one-hundredth of an inch	Shirley's Finely Ground Nauru Phosphate Rock	Guarantee .. Found (average)	.. 2	37.0 38.3	.. ..	95.0 99.9	5.0 0.1	Finely Ground Nauru Phosphate Rock	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	
	Finely Ground Nauru Phosphate	Guarantee .. Found (average)	.. 2	37.0 37.8	.. ..	95.0 95.9	.. 3.7	Finely Ground Nauru Phosphate	Gibbs, Bright, and Co., Queen street, Brisbane	



Table XI.—FERTILISERS CONTAINING NITROGEN ONLY.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	Name of Fertiliser.	Guaranteed by Producer or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	NITROGEN AS—	
				Sodium Nitrate.	Ammonium Sulphate.
				%	%
<i>Sulphate of Ammonia.</i>					
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	A.C.F. Sulphate of Ammonia	Guarantee ..	..	..	20.6
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville..	ditto .. ..	Found (average) ..	13	..	20.7
		Guarantee ..	..	..	20.6
		Found (average) ..	2	..	20.8
Fertiliser Distributers, Ltd., E. S. and A. Bank Chambers, Roma street, Brisbane	Sulphate of Ammonia	Guarantee ..	..	..	20.6
Webster and Co., Ltd., Mary street, Brisbane	"Crown" Brand Sulphate of Ammonia	Guarantee ..	..	..	20.0
<i>Nitrate of Soda.</i>					
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	A.C.F. Nitrate of Soda	Guarantee ..	..	15.6	..
		Found ..	1	15.8	..
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville	ditto .. ..	Guarantee ..	..	15.6	..
		Found ..	1	15.9	..

Table XII.—FERTILISERS CONTAINING PHOSPHORIC ACID ONLY.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	Name of Fertiliser.	Guaranteed by Producer or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	PHOSPHORIC ACID.			FINENESS.	
				Water Soluble.	Citrate Soluble.	From Nauru and Ocean Island Phosphate.	Fine Material.	Coarse Material.
				%	%	%	%	%
<i>Superphosphate.</i>								
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	Shirley's High Grade Superphosphate	Guarantee ..	..	20.5	..	..	..	..
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville	ditto .. ..	Found (average) ..	3	20.2	..	..	..	..
		Guarantee ..	..	20.5	..	..	..	..
		Found ..	1	22.1	..	..	..	..
Fertilisers Distributers, Ltd., E. S. and A. Bank Chambers, Roma street, Brisbane	Superphosphate ..	Guarantee ..	..	20.5	..	..	..	..
Gibbs, Bright, and Co., Queen street, Brisbane	"Sulphide" Superphosphate	Guarantee ..	..	20.5	..	..	..	..
Webster and Co., Ltd., Mary street, Brisbane	"Crown" Brand Superphosphate	Guarantee ..	..	21.0	..	..	..	..
<i>Basic Super.</i>								
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	Shirley's Basic Super ..	Guarantee ..	..	..	17.0	..	..	..
		Found (average) ..	3	..	17.5	..	..	..
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville	ditto .. ..	Guarantee ..	..	..	17.0	..	..	..
Gibbs, Bright, and Co., Queen street, Brisbane	"Sulphide" Basic Super	Guarantee ..	..	3.0	15.0	..	..	..
<i>Phosphate Rock.</i>								
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	Shirley's Ground Phosphate Rock	Guarantee ..	..	..	..	37.0	95	5
		Found ..	1	..	..	38.7	95	5

Table XIII.—FERTILISERS CONTAINING POTASH ONLY.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	Name of Fertiliser.	Guaranteed by Producer or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	POTASH AS—	
				Potassium Sulphate.	Potassium Chloride.
				%	%
<i>Sulphate of Potash.</i>					
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	A.C.F. Sulphate of Potash	Guarantee ..	..	48.0	..
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville	ditto .. ..	Found (average) ..	13	48.1	..
		Guarantee ..	..	48.0	..
		Found (average) ..	4	47.9	..
Dalgety and Co., Ltd., Elizabeth street, Brisbane	"Stork" Brand Sulphate of Potash	Guarantee ..	..	48.0	..
Denhams Ltd., Roma street, Brisbane	Sulphate of Potash ..	Guarantee ..	..	48.0	..
Gibbs, Bright, and Co., Queen street, Brisbane	S.C. Sulphate of Potash	Guarantee ..	..	48.5	..
Webster and Co., Ltd., Mary street, Brisbane	"Crown" Brand Sulphate of Potash	Guarantee ..	..	50.0	..
<i>Muriate of Potash.</i>					
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	A.C.F. Muriate of Potash	Guarantee ..	..	..	50.0
		Found (average) ..	2	..	49.9
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville	ditto .. ..	Guarantee ..	..	..	50.0
Dalgety and Co., Ltd., Elizabeth street, Brisbane	"Stork" Brand Muriate of Potash	Guarantee ..	..	..	50.0
Denhams Ltd., Roma street, Brisbane	Muriate of Potash ..	Guarantee ..	..	..	50.0
Fertiliser Distributers, Ltd., E. S. and A. Bank Chambers, Roma street, Brisbane	ditto .. ..	Guarantee ..	..	..	52.0



Table XIV.

## FERTILISERS THE PRODUCT OF BONE MILLS, MEAT WORKS, AND BACON FACTORIES.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	Name of Fertiliser.	Guaranteed by Producer or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	NITROGEN AS		PHOSPHORIC ACID.		FINENESS.		
				Blood, Bone, Offal, and	%	From Bone.	%	Fine Material.	Coarse Material.	Unspecifed Material.
					%		%	%	%	%
<i>Dried Blood.</i>										
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane ..	Dried Blood ..	Guarantee ..	..	12.0	..	..	..	76	21	3
Queensland Meat Export Co., Ltd., Mary street, Brisbane ..	Q.M.E. Meatworks Dried Blood (Eagle Farm)	Guarantee ..	..	11.8	..	..	..	31	49	20
Ditto ..	Q.M.E. Meatworks Dried Blood (Ross River)	Found ..	1	11.8	..	..	..	31	49	20
Ditto ..	ditto ..	Guarantee ..	..	12.8	..	..	..	71	27	2
Swift Australian Co., Ltd., 181 Eagle street, Brisbane ..	ditto ..	Found ..	1	12.8	..	..	..	64	34	2
Swift Australian Co., Ltd., Townsville ..	Dried Blood ..	Guarantee ..	..	12.8	..	..	..	59	32	9
	ditto ..	Found ..	1	12.8	..	..	..	59	32	9
				12.0	..	..	..	70	20	10
				12.6	..	..	..	76	23	1
				12.0	..	..	..	55	35	10
<i>Bone Dust.</i>										
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane ..	Normanby Bone Dust ..	Guarantee ..	..	3.6	..	23.0	..	60	40	..
Ditto ..	Runcorn Bone Dust ..	Found (average) ..	2	4.0	..	22.4	..	60	39	1
Ditto ..	Shirley's Bone Dust ..	Guarantee ..	..	3.6	..	23.0	..	60	40	..
Denhams Ltd., Roma street, Brisbane ..	Bone Flour ..	Found (average) ..	2	3.8	..	24.0	..	53	45	2
Fertiliser Distributors, Ltd., E. S. and A. Bank Chambers, Roma street, Brisbane ..	F.D.L. Brand Vitalized Bone Meal	Guarantee ..	..	3.5	..	23.5	..	70	30	..
Swift Australian Co., Ltd., 181 Eagle street, Brisbane ..	Bone Meal ..	Found (average) ..	..	1.0	..	30.0	..	85	15	..
Swift Australian Co., Ltd., Townsville ..	ditto ..	Guarantee ..	..	3.0	..	22.0	..	70	30	..
				2.4	..	20.5	..	70	27	3
				3.0	..	24.0	..	35	65	..
				3.0	..	24.0	..	35	65	..



*Blood, Bone, Flesh, and Offal.*

A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane ..	Blood and Bone (Darling Downs Co-op.) ..	Guarantee ..	Found (average)	..	..	5.0	14.0	65	22	13
Ditto .. .. .	(Redbank Meatworks Pty., Ltd.) ..	Guarantee ..	Found (average)	..	..	5.3	15.4	64	32	4
Thos. Borthwick and Sons (Aust.), Ltd., Wharf street, Brisbane ..	Brooklyn Fertilizer ..	Guarantee ..	Found (average)	..	..	6.4	14.4	76	23	1
Ditto .. .. .	Moreton Fertilizer No. 10 ..	Guarantee ..	Found (average)	..	..	6.4	14.4	76	23	1
Queensland Co-operative Bacon Association, Ltd., Murarie ..	Atlas Brand Fertiliser ..	Guarantee ..	Found (average)	..	..	6.6	12.1	71	24	..
Queensland Meat Export Co., Ltd., Mary street, Brisbane ..	Q.M.E. Meatworks Fertilizer Plain Unmilled (Eagle Farm) ..	Guarantee ..	Found (average)	..	..	6.6	12.2	65	30	5
Ditto .. .. .	Q.M.E. Meatworks Fertilizer Plain Milled (Eagle Farm) ..	Guarantee ..	Found (average)	..	..	5.0	17.5	85	14	..
Ditto .. .. .	Q.M.E. Meatworks Fertilizer Mixed Milled (Eagle Farm) ..	Guarantee ..	Found (average)	..	..	5.1	17.5	85	14	1
Ditto .. .. .	Q.M.E. Meatworks Fertilizer Plain Milled (Ross River) ..	Guarantee ..	Found (average)	..	..	6.5	12.2	84	14	2
Swift Australian Co., Ltd., 181 Eagle street, Brisbane ..	Meatworks Fertiliser ..	Guarantee ..	Found (average)	..	..	5.6	16.4	35	31	34
Swift Australian Co., Ltd., Townsville ..	ditto ..	Guarantee ..	Found (average)	..	..	5.6	16.4	35	31	34
		Guarantee ..	Found (average)	..	..	5.0	18.2	48	37	15
		Guarantee ..	Found (average)	..	..	6.7	13.0	44	42	14
		Guarantee ..	Found (average)	..	..	5.6	18.1	74	23	3
		Guarantee ..	Found (average)	..	..	5.6	18.1	74	23	3
		Guarantee ..	Found (average)	..	..	6.0	16.1	72	27	1
		Guarantee ..	Found (average)	..	..	6.0	15.5	76	23	1
		Guarantee ..	Found (average)	..	..	5.0	15.0	55	45	..



Table XV.  
MIXED FERTILISERS (MECHANICAL MIXTURES).

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	Name of Fertiliser.	Guaranteed by Producer or found on Analysis by Agricultural Chemist.	Number of Samples Analysed.	NITROGEN AS—		PHOSPHORIC ACID.				POTASH AS—		FINENESS.		
				Ammonium Sulphate.	Blood, Bone, and Fish Offal.	Water Soluble.	Citrate Soluble.	From Bone.	From Rock Phosphate.	Potassium Sulphate.	Potassium Chloride.	Fine Material.	Coarse Material.	Unspecified Material.
A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane	A.C.F. No. 1	Guarantee	..	2.0	3.0	..	..	13.0	..	8.0	..	60	40	..
	Ditto	Found (average)	..	2.8	2.7	..	..	14.0	..	9.1	..	76	22	..
	A.C.F. No. 3	Guarantee	..	3.5	1.5	4.0	..	10.0	..	..	7.0	60	40	..
	Ditto	Found (average)	..	3.6	1.9	3.4	..	11.0	..	..	8.0	75	21	..
	A.C.F. B3	Guarantee	..	5.5	1.5	4.0	..	6.0	..	..	10.5	60	40	..
	Ditto	Found (average)	..	5.4	1.6	2.8	..	8.1	..	..	12.1	71	25	..
	A.C.F. No. 4	Guarantee	..	2.0	2.0	2.0	..	9.0	..	12.0	..	60	40	..
	Ditto	Found (average)	..	2.2	2.4	1.8	..	11.9	..	11.8	..	73	25	..
	A.C.F. No. 5	Guarantee	..	2.0	1.5	5.0	..	7.0	..	..	12.0	60	40	..
	Ditto	Found (average)	..	2.3	1.8	3.8	..	9.5	..	..	12.1	72	23	..
	A.C.F. Three 6	Guarantee	..	3.75	1.25	5.0	..	7.0	..	4.0	3.0	60	40	..
	Ditto	Found (average)	..	3.8	1.9	5.0	..	8.6	..	3.5	4.4	75	23	..
	A.C.F. No. 8	Guarantee	..	..	2.0	5.0	..	12.0	..	9.0	..	60	40	..
	Ditto	Found (average)	..	..	2.2	5.9	..	12.3	..	9.7	..	71	27	..
	A.C.F. Threights 888	Guarantee	..	8.0	..	8.0	..	..	..	8.0	..	..	..	..
	A.C.F. Trinine 999	Guarantee	..	7.6	1.4	..	..	9.0	..	9.0	..	60	40	..
	A.C.F. No. 12 (Muriate)	Guarantee	..	4.0	1.5	..	..	8.0	..	..	18.0	60	40	..
	Ditto	Found	..	4.0	2.4	..	..	7.4	..	..	19.3	69	30	..
	A.C.F. Badgen Fertilizer	Guarantee	..	2.0	2.5	3.0	..	9.5	..	12.0	..	60	40	..
	A.C.F. Bone and Super	Guarantee	..	..	1.7	11.0	..	10.0	..	..	..	60	40	..
A.C.F. and Shirley's Fertilizers, Ltd., Causeway, Townsville	Ditto	Found (average)	..	..	2.1	8.0	..	14.6	..	..	..	65	29	..
	A.C.F. Planting Mixture	Guarantee	..	2.5	1.0	14.0	..	3.0	..	..	7.5	60	40	..
	A.C.F. Kwikgro	Guarantee	..	3.0	1.5	..	..	14.0	..	7.0	..	90	10	..
	Shirley's Fertilizer No. 5	Guarantee	..	..	..	12.0	..	..	..	7.0	..	..	..	..
	Ditto	Found (average)	15	3.0	..	12.1	..	..	..	7.0	..	..	..	..
	Shirley's Fertilizer Q 5 Mixture	Guarantee	..	4.0	..	12.0	..	..	..	10.0	..	..	..	..
	Ditto	Found	..	4.0	..	12.6	..	..	..	9.5	..	..	..	..
	Shirley's Fertilizer No. 8	Guarantee	..	4.1	..	16.4	..	..	..	..	..	..	..	..
	Shirley's Fertilizer No. 11	Guarantee	..	..	..	15.5	..	..	..	4.0	..	..	..	..
	Shirley's Bana Fertilizer	Guarantee	..	4.0	..	5.0	5.0	..	..	13.0	..	..	..	..
	Ditto	Found (average)	3	3.7	..	4.7	5.2	..	..	12.2	..	..	..	..
	Shirley's Howe's Mixture	Guarantee	..	9.0	..	..	6.0	..	..	11.0	..	..	..	..
	Shirley's Howe's Mixture (Meatworks Base)	Guarantee	..	6.5	2.5	..	..	7.0	..	11.0	..	71	26	..
	Shirley's Tropic Fertilizer	Guarantee	..	1.75	3.25	..	..	..	..	10.0	..	75	25	..
	Ditto	Found (average)	..	1.9	3.4	..	..	12.0	..	11.5	..	81	16	..
	A.C.F. B3 Extra	Guarantee	..	6.0	1.0	3.0	..	12.0	..	10.0	..	80	20	..
	Ditto	Found (average)	6	6.2	1.1	2.9	..	3.4	3.6	10.6	..	89	9	..
	A.C.F. B3 Muriate	Guarantee	..	6.0	1.0	3.0	..	3.4	3.6	..	10.0	80	20	..
	A.C.F. B3 Northern	Guarantee	..	6.0	1.0	4.5	..	2.0	2.0	..	12.5	80	20	..
	A.C.F. Trinine 999	Guarantee	..	7.4	1.6	..	..	9.0	..	..	9.0	80	20	..
	A.C.F. Bone and Super	Guarantee	..	..	1.7	11.0	..	10.0	..	..	..	60	40	..
	Ditto	Found	..	..	1.7	7.0	..	16.3	..	..	..	68	25	..
	A.C.F. Howe's Mixture	Guarantee	..	6.5	2.5	..	..	7.0	..	11.0	..	80	20	..
	Ditto	Found	..	6.2	2.4	..	..	7.8	..	12.1	..	86	12	..
	A.C.F. Howe's Mixture (with Muriate of Potash)	Guarantee	..	6.5	2.5	..	..	7.0	..	..	11.0	80	20	..



[illegible]

## SYNTHETIC FERTILISERS.

Registered by the Undermentioned as Producers within the Meaning of the Regulations.	Name of Fertiliser.	Producers' Guarantee.	—
Abel, Lemon, and Co. Pty., Ltd., Market street, Brisbane ..	Diammonphos (Floraphos) ..	Nitrogen .. .. Phosphoric Acid, Water Soluble .. .. Nitrogen as Urea .. ..	20.0 per cent. 52.0 per cent. 46.0 per cent.
Ditto .. ..	Floranid .. ..	Nitrogen .. .. Phosphoric Acid .. .. Potash .. ..	16.5 per cent. 16.5 per cent. 21.5 per cent.
Ditto .. ..	Nitrophoska .. ..	Nitrogen .. .. Phosphoric Acid .. .. Potash .. ..	16.5 per cent. 16.5 per cent. 21.5 per cent.



Table XVI.

## PEST DESTROYERS, 1930.

## REGISTERED UNDER SECTION 3 OF THE PEST DESTROYERS ACT.

Name of Pest Destroyer and Standards Prescribed for some of the Principal Kinds.	Sold under the Name of—	Active Constituents as Declared on Label.	Found on Analysis by the Agricultural Chemist.	Queensland Wholesale Dealer.
<p><b>Arsenate of lead</b></p> <p><i>Standard.</i>—Arsenate of lead shall contain not less than 28 per cent. of arsenic pentoxide (<math>\text{As}_2\text{O}_5</math>) combined with lead, and not more than one-half of 1 per cent. (0.5 per cent.) of water soluble arsenic compounds calculated as arsenic pentoxide; both calculated on a dry basis. Arsenate of lead shall not contain more than 50 per cent. of moisture. When mixed with water the compound shall keep well in suspension. The rate of settling may be fixed.</p>	A.C.F. arsenate of lead (powder)	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	31.3 0.3	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
	Arsenate of lead powder	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	32.0 Nil	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
	Arsenate of lead (powdered)	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	31.4 0.2	Petersen Bros. and Craig, Ltd., George street, Brisbane
	Berger's "Mercury" brand arsenate of lead (powder)	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	31.3 0.4	Neptune Oil Co., Ltd., Edward street, Brisbane
	Bickford's "Aero" brand arsenate of lead (powder)	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	31.4 0.4	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
	Cooper's "Arsinette"	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	30.9 0.2	Queensland Fruitgrowers' Society, Ltd., Shore street, Cleveland
	"Orchard" brand arsenate of lead (powder)	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	31.3 0.3	Buzacotts (Q'land), Ltd., Adelaide street, Brisbane
	"Vallo" brand arsenate of lead (powder)	Arsenic pentoxide $\text{As}_2\text{O}_5$ .. Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide	31.7 0.2	A. Victor Leggo and Co., 72 Albert street, Brisbane
	Berger's "Mercury" brand arsenate of lead (paste)	Arsenic pentoxide $\text{As}_2\text{O}_5$ (dry basis) Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide (dry basis)	32.5 1.3	Neptune Oil Co., Ltd., Edward street, Brisbane
	"Vallo" brand arsenate of lead (paste)	Arsenic pentoxide $\text{As}_2\text{O}_5$ (dry basis) Not more than $\frac{1}{2}$ per cent. of water soluble arsenic pentoxide (dry basis)	32.1 0.4	A. Victor Leggo and Co., 72 Albert street, Brisbane
<p><b>Arsenic pure</b></p> <p><i>Standard.</i>—Pure arsenic shall not contain less than 98 per cent. arsenic trioxide.</p>	Arsenic (grey)	Arsenic trioxide ..	97.4	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
	Arsenic (grey)	Arsenic ..	89.5	S. Hoffnung and Co., Ltd., Charlotte street, Brisbane
	Arsenic (white)	Arsenious oxide ..	99.7	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
	Refined arsenic	White arsenic ..	98.8	G. Horsburgh and Co., Ltd., Maryborough
	Street's pure arsenic	Arsenic ..	99.7	Wm. Street and Son, Ann street, Brisbane
	"Vallo" brand white arsenic	Arsenic $\text{As}_2\text{O}_3$ ..	99.7	A. Victor Leggo and Co., 72 Albert street, Brisbane
	White arsenic	Arsenic trioxide ..	98.7	C. H. Slade and Co., Mary street, Brisbane
	White arsenic	$\text{As}_2\text{O}_3$ ..	98.7	Williams Ltd., East street, Rockhampton
	Arsenic (grey)	Arsenious oxide ..	99.2	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
	Imperial arsenic	Arsenic $\text{As}_2\text{O}_3$ ..	97.5	A. Victor Leggo and Co., 72 Albert street, Brisbane
<p><b>Arsenic commercial</b></p> <p><i>Standard.</i>—Commercial arsenic shall not contain less than 88 per cent. of arsenic trioxide, and the actual percentage of arsenic trioxide must be shown on the label.</p>	Victory arsenic	Arsenic $\text{As}_2\text{O}_3$ ..	98.8	ditto















Table XVI.—continued.

PEST DESTROYERS, 1930—continued.

REGISTERED UNDER SECTION 3 OF THE PEST DESTROYERS ACT—continued.

Name of Pest Destroyer and Standards Prescribed for some of the Principal Kinds.	Sold Under the Name of—	Active Constituents as Declared on Label.	Found on Analysis by the Agricultural Chemist.	Queensland Wholesale Dealer.
<b>Lime burnt</b> <i>Standard.</i> —Lime shall contain not less than 85 per cent. uncombined calcium oxide (CaO) and not more than 5 per cent. of calcium carbonate (CaCO <sub>3</sub> ), and not more than 2 per cent. of magnesium compounds, calculated as magnesium oxide (MgO). It shall be "fat" lime and readily slake with water.	Burnt lime	Calcium oxide	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
<b>Lime sulphur</b> <i>Standard.</i> —Lime sulphur shall be wholly soluble in water and shall contain in solution at least 20 per cent. of sulphur free, or combined, or both.	A.C.F. lime sulphur solution	Sulphur	28 % sulphur ..	A. C. F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
<b>Nicotine and nicotine compounds.</b> <i>Standard.</i> —Nicotine and nicotine compounds shall contain not less than 20 per cent. of nicotine (C <sub>10</sub> H <sub>14</sub> N <sub>2</sub> ), free and (or) combined.	Harola pure lime sulphur spraying solution Neptune lime sulphur spraying solution "Vallo" Giraffe brand lime sulphur wash Black leaf 40 Black leaf 40 "Vallo" brand nicotine sulphate "Vallo" brand nicotine sulphate	Sulphur Sulphur Sulphur Sulphur Nicotine Nicotine Nicotine Nicotine	24.5 % sulphur .. 23.2 % sulphur .. 24.2 % sulphur .. 48.2 % nicotine .. 45.4 % nicotine .. 48 % nicotine .. 44.3 % nicotine ..	Buzacotts (Q'land), Ltd., Adelaide street, Brisbane Neptune Oil Co., Ltd., Edward street, Brisbane A. Victor Leggo and Co., 72 Albert street, Brisbane Neptune Oil Co., Ltd., Edward street, Brisbane Orchard Supply Agency, Stanthorpe Buzacotts (Q'land), Ltd., Adelaide street, Brisbane A. Victor Leggo and Co., 72 Albert street, Brisbane A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
<b>Paris Green</b> <i>Standard.</i> —Paris green shall contain not less than 55 per cent. arsenic trioxide (As <sub>2</sub> O <sub>3</sub> ), and not more arsenic in water soluble form than is equivalent to 3½ per cent. Arsenic trioxide (As <sub>2</sub> O <sub>3</sub> ).	Paris green Paris green Paris green	Arsenic trioxide As <sub>2</sub> O <sub>3</sub> Arsenic trioxide As <sub>2</sub> O <sub>3</sub> Arsenic trioxide As <sub>2</sub> O <sub>3</sub>	59.5 % arsenic trioxide As <sub>2</sub> O <sub>3</sub> .. 56.2 % arsenic trioxide As <sub>2</sub> O <sub>3</sub> .. 55.6 % arsenic trioxide As <sub>2</sub> O <sub>3</sub> ..	A. Victor Leggo and Co., 72 Albert street, Brisbane Buzacotts (Q'land) Ltd., Adelaide street, Brisbane Taylors and Elliotts, Ltd., 154 Charlotte street, Brisbane
<b>Petroleum emulsion and (or) kerosene emulsion</b> <i>Standard.</i> —A substance capable of making an emulsion with distilled water, and containing petroleum and (or) kerosene. It shall contain not less than 25 per cent. of petroleum and (or) kerosene.	Bickford's aphideol Irving's prepared soluble kerosene emulsion "Vallo" brand benzol emulsion	Paraffin Kerosene Benzol	34 % paraffin 63 % mineral oil (by vol.) .. 20.7 % benzol ..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane John Irving and Sons, London Works, Mayne A. Victor Leggo and Co., 72 Albert street, Brisbane
<b>Spraying oil</b> <i>Standard.</i> —Red oil preparations shall contain not less than 75 per cent. of heavy mineral oil, and shall be so prepared that it shall readily mix with distilled water and form a milky solution without separation of any of the oil.	Red and (or) Coloured Oils. Gargoyle spraying oil .. Gargoyle special spraying oil .. Harbas red oil .. Neptune prepared spraying oil "A" Neptune prepared spraying oil "C"	Mineral oil .. Mineral oil .. Miscible oil .. Heavy mineral oil .. Mineral oil .. Carbolic acid..	89.3 % mineral oil .. 90.9 % mineral oil .. 74.6 % total mineral oil .. 85.5 % total mineral oil .. 89.6 % mineral oil .. 7.6 % carbolic acid ..	Vacuum Oil Co. Pty., Ltd., Parbury House, Eagle street, Brisbane ditto Buzacotts (Q'land), Ltd., Adelaide street, Brisbane Neptune Oil Co., Ltd., Edward street, Brisbane ditto



In the case of spraying oils other than above, the active constituents of the preparation and the percentage of such active constituents present in the preparation shall be stated on the label.

Phosphorus pest destroyers

"Shell" prepared red spraying oil	Mineral oil	..	..	85	%	84.5	% total mineral oil	The Shell Co. of Australia, Ltd., Mary street, Brisbane
"Vallo" brand red spraying oil	Heavy mineral oil	..	..	85	%	85	% total mineral oil	A. Victor Leggo and Co., 72 Albert street, Brisbane
"Vallo" prepared white oil	White oil	..	..	89	%	95.1	% mineral oil	ditto
Albarol	Petroleum oil	..	..	83	%	81.1	% total mineral oil	Buzacotts (Q'land), Ltd., Adelaide street, Brisbane
Cooper's alboleum	Hydrocarbon oil	..	..	80	%	79.7	% hydrocarbon oils	Queensland Fruitgrowers' Society Ltd., Shore street, Cleveland
Neptune prepared white spraying oil	Petroleum oil	..	..	88	%	82.1	% total mineral oil	Neptune Oil Co., Ltd., Edward street, Brisbane
Volck	Petroleum oil	..	..	80	%	86	% petroleum oil	Australian Fruit and Produce Co., Turbot street, Brisbane
Ausoline cockroach destroyer	Phosphorus	..	..	0.4	%	.5	% phosphorus	W. Lowe, Federation street, Bowen Bridge, Brisbane
Ausoline rat and mice exterminator	Phosphorus	..	..	0.4	%	1.1	% phosphorus	ditto
Phosphorus paste	Arsenic	..	..	0.3	%	4.4	% arsenic	Wm. Street and Son, Ann street, Brisbane
Rat doom	Phosphorus	..	..	1.3	%	..	..	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
S.A.P.	Phosphorus	..	..	1.3	%	..	..	New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane
Buzacott's powdered weedkiller	Arsenic As <sub>2</sub> O <sub>3</sub>	..	..	75	%	75.1	% arsenic As <sub>2</sub> O <sub>3</sub>	Buzacotts (Q'land), Ltd., Adelaide street, Brisbane
Cooper's weedicide and vermin destroyer	Arsenic As <sub>2</sub> O <sub>3</sub>	..	..	36	%	44.4	% arsenic As <sub>2</sub> O <sub>3</sub>	New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane
Eradiweed	Arsenic As <sub>2</sub> O <sub>3</sub>	..	..	30.5	%	31.5	% arsenic As <sub>2</sub> O <sub>3</sub>	G. Horsburgh and Co., Ltd., Maryborough
Street's cure for weeds, prickly-pear, trees, sida retusa, &c.	Arsenic As <sub>2</sub> O <sub>3</sub>	..	..	10	%	9	% arsenic As <sub>2</sub> O <sub>3</sub>	Wm. Street and Son, Ann street, Brisbane
"Vallo" brand weed, scrub, and tree killer	Arsenic As <sub>2</sub> O <sub>3</sub>	..	..	80	%	82.1	% arsenic As <sub>2</sub> O <sub>3</sub>	A. Victor Leggo and Co., 72 Albert street, Brisbane

Sheep dips (arsenical)

Standard.—Sheep dip when diluted with water in accordance with the instructions on the label for the purpose of dipping sheep shall not contain less than two-tenths of 1 per cent., and not more than one-quarter of 1 per cent. of arsenious trioxide (As<sub>2</sub>O<sub>3</sub>).  
Sheep dip when diluted with water in accordance with the instructions on the label for the purpose of jettling sheep shall not contain less than seven-tenths of 1 per cent. and not more than three-quarters of 1 per cent. of arsenious trioxide (As<sub>2</sub>O<sub>3</sub>).  
A liquid sheep dip shall be of such consistency that it will not separate into layers on standing, but shall remain a homogeneous mixture.  
Sheep dips shall not contain free caustic soda.

Powder.

Cooper's sheep dipping powder	Arsenic and sulphur compounds (10 lb. $\frac{1}{2}$ oz. concentrate to 100 gals. water)	..	..	..	..	When diluted in accordance with instructions on label, gave a fluid of standard strength	New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane
Edward's sheep dipping powder	Arsenic (10 lb. concentrate to 100 gals. water)	..	..	..	..	ditto	Goldsbrough, Mort, and Co., Ltd., Eagle street, Brisbane
Little's powder dip	Arsenic and sulphur (10 lb. concentrate to 100 gals. water)	..	..	..	..	ditto	Wilcox Moffin, Ltd., Longland street, Brisbane
Quibell's powder sheep dip	Arsenic (11 lb. 4 oz. concentrate to 100 gals. water)	..	..	..	..	ditto	Dalgaty and Co., Ltd., Elizabeth street, Brisbane
"Sickle" brand powder sheep dip	Arsenic (10 lb. concentrate to 100 gals. water)	..	..	..	..	ditto	A.C.F. and Shirley's Fertilizers Ltd., Little Roma street, Brisbane
"Vallo" powder sheep dip	Arsenic (10 lb. concentrate to 100 gals. water)	..	..	..	..	ditto	A. Victor Leggo and Co., 72 Albert street, Brisbane



**Table XVI.—continued.**  
**PEST DESTROYERS, 1930—continued.**  
**REGISTERED UNDER SECTION 3 OF THE PEST DESTROYERS ACT—continued.**

Name of Pest Destroyer and Standards Prescribed for some of the Principal Kinds.	Sold under the Name of—	Active Constituents as Declared on Label.	Found on Analysis by the Agricultural Chemist.	Queensland Wholesale Dealer.
Sheep dips (arsenical)— <i>continued.</i>	<i>Paste.</i>			
	Crutchelene (paste) ..	Arsenic (10 lb. concentrate to 100 gals. water) ..	When diluted in accordance with instructions on label, gave a fluid of standard strength	Goldsbrough, Mort, and Co., Ltd., Eagle street, Brisbane
	Lan-O-Leen ..	Arsenic (1 gal. concentrate to 250 gals. water) ..	ditto ..	Buzacotts (Q'land), Ltd., Adelaide street, Brisbane
	Vacdip ..	Arsenic and phenol (10 lb. concentrate to 75 gals. water) ..	ditto ..	Vacuum Oil Co. Pty., Ltd., Parbury House, Eagle street, Brisbane
	Kiltic sheep dip (bar form) ..	Arsenic (9 bars concentrate to 400 gals. (water)) ..	ditto ..	Surgical Supplies, Ltd., 246 Queen street, Brisbane
Sheep dips (phenolic)	<i>Liquid.</i>			
	Cubba sheep dip blowfly specific ..	Arsenic (1 part concentrate to 38 parts water) ..	ditto ..	Gibbs, Bright, and Co., Australasia Chambers, Queen street, Brisbane
	Cooper's milk oil fluid ..	Phenols and cresols ..	20.5 % tar acids	New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane
	Hibiscus phenolic sheep dip ..	Tar acid ..	22.5 % tar acids	The Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane
	Little's improved fluid dip ..	Tar acids ..	20.8 % cresols	Wilcox, Mofflin, Ltd., Longland street, Brisbane
	Morrison's phenolic sheep dip ..	Tar acids ..	18.9 % cresols	Henry Deakin, Ryan House, Charlotte street, Brisbane
	Quibell's liquid sheep dip ..	Tar acids ..	21.5 % tar acids	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
	Quibell's liquid sheep dip ..	Tar acids ..	20.6 % cresols	Dalgaty and Co., Ltd., Elizabeth street, Brisbane
	Royal sheep dip liquid (improved) ..	Cresols ..	19.3 % cresols	Australian Machinery Co., Ltd., Adelaide street, Brisbane
	"Vallo" brand fluid sheep dip ..	Tar acids ..	14.8 % tar acids	A. Victor Leggo and Co., 72 Albert street, Brisbane
Sheep preparations ..	Cooper's (improved) worm tablets ..	Each tablet contains 0.4 grains soluble arsenic and 1.8 grains soluble copper	0.33 grains total arsenic 1.60 grains total copper sulphate	New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane
	Cooper's worm drench ..	As <sub>2</sub> O <sub>3</sub> per 2-oz. dose 2.04 grains Cu per 2-oz. dose 1.08 grains	1.94 grains As <sub>2</sub> O <sub>3</sub> .. 1.09 grains Cu ..	ditto
	Deignan's blowfly destroyer ..	Tar acids ..	9 %	E. J. Deignan, Stafford road, Kedron, Brisbane
	Eucacene fly oil ..	Eucalyptus oil ..	10 %	R. B. Lawson and Co., Stanthorpe
	Flynnox ..	Eucalyptus residual oil ..	40 %	
		Mineral oil ..	50 %	
		Phenolic compounds ..	7 %	
	Kleenflox ..	Mineral oil ..	47 %	Dalgaty and Co., Ltd., Elizabeth street, Brisbane
	"Knoblo" brand blowfly oil ..	Eucalypti oleum ..	4 %	Taubmans (Q'land), Ltd., 95 Edward street, Brisbane
	Morrison's fly-blown sheep oil ..	½ lb. of arsenic per gal. Phenol and copper .. Tar acid ..	45 lb. arsenic per gal. .. 5.1 % phenol (copper present) .. 7.3 % tar acids ..	Moreheads Ltd., Mary street, Brisbane Henry Deakin, Ryan House, Charlotte street, Brisbane

*Standard.*—The active constituents of the preparation and the percentage of such active constituents present in the preparation shall be stated on the label.

*Standard.*—The active constituents of the preparation and the percentage of such active constituents present in the preparation shall be stated on the label.



Nightingale Brand Blo-Flu-Di	Napthalene ..	8	..	..	Nightingale Supply Co., Ltd., 162 Elizabeth street, Brisbane
Sayer's remedy for fluke and stomach worms	Cresols ..	9	..	..	Norman S. Pixley, Ryan House, Eagle street, Brisbane
Shear-to-Shear arsenical lamb	Carbon tetrachloride ..	20	..	..	Goldsbrough, Mort, and Co., Ltd., Eagle street, Brisbane
Marking and blowfly oil	As <sub>2</sub> O <sub>3</sub> ..	1	..	..	The Shell Co. of Australia, Ltd., Mary street, Brisbane
Shell Defiance blowfly oil	Phenols ..	3	..	..	Neptune Oil Co., Ltd., Edward street, Brisbane
Squatter blowfly sheep oil	Carbolic acid ..	3	..	..	Norris Agencies, Ltd., Ann street, Brisbane
Cidol cockroach powder	Sodium fluoride ..	43	..	..	Chemical and Tar Products, Ltd., Ann street, Brisbane
"Corpo" cockroach powder	Sodium fluoride ..	83	..	..	H. T. Howard, Alexandra street, Booval
Extirpo ..	Sodium fluoride ..	60	..	..	Husol Manufacturing Co., Stanley street, South Brisbane
Husolite ..	Pyrethri flores ..	20	..	..	Queensland Chem. and Dist. Co., 93 Margaret street, Brisbane
Kil-O-Roach ..	Sodium fluoride ..	50	..	..	Poultry Farmers' Co-operative Society, Ltd., Roma street, Brisbane
"Red Comb" dusting powder	Sodium fluoride ..	65	..	..	Thomas Brown and Sons, Ltd., Eagle street, Brisbane
Pure strychnine (Jacob Hulle)	Sodium fluoride ..	10	..	..	Burns, Philp, and Co., Ltd., Mary street, Brisbane
Pure strychnine (Jacob Hulle)	Pure strychnine ..	..	..	..	Denhams Ltd., Roma street, Brisbane
Pure strychnine (Jacob Hulle)	Pure strychnine ..	..	..	..	S. Hoffnung and Co., Ltd., Charlotte street, Brisbane
Pure strychnine (Jacob Hulle)	Pure strychnine ..	..	..	..	A. Victor Leggo and Co., 72 Albert street, Brisbane
Pure strychnine (Jacob Hulle)	Pure strychnine ..	..	..	..	New Zealand Loan and Mercantile Agency Co., Ltd., Eagle street, Brisbane
Pure strychnine (Jacob Hulle)	Pure strychnine ..	..	..	..	Walter Reid and Co., Ltd., Rockhampton
Soluble strychnine (Jacob Hulle)	Pure strychnine ..	..	..	..	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
"Wellcome" strychnine	Pure strychnine ..	98.9	..	..	Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane
Flowers of sulphur	Sulphur ..	98	..	..	Denhams Ltd., Roma street, Brisbane
Sublimed flowers of sulphur	Sulphur ..	100	..	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Sublimed sulphur	Sulphur ..	..	..	..	Neptune Oil Co., Ltd., Edward street, Brisbane
Sulphur sub.	Sulphur ..	..	..	..	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
Australian powdered sulphur	Sulphur ..	99.8	..	..	Burns, Philp, and Co., Ltd., Mary street, Brisbane
Australian sulphur (Mount Lyell)	Sulphur ..	99.3	..	..	Neptune Oil Co., Ltd., Edward street, Brisbane
Sicilian powdered sulphur	Sulphur ..	99.9	..	..	A.C.F. and Shirley's Fertilizers, Ltd., Little Roma street, Brisbane
Sicilian sulphur	Sulphur ..	99.1	..	..	Neptune Oil Co., Ltd., Edward street, Brisbane
Sulphur	Sulphur ..	98	..	..	A.C.F. and Shirley's Fertilizer, Ltd., Little Roma street, Brisbane
Sulphur	Sulphur ..	99.5	..	..	ditto

Strychnine

Standard.—Strychnine sold as pest destroyer must be artificially coloured in accordance with the Poisons Regulations.

Sulphur sublimed (flowers of sulphur)

Standard.—Sulphur shall contain not less than 98 per cent. of sulphur. Fineness estimated by means of a Chancel's sulphurimeter.

Sulphur (ground)

Standard.—Sulphur shall contain not less than 98 per cent. of sulphur. Fineness estimated by means of a Chancel's sulphurimeter.



able XVI.—continued.  
PEST DESTROYERS, 1930—continued.

REGISTERED UNDER SECTION 3 OF THE PEST DESTROYERS ACT—continued.

Name of Pest Destroyer and Standards Prescribed for some of the Principal Kinds.	Sold under the Name of—	Active Constituents as Declared on Label.	Found on Analysis by the Agricultural Chemist.	Queensland Wholesale Dealer.
<b>Sulphur (ground)—continued</b>				
.. ..	Sulphur .. ..	Sulphur .. ..	99.7 % sulphur .. ..	G. Horsburgh and Co., Ltd., Maryborough
.. ..	Sulphur .. ..	Sulphur .. ..	99.9 % sulphur .. ..	R. W. Thurlow and Co., Ltd., Wharf street, Brisbane
.. ..	“Vallo” brand powdered sulphur .. ..	Sulphur .. ..	99.8 % sulphur .. ..	A. Victor Leggo and Co., 72 Albert street, Brisbane
.. ..	Pest End (tobacco dust) .. ..	Nicotine .. ..	1 % nicotine .. ..	W. D. and H. O. Wills (Australia), Ltd., Ann street, Brisbane
<b>Tobacco dust, tobacco powder</b> <i>Standard.</i> —It shall not contain less than 1 per cent. of nicotine, and in the case of tobacco dust or powder containing less than 1 per cent. of nicotine the actual percentage shall be declared on the label.				
.. ..	Arzeen (in liquid form) .. ..	As <sub>2</sub> O <sub>3</sub> .. ..	47.2 % As <sub>2</sub> O <sub>3</sub> .. ..	A. Victor Leggo and Co., 72 Albert street, Brisbane
.. ..	Arzeen (in powder form) .. ..	As <sub>2</sub> O <sub>3</sub> .. ..	81.9 % As <sub>2</sub> O <sub>3</sub> .. ..	ditto
.. ..	Bickford’s ant and vermin destroyer .. ..	Arsenious oxide .. ..	32.1 % As <sub>2</sub> O <sub>3</sub> .. ..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
.. ..	Charles Redwood’s improved non-poisonous blight specific Chlorocide “A” .. ..	Sulphur .. ..	13.1 % sulphur .. ..	L. S. Redwood, Margaret street, Toowoomba
.. ..	Chlorocide “B” .. ..	Chlorocide .. ..	.. ..	A.C.F. and Shirley’s Fertilizers, Ltd., Little Roma street, Brisbane
.. ..	Cyanogas .. ..	Calcium cyanide .. ..	41 % calcium cyanide .. ..	ditto
.. ..	D. and S. tomato spray .. ..	Sulphur .. ..	.. ..	Buzacotts (Q’land), Ltd., Adelaide street, Brisbane
.. ..	.. ..	Potash .. ..	.. ..	Norman S. Pixley, Ryan House, Eagle street, Brisbane
.. ..	.. ..	Soda .. ..	.. ..	.. ..
.. ..	.. ..	Nitrogen .. ..	.. ..	.. ..
.. ..	.. ..	Calcium carbonate CaCO <sub>3</sub> .. ..	57.6 % calcium carbonate CaCO <sub>3</sub> .. ..	A.C.F. and Shirley’s Fertilizers, Ltd., Little Roma street, Brisbane
.. ..	.. ..	Ground derris .. ..	.. ..	Queensland Fruitgrowers’ Society, Ltd., Shore street, Cleveland
.. ..	Paradichlorobenzene .. ..	Paradichlorobenzene .. ..	.. ..	A.C.F. and Shirley’s Fertilizers, Ltd., Little Roma street, Brisbane
.. ..	Sodium chlorate .. ..	Sodium chlorate .. ..	91.5 % sodium chlorate .. ..	ditto
.. ..	Solomia .. ..	Fatty anhydride .. ..	.. ..	Buzacotts (Q’land), Ltd., Adelaide street, Brisbane
.. ..	.. ..	Combined alkali .. ..	.. ..	.. ..
.. ..	.. ..	Free fat .. ..	.. ..	.. ..
.. ..	.. ..	Phenols .. ..	.. ..	.. ..
.. ..	.. ..	Chlorine .. ..	.. ..	.. ..
.. ..	.. ..	Glycerine .. ..	.. ..	.. ..
.. ..	.. ..	Arsenic As <sub>2</sub> O <sub>3</sub> .. ..	.. ..	.. ..
.. ..	.. ..	Arsenic pentoxide As <sub>2</sub> O <sub>5</sub> .. ..	39.5 % arsenic pentoxide As <sub>2</sub> O <sub>5</sub> .. ..	Wm. Street and Son, Ann street, Brisbane
.. ..	.. ..	(Not more than 1 per cent. of water soluble arsenic pentoxide)	2.3 % water soluble arsenic pentoxide As <sub>2</sub> O <sub>5</sub> .. ..	A. Victor Leggo and Co., 72 Albert street, Brisbane
.. ..	.. ..	As <sub>2</sub> O <sub>3</sub> .. ..	61.6 % As <sub>2</sub> O <sub>3</sub> .. ..	ditto
.. ..	.. ..	Sulphur .. ..	43.8 % sulphur .. ..	ditto
.. ..	.. ..	Water .. ..	49.4 % water .. ..	ditto
.. ..	.. ..	Copper sulphate CuSO <sub>4</sub> ·5H <sub>2</sub> O .. ..	89.9 % copper sulphate CuSO <sub>4</sub> ·5H <sub>2</sub> O .. ..	ditto



Various phenolic preparations recommended for use on animals and plants  
*Standard.*—The active constituents of the preparation and the percentage of such active constituents present in the preparation shall be stated on the label.

Beacon phenol disinfectant fluid	Phenols	1	%	27.7	% phenol	Moylan and Chancellor, Creek street, Brisbane
Carbolacene	Phenols	..	%	..	..	ditto
C.N. Crown disinfectant	Phenol	..	%	..	..	Australian Disinfectant Co., CEY Buildings, Albert street, Brisbane
C.N. disinfectant	Cresols	..	%	..	..	Norris Agencies, Ltd., 639 Ann street, Valley
C.N. disinfectant	Cresols	..	%	..	..	ditto
Crownol disinfectant	Cresols	..	%	..	..	The Queensland Disinfectant Co., Rockhampton
"Ce Be" liquid weed killer	Phenols	..	%	32.2	% phenols	Campbell Bros., Ltd., Bowen Bridge, Brisbane
"Columbia" phenyle	Tar acid	..	%	..	..	A. M. Hertzberg and Co., Charlotte street, Brisbane
Cresolic phenol	Cresylic acid	..	%	..	..	Nightingale Supply Co., Ltd., 162 Elizabeth street, Brisbane
Hibiscus special disinfectant	Tar acids	..	%	..	..	Queensland Pastoral Supplies, Ltd., Bowen street, Brisbane
Hygienol spray	Cresylic acid	..	%	..	..	Nightingale Supply Co., Ltd., 162 Elizabeth street, Brisbane
Irving's effective vermin spray	Benzene di-chloride	..	%	..	..	John Irving and Sons, London
Irving's soluble phenyle	Phenols	..	%	..	..	Works, Mayne
Irving's soluble phenyle	Phenols	..	%	..	..	ditto
Kerol disinfectant	Tar acids	..	%	31.5	% cresols	Dalgety and Co., Ltd., Elizabeth street, Brisbane
Microl	Phenols	..	%	..	..	A. G. Bignold and Co., 169.171 Elizabeth street, Brisbane
Morrison's Mascot	Tar acid	..	%	20.3	% tar acids	Henry Deakin, Ryan House, Charlotte street, Brisbane
Morrison's soluble phenol	Tar acid	..	%	20.8	% tar acids	ditto
Phenolic Lotol	Phenolic compounds	..	%	..	..	L. A. Poole, Charlotte street, Brisbane
Safonia	Cresylic acid	..	%	5.6	% cresylic acid	Australian Disinfectant Co., CEY Buildings, Albert street, Brisbane
Sapocarb	Cresylic acid	..	%	..	..	Surgical Supplies, Ltd., 246 Queen street, Brisbane
Searchlight phenol disinfectant fluid	Phenols	..	%	..	..	Burns, Philp, and Co., Ltd., Mary street, Brisbane
Searchlight phenol disinfectant fluid	Phenols	..	%	..	..	Moylan and Chancellor, Creek street, Brisbane
Sidolia	Cresols	..	%	..	..	Norris Agencies, Ltd., Ann street, Brisbane
Soluble phenyle	Tar acids	..	%	..	..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
"Vetade" disinfectant	Phenoloids	..	%	..	..	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
Vetocide	Cresols and Phenols..	..	%	..	..	Chemical and Tar Products, Ltd., Ann street, Brisbane
Cocksec powder	Pyrethrum flowers	..	%	..	..	A. M. Hertzberg and Co., Charlotte street, Brisbane
Cocksec powder	Pyrethrum flowers	..	%	..	..	T. Kashiwagi, Wickham street, Brisbane
Fixo-pest	Pyrethrum flores	..	%	..	..	R. M. Gow and Co., Ltd., Turbot street, Brisbane
Insectibane	Pyrethrum powder	..	%	..	..	Nobles Ltd., Eagle street, Brisbane
Jap	Sodium bi-borate	..	%	..	..	ditto
Knock-em	Powdered pyrethrum	..	%	..	..	W. and A. Evans and Co., Laurel avenue, Graceville
	Pyrethrum cinerariae folium	..	%	..	..	

Pyrethrum powder (under whatever name sold)



Table XVI.—*continued.*  
 PEST DESTROYERS, 1930—*continued.*  
 REGISTERED UNDER SECTION 3 OF THE PEST DESTROYERS ACT—*continued.*

Name of Pest Destroyer and Standards Prescribed for some of the Principal Kinds.	Sold under the Name of—	Active Constituents as Declared on Label.	Found on Analysis by the Agricultural Chemist.	Queensland Wholesale Dealer.
Pyrethrum powder (under whatever name sold)— <i>continued.</i>	Mortein	Cinerariae folium oleo resin.. 6 %	..	A. G. Bignold and Co., 169-171 Elizabeth street, Brisbane
	Peacock insect powder	Pyrethrum powder .. ..	..	S. Hoffnung and Co., Ltd., Char- lotte street, Brisbane
	Queen insect powder .. ..	Pyrethrum powder .. 50 %	..	Taylor and Elliotts, Ltd., 154 Charlotte street, Brisbane
Pyrethri Flores extract (under whatever name sold)	Anti-fly liquid spray .. ..	Aether soluble resins of pyrethri flores 0.12 %	..	R. S. Heunert, Prospect terrace, Kelvin Grove, Brisbane
	Flit	Petroleum soluble resin of Pyrethri flores 0.37 %	..	Potter and Birks, Ltd., Charlotte street, Brisbane
	Fly-tox	Ether soluble resin of Pyrethri flores 0.12 %	..	Frazer and Best, Ltd., Adelaide street, Brisbane
	Mortein liquid spray .. ..	Ether soluble resin of Pyrethri flores 0.12 %	..	A. G. Bignold and Co., 169-171 Elizabeth street, Brisbane
	O'Quit fly spray	Ether soluble resin of Pyrethri flores 0.12 %	..	Haig and Johnson, Queen street, Brisbane
	Ping	Ether soluble resin of Pyrethri flores 0.09 %	..	Nightingale Supply Co., Ltd., 162 Elizabeth street, Brisbane
	Supreme fly spray	Aether soluble resin of Pyrethri flores 0.12 %	..	A. M. Bickford and Sons, Ltd., Tank street, Brisbane
	Vern-X.	Pyrethri flores resin.. 5.25 %	..	Nobles Ltd., Eagle street, Brisbane
	Whiz Fly Fume	Petroleum soluble resin of Pyrethri florum 0.82 %	..	Max Malone, care of Hubert Finney and Ure, Charlotte street, Bris- bane
	Woolworth's non-poisonous fly spray	Pyrethri flores resin.. 0.1 %	..	Woolworths Ltd., Queen street, Brisbane



## REPORT OF THE CHIEF INSPECTOR OF STOCK.

The following preliminary figures supplied by the Government Statistician show a decrease in horses and cattle, but an increase in sheep:—

Year.	Horses.	Cattle.	Sheep.
Actual—1st January, 1929 .. .. .	522,490	5,128,341	18,509,201
Preliminary—1st January, 1930 .. .. .	493,101	5,122,063	19,975,752
Decrease .. .. .	29,389	6,278	..
Increase .. .. .	..	..	1,466,551

From a pastoral point of view the State generally is in a much improved condition, although some districts are still in need of rain. The coastal areas have received an abundance of rain during the latter half of the year, grass and water being plentiful. Stock routes generally are open, and considerable numbers of stock are moving on the main routes, including those from the Northern Territory. From the latter 51,859 cattle and 1,557 horses have entered this State during the year.

The increase in sheep is satisfactory, showing a steady recovery from the recent drought.

It is considered that the prospects for the cattle industry are better than they have been for some years past, and the outlook for trade is much more promising. Reports are frequently heard concerning a general shortage in the world's markets; if such is the case, a permanent and satisfactory market should be found in the near future.

It is gratifying to note that there were only 69 outbreaks of pleuro-pneumonia reported, as compared with 129 the previous year. With large holdings and very many unfenced, it is impossible to deal with affected animals, but inoculation as carried out brings about immunity, although the so-called recovered animals are the main cause of the disease being present in many of our large herds.

*Blow-flies.*—There has not been a very great infestation by this pest during the past twelve months. Sporadic outbreaks have been reported from one or two districts, but as a general thing there has not been the widespread plague we have seen in former years. Now that this pest is low in its incidence, it behoves every sheep owner to destroy all the carcasses on his holding. One pair of flies to-day means in a few months millions of descendants. Kill these, and there will be no extensive plague.

*Internal Parasites.*—Stomach worms are still a continual source of trouble and will extend their ravages if proper steps are not taken against them. The Department advises on this matter.

*The Nodule Worm* (*Oesphagostomum Columbianum*) is prevalent in the districts favoured by winter rains, but information does not indicate that they are worse than usual.

*Buffalo Fly.*—So far the presence of the buffalo fly has not been noted in places other than reported last year. Various patrols have been made at different periods without evidence of any fresh centres of infestation. A conference was called this year by the Federal Government, at which representatives of the Commonwealth and State Government, Stockowners' Associations, and other interested stockowners were present. It was agreed that action was desirable on lines similar to those recommended by this Department two years ago—viz., to push the fly-infested area back into Northern Australia, and thus create a permanent buffer area. It was recognised that this would be an expensive course, but it was thought certain money might be made available for the purpose by the Commonwealth Government, but advice has been received since that such money is not available. It is inevitable that the pest must sooner or later spread throughout the coastal districts of this and the adjoining States, unless some practical action is taken. Entomological investigations are being made by the Council for Scientific and Industrial Research to find a natural enemy of the fly, but in the meantime there is grave risk of the pest extending.

Appendices A show particulars of work carried out at the Stock Experiment Station, Yeerongpilly; B, report of the Instructor in Sheep and Wool; C, report of the Deputy Registrar of Brands.

### PROSECUTIONS.

	Number of Prosecutions.	Number of Convictions.
Diseases in Stock Act .. .. .	80	77
Slaughtering Act .. .. .	57	67
Brands Act .. .. .	7	7

### ANALYTICAL EXAMINATIONS.

Ninety-six (96) samples of viscera and contents were submitted to the Agricultural Chemist for analyses, and in eighteen (18) cases poison was detected.

### HORSES EXPORTED OVERSEAS.

Six hundred and forty-nine (649).



TUBERCULIN TEST.

The test was applied to 609 animals, the number of positive reactions being 38.

In connection with pigs condemned for tuberculosis at bacon factories, dairy farms and piggeries were visited, when 1,145 pigs and 2,034 cows were examined. Diseased cows were destroyed after reacting to the tuberculin test.

DIPS.

The total number of registered cattle dips is 4,473, distributed throughout the State as follows:—

District.	Dips.	District.	Dips.
Barcaldine ..	4	Normanton ..	36
Bowen ..	226	Rockhampton ..	454
Brisbane ..	1,108	Roma ..	65
Cairns ..	207	Springsure ..	75
Clermont ..	133	Toowoomba ..	113
Cloncurry ..	47	Townsville ..	225
Cooktown ..	39	Warwick ..	36
Gladstone ..	326	Winton ..	4
Hughenden ..	34		
Longreach ..	2	Total ..	4,473
Maryborough ..	1,339		

DIPPING FLUIDS.

Three hundred and eleven samples of dipping fluids were analysed from dips in Southern and Central Queensland.

Of the above samples 102, or 32.0 per cent., contained between 7.5 and 8.5 lb. arsenious oxide, and 46, or .418 per cent., were oxidised.

HELIDON CLEANSING AREA.

The area is divided into six sections. Three thousand two hundred and sixteen holdings were visited, 145,182 stock examined, 418 holdings infested, and 42,456 stock dipped or sprayed.

In the Helidon section, cleansing operations have been carried on regularly, and the number of infected holdings is being gradually reduced.

In the North Helidon section, cleansing work has been carried on satisfactorily, and in this section also the number of infected holdings is being gradually reduced.

In the Ma Ma Creek-Grantham section, cleansing work is being carried on regularly, and in this section also is found a reduction of infected holdings.

In the East Haldon section, very satisfactory work is being done. This section is very mountainous, and difficult to work, but the number of infected holdings is being steadily reduced.

In the Hampton section, cleansing has been carried on regularly during the year, and the whole of this section is at present free from ticks.

In the Ravensbourne section, cleansing operations are being carried on regularly. This is also a very difficult section owing to the hilly nature of the country, but very good work is being done, and the section is being gradually cleaned up and the number of infected holdings reduced.

During the year in the declared clean area between Lockyer, Postman's Ridge, and Withcott, there were 12 reinfestations, ticks being found on 12 farms. All these farms have been cleaned up by regular dipping or spraying, and although they will require careful watching during the coming summer, further trouble is not anticipated in the declared clean area. The source of infection appeared to be wholly due to stray bulls, and in each instance the infection was very light. On several farms only one beast was found infected.

Cleansing operations have been satisfactory during the year, and ticks are being gradually cleaned up in the whole of the area.

In addition to cleansing operations, large numbers of stock travelled into, out of, and through the district, and many head were dipped. The following figures show inspections of stock, &c.:—

Holdings Inspected.	Total Stock Inspected.	Number of Infected Holdings.	Total Stock Dipped and Sprayed.
3,216	145,182	418	42,456

SOUTH BURNETT CLEANSING AREA.

In the Cooyar division, an area comprising about 60,000 acres, inclusive of two Neumgna holdings, has been quite free from tick infestation for more than twelve months, and cattle are now permitted from that part to the Downs without treatment. The balance of the Cooyar division is being cleansed satisfactorily.

In the Chahpinga-Burrandowan division, a large area has been thoroughly established as clean, and stock from that part of the division are now permitted to the Downs on inspection only. Infestations that existed early in the season on Wylara, and in its vicinity, appear to have been completely cleaned up owing to frequent dippings carried on to the end of June, long after the last tick had been seen; but no concessions are being granted in regard to movements through or out of this particular part. A comparatively small section of the division under review, in the vicinity of the Burrandowan homestead, where infestations were discovered late in the season, has been attached to the Durong division, which was previously small as compared with other divisions. These infestations were promptly dealt with, and a dip is about to be commenced on portion 8, parish of Chahpinga, to deal further with the situation there, and another dip is in course of construction on 61 Peroone, which will prove a big protective measure in keeping the division clean.

In the Durong division, as previously defined, good work has been carried out; infestations were discovered over a limited area on properties previously reported clean. These infestations were effectively dealt with except in two specific cases, where opposition and defiance were met, but with the removal of this the Durong division can be cleaned up without difficulty.

In the Nanango division good progress in cleansing has been made at the most important



point—that nearest the Downs boundary, towards Mount Mowbullán. No tick infestations have occurred within the past six months in the parish of Tureen, or in the greater portion of the parish of Neumgna, and it is proposed to attach that section of the division being dealt with to the Cooyar division.

On Barker's Creek, in the vicinity of Tarong, infestations occurred, and were dealt with for this season, and it is proposed to place an officer at Brooklands to finally clean up an area there, thus reducing the Nanango division considerably to allow of its linking up more thoroughly with Kingaroy and Wondai divisions.

In the Boondooma division, effective cleansing work has been carried out, grossly infested holdings have been completely cleaned up, and that division is well under control.

In the Wondai division, less progress in cleansing has been made than elsewhere, but the work is distinctly progressive, boundaries having been considerably strengthened, and stockowners organised with a view to cleansing a big section of that division next season.

In the Kingaroy division, effective cleansing work has been carried out over a wide area, and officers from this centre have carried out important cleansing duties in other divisions, principally in the Chahpinga-Burrandowan and Wondai sections.

Very effective cleansing work has been and is still being carried out in the vicinity of Coolabunia, where infestations were found to be rather extensive, and ticks are still hatching out; and also in Boobie, where, owing to the sheltered nature of the country, tick infestations are to be met with throughout the year, but both these areas are well under control, and dippings regular and continued. The periodically impounding of straying stock on roads in infested areas has diminished the straying stock menace to clean areas to almost vanishing point.

During the past two years five dips were put down for cleansing operations; three more are now in course of construction and another about to be commenced. These when completed will, with three previously obsolete dips having been put in working order, make a total of twelve cleansing dips in the actively worked portion of this area, having been brought into commission for cleansing during the period named.

From the foregoing it will be seen that cleansing is distinctly progressive throughout the area, and that good results have been obtained over a wide scope of country.

Holdings inspected .. ..	4,007
Stock inspected—	
Cattle .. ..	228,986
Horses .. ..	1,356
Sheep .. ..	109
Stock dipped .. ..	70,662
Total stock treated .. ..	230,451
Holdings infested .. ..	293

#### CROW'S NEST CLEANSING AREA.

During the year ticks have not been prevalent except for a few months in the Anduramba and Bluff divisions. Regular dippings were carried out and satisfactory results anticipated.

Holdings inspected .. ..	1,005
Stock inspected—	
Cattle .. ..	45,619
Horses .. ..	6,483
Sheep .. ..	247
Stock dipped—	
Horses .. ..	232
Cattle .. ..	7,250
Holdings infested .. ..	31

#### PLEURO-PNEUMONIA CONTAGIOSA.

The total number of outbreaks was 69, as compared with 129 in the previous year.

#### PLEURO-PNEUMONIA CONTAGIOSA.

District.	1929.						1930.						Total.
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Brisbane .. ..	..	1	..	..	4	1	..	..	..	4	1	..	11
Bowen .. ..	..	1	..	..	..	..	..	..	..	..	..	..	1
Clermont .. ..	..	2	2	..	1	..	..	..	..	1	..	..	6
Cloncurry .. ..	..	..	..	..	..	..	..	..	1	..	..	..	1
Hughenden .. ..	..	..	..	..	1	..	..	..	..	..	..	..	1
Longreach .. ..	..	1	..	..	..	..	..	..	..	..	..	..	1
Maryborough .. ..	..	..	2	1	2	..	3	3	1	3	..	3	18
Rockhampton .. ..	..	1	1	..	..	4	..	..	4	2	3	..	15
Roma .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Burnett .. ..	..	..	..	3	..	..	..	1	..	1	3	1	9
Toowoomba .. ..	..	..	..	..	..	..	..	..	..	1	..	..	1
Townsville .. ..	..	1	..	1	..	..	2	..	..	1	..	..	5
Warwick .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals .. ..	..	7	5	5	8	5	5	4	6	13	7	4	69

#### QUARANTINE ACT.

The following animals passed the quarantine period at Colmslie Quarantine Station, viz.:—10 bulls, 16 cows, 5 dogs, 2 cats, 2 pigs, and 61 rabbits.

One imported bull reacted to the tuberculin test whilst undergoing quarantine detention, and was subsequently destroyed.



The number of hides and skins imported and disinfected were:—

	Ox Hides.	Calf Hides.
England .. .. .	400	1,000
Italy .. .. .	1,979	..
France .. .. .	150	..
Germany .. .. .	25	2,400
New Zealand .. .. .	350	*3,612
India .. .. .	†57,366	

\* Lamb skins.

† Goat skins.

Other imported articles disinfected in accordance with quarantine regulations were:—10 monkey skins, 3 cheetah skins, 30 kangaroo skins, 100 mole skins, 4 rabbit skins, 1 zebra skin, 1 leopard skin, 1 deer skin, 25 snake skins, 4 riding saddles, and 2 stags' heads and antlers.

#### STOCK MOVEMENTS.

Table showing stock movements in the several stock districts for the year ended 30th June, 1930:—

TABLE SHOWING STOCK MOVEMENTS IN THE SEVERAL STOCK DISTRICTS FOR THE YEAR ENDED 30TH JUNE, 1930.

District.	ENTERED DISTRICT.			REMOVED FROM DISTRICT.			MOVEMENTS IN DISTRICT.			STOCK DIPPED.		STOCK SPRAYED.	
	Horses.	Cattle.	Sheep.	Horses.	Cattle.	Sheep.	Horses.	Cattle.	Sheep.	Horses.	Cattle.	Horses.	Cattle.
Barcaldine ..	619	10,267	64,248	4,251	22,982	455,529	3,088	6,089	654,965	..	2,368	12	114
Bowen ..	1,706	6,804	9,096	1,509	14,644	..	2,277	25,735	50	..	1,668	..	..
Brisbane ..	4,357	227,722	600,482	4,043	66,179	26,750	5,515	256,454	141,782	504	89,525	808	172
Cairns ..	747	13,118	7,234	1,172	17,056	81	2,577	23,843	165	..	..	1	..
Charleville ..	1,158	24,531	173,497	2,084	33,602	232,738	3,426	19,372	479,546	..	260	..	..
Clermont ..	435	11,023	71,477	1,394	51,485	115,376	3,182	36,906	102,930	18	19,212	..	855
Cloncurry ..	2,609	35,964	47,962	3,734	69,805	45,452	8,397	85,037	354,204	1,368	66,306	277	6
Coolangatta ..	271	3,070	3,541	278	2,478	3,192	44	2,082	80	131	483	10	..
Crow's Nest ..	243	5,689	1,820	383	9,871	..	386	17,312	..	264	7,104	10	42
Emerald ..	1,202	10,938	21,508	2,724	36,408	102,648	3,517	33,341	127,147	41	17,402	2	27,688
Gladstone ..	1,814	27,940	2,236	2,508	25,166	281	765	27,341	80	..	372	991	234
Helidon ..	601	7,378	1,338	855	15,830	71	1,411	46,740	53	370	40,444	125	5,423
Hughenden ..	1,187	8,456	46,666	1,748	17,070	97,303	1,690	15,737	176,292	54	10,383	280	..
Longreach ..	1,361	14,883	138,482	2,341	13,365	345,981	4,388	4,011	701,469	..	..	..	..
Maryborough..	1,349	28,483	31,605	1,702	55,766	4,160	2,156	69,545	120	12	23,456	272	28
Normanton ..	614	502	20	2,817	41,918	..	1,325	10,669	..	20	30,768	35	..
Rockhampton	870	49,865	102,289	1,612	35,321	49,492	2,114	121,535	29,075	4	1,459	14	89
Roma ..	512	15,161	59,091	1,337	52,682	218,799	3,467	33,620	548,868	190	7,411	228	..
South Burnett	960	24,584	10,085	1,753	39,360	2	9,345	243,999	72	196	74,579	257	785
Toowoomba ..	4,535	90,953	133,740	9,331	123,268	505,415	24,830	549,650	1,573,108	96	30,529	1,518	275
Townsville ..	2,184	63,168	29,305	2,816	9,897	4,590	6,570	42,924	1,513	1,136	11,536	90	47
Warwick ..	9,775	40,586	387,833	6,860	128,286	283,506	7,696	151,044	976,945	35	4,075	14	..
Winton ..	3,598	40,304	426,719	3,867	24,060	145,544	1,263	5,848	207,008	..	..	..	..

STOCK SOLD AT NEWMARKET SALE YARDS FOR THE YEAR ENDED 30TH JUNE, 1930.

	Sheep.	Lambs.	Cattle.	Calves.	Pigs.
1929.					
July .. .. .	47,001	3,231	7,317	891	591
August .. .. .	48,525	2,179	7,615	735	1,439
September .. .. .	41,125	2,185	7,711	698	2,397
October .. .. .	41,088	3,139	9,264	751	2,976
November .. .. .	34,503	2,141	7,456	601	1,509
December .. .. .	31,497	2,649	4,882	746	1,210
Total, Half-year ended 31st December, 1929	243,739	15,524	44,245	4,422	10,122
1930.					
January .. .. .	54,156	5,442	7,636	787	971
February .. .. .	44,700	4,323	8,351	911	772
March .. .. .	61,444	4,619	7,941	1,151	1,277
April .. .. .	45,384	4,327	9,315	1,229	833
May .. .. .	52,544	6,361	8,997	1,283	1,201
June .. .. .	44,075	3,609	6,454	861	1,829
Total, Half-year ended 30th June, 1930 ..	302,303	28,681	48,694	6,222	6,883
Year's Total .. .. .	546,042	44,205	92,939	10,644	17,005

#### Cattle—

Average value per cental for bullocks, 36s. = £10 7s. per head.

Average value per cental for cows, 33s. = £6 12s. per head.

#### Sheep—

Average value per head 11s. 3d. = 2½d. per lb.

#### Lambs—

Average value per head 9s. 6d. = 4½d. per lb.

#### Pigs—

Average value per lb., porkers and baconers, 6½d.

Average value per head, porkers and baconers, £2 7s. 6d.

Average value per head, suckers, slips, and store pigs, 15s.

#### Vealers—

Average value per head up to 80 lb. = 32s. 6d.



“THE SLAUGHTERING ACT OF 1898.”

During the period under review supervising visits were made to the following centres by the Senior Slaughtering Inspector, viz.:—Beenleigh, Logan Reserve, Ipswich, Gatton, Laidley, Helidon, Warwick, Stanthorpe, Wallangarra, Glen Aplin, Summit, Thulimbah, Clifton, Allora, Nobby, Greenmount, Cambooya, Toowoomba, Cunnamulla, Injune, Rolleston, Taroom, Wandoan, Esk, Toogoolawah, Blackbutt, Linville, Caboolture, Maleny, Nambour, Maroochydore, Eudlo, Glasshouse, Beerwah, Gympie, Goomeri, Kilkivan, and Mackay.

*Country Shops and Slaughter Houses.*

The major portion of the premises was found in a satisfactory condition, but numerous instances could be quoted where they were especially bad. Consequently, frequent service of cleansing and other orders had to be resorted to, and a good deal of tolerance shown before the required improvements became manifest. But, as usual, there are always some who require the power of the law to hold them within the requirements of the Act and Regulations. Needless to say, constant supervision is necessary, it being a noticeable feature that any laxity in supervision is quickly followed by violations, carelessness, and inattention to cleanliness, &c.

The cases of illegal slaughter still continue, and numerous reports have been received and inquired into. In several instances offenders have been dealt with as the law directs. Incidentally the seriousness of this class of offence cannot be too strongly emphasised. Not only does it become an outlet for stolen stock, but also for diseased stock, and no action is too drastic where such offences take place.

*Health of Stock.*

As shown in the tabulated statement herewith, the health of stock slaughtered appears to be on a par with that of other years.

During the year only one case came under the Senior Inspector's notice where diseased meat was found exposed for sale in a butcher shop. This case has yet to be decided by court.

*Stock Supplies.*

There has been no shortage of stock for trade purposes. Moreover the condition of those treated was equal to if not better than in previous years. Prices, too, have remained firm excepting for plain sorts; but sheep, on account of the adverse values in wool prices, have dropped considerably below normal. Therefore, sheep farmers have been influenced to slaughter contrary to the Regulations and dispose of the carcasses, retailing them at a cheaper rate than the bona fide butcher, who has to conform with the law pertaining to the business. Naturally these men only last as long as it suits their own end, to the detriment of the local butcher, and because they cannot pursue their illicit trading become aggrieved at the prohibition on being warned.

The metropolitan slaughter-houses and inspection of meat are as satisfactory as can be expected under existing conditions. Therefore, in view of the early establishment of abattoirs, any expensive improvements to the present buildings other than those necessary for hygienic reasons have not been insisted upon.

The shops and slaughter-houses of the distant towns are equally as well kept as those above mentioned.

Despite the fact that the trade generally has suffered in consequence of the depressed state of business and of the market for the various by-products, there has been quite a number of new shops and slaughter-houses erected at various parts of the State, together with minor and costly improvements, &c., to those already erected.

New shops .. .. .	48
New slaughter-houses .. .. .	31

*How Swine shall be Kept.*

Under this division continued improvement is reported, notwithstanding it has been found necessary to proceed against several offenders for having resorted to the objectionable practice of feeding their animals contrary to the law provided.

*The Metropolitan Killings.*

As shown in the comparative table, there has been a marked decrease in the number of cattle, calves, and sheep treated, but a small increase in lambs.

The figures are those returned under statutory authority to the Registrar-General:—

	1928.	1929.
Cattle .. .. .	71,252	55,033
Calves .. .. .	36,834	33,083
Sheep .. .. .	292,461	256,200
Lambs .. .. .	18,324	21,920
Swine .. .. .	25,237	20,860

In addition to the foregoing (1929 figures) the quantity of meat supplied for local consumption by the various meat export companies is as follows:—1929: Cattle, 13,942; calves, 2,413; sheep, 106,347; lambs, 3,528; swine, 4,247; meat sundries, 107,448 lb.

*The Central Inspection Depot.*

There has been a considerable increase in the number of carcasses of veal and pork submitted for examination, viz.:—

	1928.	1929.
Veal .. .. .	12,137	15,533
Pork .. .. .	5,900	7,433

Condemnations from the above are as follows:—

	1929.	1930.
Carcasses of veal .. .. .	291	*255
Carcasses of pork .. .. .	74	†79
Number of heads .. .. .	660	†605

\* Immature.

† Tuberculosis.



The return of stock slaughtered under supervision of the Police Acting Inspectors is as follows:—Bullocks, 46,870; cows, 52,216; calves, 1,140; sheep, 81,603; pigs, 14,553.

Bacon Factories.

	1928-29.	1929-30.
Pigs .. .. .	259,169	267,649

Condemnations from the above:—

	1928-29.	1929-30.
Carcasses .. .. .	2,632	*3,956
Heads .. .. .	9,088	*15,414

\* Tuberculosis.

Export Meat Trade.

According to official statistics there has been a decline in the number of cattle treated, but a substantial increase in the number of calves, sheep, lambs, and pigs slaughtered.

	1928.	1929.
Cattle .. .. .	347,855	323,658
Calves .. .. .	1,541	4,616
Sheep .. .. .	68,013	118,644
Lambs .. .. .	..	5,693
Swine .. .. .	388	9,198

The following tabulated list shows stock slaughtered and condemned in the course of the period under review, and is compiled from returns furnished by permanent officers of the Department performing slaughtering duties at the following centres:—Brisbane, Toowoomba, Ipswich, Gympie, Maryborough, Bundaberg, Rockhampton, Townsville, Cairns, Warwick, Charleville, Bowen, Roma, Dalby, Clermont, Barcaldine, Cloncurry, Springsure, Gladstone, Mareeba, Longreach, Normanton, Charters Towers, Mackay, Gayndah, Coolangatta, Beaudesert, Innisfail, Ingham, Home Hill, Brandon, Crow's Nest, Goondiwindi, and Miles.

The return of swine slaughtered is exclusive of those treated at bacon factories, and those examined at the Brisbane Central Depot, a list of which is shown separately.

Description of Stock.	Number Slaughtered.	Carcasses and Portions Condemned.	Disease.	Per-centage.
Bullocks .. ..	76,559	157 carcasses .. ..	Tuberculosis .. ..	.205
		142 forequarters .. ..	Tuberculosis .. ..	.185
		3 hindquarters .. ..	Tuberculosis .. ..	.003
		149 heads .. ..	Tuberculosis .. ..	.194
		11 carcasses .. ..	Bruised .. ..	.014
		22 forequarters .. ..	Bruised .. ..	.028
		17 carcasses .. ..	Emaciation .. ..	.022
		7 carcasses .. ..	Redwater .. ..	.007
		40 heads .. ..	Actinomycosis .. ..	.052
Cows .. ..	71,040	284 carcasses .. ..	Tuberculosis .. ..	.399
		118 forequarters .. ..	Tuberculosis .. ..	.166
		12 hindquarters .. ..	Tuberculosis .. ..	.016
		113 heads .. ..	Tuberculosis .. ..	.158
		23 carcasses .. ..	Bruised .. ..	.032
		19 forequarters .. ..	Bruised .. ..	.026
		16 carcasses .. ..	Emaciation .. ..	.022
		2 carcasses .. ..	Redwater .. ..	.002
		23 carcasses .. ..	Actinomycosis .. ..	.032
Calves .. ..	24,884	383 carcasses .. ..	Underweight .. ..	1.539
Sheep .. ..	510,242	533 carcasses .. ..	Emaciation .. ..	.102
		109 carcasses .. ..	Bruised .. ..	.021
Swine .. ..	43,268	313 carcasses .. ..	Tuberculosis .. ..	.723
		1,717 heads .. ..	Tuberculosis .. ..	3.968
		18 heads .. ..	Abscesses .. ..	.041

ARTHUR H. CORY, M.R.C.V.S.,  
Chief Inspector of Stock.



## APPENDIX A.

## REPORT OF THE GOVERNMENT BACTERIOLOGIST.

IMMUNISATION FOR TICK FEVER OF STUD ANIMALS  
RECEIVED AND STALLED FOR THE YEAR  
1929-30.

Breed.	Heifers.	Bulls.	Total.
Shorthorn .. .. .	..	50	50
Hereford .. .. .	12	73	85
Devon .. .. .	3	1	4
Aberdeen Angus .. .. .	7	4	11
I.M.S. .. .. .	..	21	21
Ayrshire .. .. .	2	..	2
Jersey .. .. .	9	6	15
Guernsey .. .. .	..	1	1
Total .. .. .	33	156	189

Reference to the above table will show that there has been a considerable increase in the number of stud cattle received for immunisation against tick fever during the past year, and it must be gratifying to owners and the various insurance companies that insure these high-class cattle that the losses from all causes during the inoculation fever period are phenomenally small, notwithstanding that many of the bulls (prize winners) were very fat, while some of the heifers were in various stages of pregnancy, and received here after a long railway journey direct from the principal Agricultural Shows of Melbourne and Sydney. One lot of Aberdeen Angus cattle (bulls and heifers) were imported from Scotland, arriving during the hot, humid month of November.

As on previous occasions, we experienced some animals that were temporarily insusceptible to the first injection of recovered blood, while blood from the same animal injected four weeks later produced a satisfactory reaction.

All these animals completely recovered from the inoculation fever, but one Shorthorn bull suffered a relapse of tick fever with acute pneumonia supervening, from which complications the animal died.

In twenty-two animals the tick fever organism was detected on the eighth and one on the sixth day after the injection of recovered blood. These early appearances of the piroplasms is somewhat exceptional, as usually they do not make their appearance before the tenth or twelfth day.

TABLE SHOWING THE NUMBER AND RESULTS OF ALL  
STUD CATTLE STALLED AND INOCULATED AT  
YEERONGPILLY DURING THE PAST TWENTY YEARS.

Year.	Animals Inoculated.	Deaths.	Cause.
1910-11	33	..	..
1911-12	49	..	..
1912-13	72	One aged bull	Inoculation fever
1913-14	49	..	..
1914-15	66	One bull .. One cow in calf	Inoculation fever Inoculation fever
1915-16	70	One bull .. One bull ..	Relapse Inoculation fever
1916-17	169	One aged bull One bull ..	Relapse Inoculation fever
1917-18	119	One bull ..	Pleurisy
1918-19	112	One heifer in calf	Pneumonia and tuberculosis Inoculation fever
1919-20	140	..	..
1920-21	149	One bull .. One bull .. One heifer ..	Tuberculosis Pneumonia Inoculation fever
1921-22	115	One bull ..	Relapse and pneumonia
1922-23	69	..	..
1923-24	31	..	..
1924-25	41	..	..
1925-26	75	..	..
1926-27	55	..	..
1927-28	65	..	..
1928-29	79	..	..
1929-30	189	One bull ..	Relapse and pneumonia
Total..	1,747		

From this table it will be seen that, since 1910, 1,747 stud animals were stalled and inoculated at Yeerongpilly. Of this number only six animals, or 0.40 per cent., died during the inoculation fever period with complication of either tuberculosis or acute pneumonia, while the losses from all causes were thirteen, or 0.74 or approximately less than three-quarters per cent.

## SUPPLY OF BLEEDERS AND IMMUNE BLOOD.

Thirty specially prepared bleeders were supplied to stock owners. Each of these animals was carefully tested by injecting the blood into healthy susceptible cattle, which was followed by a reaction and the detection by microscopical examination of the tick fever (piroplasma) organism in the stained blood smears.

These bleeders were also tested for tuberculosis, vaccinated against blackleg, and inoculated for pleuro-pneumonia.

The quantity of blood supplied amounted to 3,461 doses, and was largely used for the inoculation of ordinary station and farmers' cattle.



### SPECIMENS SUBMITTED FOR BACTERIOLOGICAL EXAMINATION.

The work carried out during the year included pathological and bacteriological examination of specimens of milk, blood, water, cheese, cream, butter, pleuro virus, &c., a total of 927 specimens being received. Specimens examined were as follows:—

Milk .. .. .	589
Pathological .. .. .	113
Blood .. .. .	57
Water .. .. .	42
Cream .. .. .	23
Pleuro virus .. .. .	75
Cheese .. .. .	11
Butter .. .. .	17
<b>Total .. .. .</b>	<b>927</b>

### LACTIC CULTURES.

A total of 189 pure cultures of lactic acid bacteria for the artificial ripening of milk and cream was supplied to cheese factories, but no applications were received from butter factories. The use of artificial starters with efficient pasteurisation will induce the development of a satisfactory flavour.

### TABLE SHOWING DISTRIBUTION OF LACTIC CULTURES.

District.	Number of Cultures.
Biggenden .. .. .	1
Boodua .. .. .	12
Crosshill .. .. .	25
Dayboro' .. .. .	2
Evergreen .. .. .	10
Gatton .. .. .	2
Greenmount .. .. .	11
Greymare .. .. .	1
Hodgsonvale .. .. .	12
Kelvinhaugh .. .. .	27
Kingsthorpe .. .. .	19
Kooroongarra .. .. .	2
Kulpi .. .. .	11
Macclagan .. .. .	11
Meringandan .. .. .	12
Narko .. .. .	1
Wellcamp .. .. .	1
Westbrook .. .. .	5
Yamsion .. .. .	12
Yargullen .. .. .	12
<b>Total .. .. .</b>	<b>189</b>

### CONTAGIOUS MAMMITIS.

Almost daily specimens are received from cases of suspected mammitis, with a request for a varying number of doses of autogenous vaccine. During the year under review vaccine for 8,917 cows was prepared for the curative and preventive treatment, and almost without exception the results have been most encouraging.

### TABLE SHOWING DISTRIBUTION OF CONTAGIOUS MAMMITIS VACCINE.

Town.	Doses.	Town.	Doses.
Aratula .. .. .	153	Kidaman Creek .. .. .	21
Atherton .. .. .	2	Killarney .. .. .	50
Beaudesert .. .. .	245	Kilcoy .. .. .	40
Benaraby .. .. .	5	Kinbombi .. .. .	55
Beenleigh .. .. .	45	Kingaroy .. .. .	226
Bell .. .. .	435	Kinleymore .. .. .	55
Biggenden .. .. .	15	Kowguran .. .. .	100
Biloela .. .. .	10	Linthorpe .. .. .	1
Blackbutt .. .. .	19	Littlemore .. .. .	7
Boonah .. .. .	125	Macclagan .. .. .	100
Bororen .. .. .	5	Malanda .. .. .	386
Bowenville .. .. .	30	Maleny .. .. .	791
Brigalow .. .. .	41	Millaa Millaa .. .. .	125
Brisbane .. .. .	270	Milmerran .. .. .	30
Broxburn .. .. .	40	Minbun .. .. .	15
Byrnestown .. .. .	40	Mondure .. .. .	22
Cairns .. .. .	7	Monto .. .. .	10
Cambooya .. .. .	10	Moola .. .. .	60
Canungra .. .. .	140	Moregatta .. .. .	20
Charlwood .. .. .	13	Mount Larcom .. .. .	50
Childers .. .. .	60	Mount Pelion .. .. .	15
Chinchilla .. .. .	25	Murgon .. .. .	40
Clifton .. .. .	213	Nambour .. .. .	68
Cobba-da-mana .. .. .	50	Nanango .. .. .	221
Cooloolabin .. .. .	10	Nangwee .. .. .	50
Cooran .. .. .	245	North Arm .. .. .	15
Cooroy .. .. .	5	Oakey .. .. .	272
Crow's Nest .. .. .	342	Peeramon .. .. .	216
Cunningham .. .. .	4	Pittsworth .. .. .	123
D'Aguilar .. .. .	55	Port Douglas .. .. .	46
Dalby .. .. .	240	Radford .. .. .	1
Drinan .. .. .	10	Rathdowney .. .. .	40
Ellinthorpe .. .. .	42	Rosewood .. .. .	1
Esk .. .. .	80	Rywung .. .. .	30
Eumundi .. .. .	106	Shepperd .. .. .	4
Gayndah .. .. .	90	Squaretop .. .. .	70
Glencoe .. .. .	150	Southbrook .. .. .	118
Goodger .. .. .	25	Tingoora .. .. .	21
Goombungee .. .. .	60	Toogoolawah .. .. .	61
Goomburra .. .. .	157	Toowoomba .. .. .	28
Goomeri .. .. .	25	Warra .. .. .	140
Goovigen .. .. .	26	Wellcamp .. .. .	2
Gordonvale .. .. .	1	Westbrook .. .. .	27
Greenmount .. .. .	24	Wondai .. .. .	20
Gympie .. .. .	364	Woongoolba .. .. .	50
Haden .. .. .	110	Wooroolin .. .. .	180
Jandowae .. .. .	270	Wutul .. .. .	25
Jimbour .. .. .	10	Wyreema .. .. .	20
Jondaryan .. .. .	110	Yarraman .. .. .	2
Kaimkillenbun .. .. .	126	Yarranlea .. .. .	15
Kairi .. .. .	27	Yungaburra .. .. .	60
Kandanga .. .. .	60		
		<b>Total .. .. .</b>	<b>8,917</b>



## BLACKLEG VACCINE.

Blackleg vaccine sufficient to protect 3,840 calves was supplied to stock owners. The vaccine can be obtained in powder or in pill form. Blackleg vaccine is for protective purposes only, there being no cure known to science for Blackleg disease.

TABLE SHOWING DISTRICTS IN WHICH BLACKLEG VACCINE HAS BEEN SUPPLIED.

Town.	Doses.
Beaudesert .. .. .	30
Beenleigh .. .. .	20
Bell .. .. .	190
Biarra .. .. .	100
Boonah .. .. .	200
Brisbane .. .. .	80
Bundaberg .. .. .	75
Crofton .. .. .	20
Dayboro' .. .. .	130
Eidsvold .. .. .	100
Gympie .. .. .	25
Harrisville .. .. .	30
Kilcoy .. .. .	140
Kinbombi .. .. .	300
Kingaroy .. .. .	50
Kingston .. .. .	20
Laidley .. .. .	380
Maleny .. .. .	20
Miriam Vale .. .. .	80
Morayfield .. .. .	50
Mount Walker .. .. .	300
Rathdowney .. .. .	310
Southbrook .. .. .	60
Taroom .. .. .	350
Thangool .. .. .	50
Tingoor .. .. .	300
Toogoolawah .. .. .	50
Toowoomba .. .. .	20
Wondai .. .. .	180
Wongelpong .. .. .	50
Woodford .. .. .	20
Woolooga .. .. .	60
Woongoolba .. .. .	50
Total .. .. .	3,840

## SUPPLY OF PLEURO-PNEUMONIA VIRUS.

The demand for natural pleuro-pneumonia virus still continues, the majority of stock breeders preferring this to the artificially cultivated virus. Altogether, 83,362 doses of virus and 30,594 sterilised setons were supplied and distributed as per table below.

Simultaneously with the inoculation of the Departmental virus, some deaths have occurred which, on investigation, were found to be due to tick fever. In another case, many animals inoculated suffered from sepsis, which, on inquiry, was found to be caused through carelessness on the part of the operator in not sterilising the instruments and disinfecting the skin of the tails before injecting the virus. Such serious trouble can be prevented if stock owners will only follow in detail the directions that always accompany each lot of virus despatched from Yeerongpilly.

Every facility is offered to stock owners to enable them to have pleuro virus which they have collected examined bacteriologically to determine its suitability or otherwise for protective inoculation purposes.

Specimens of virus accompanied by portions of the affected lung and bronchial glands from seventy-five cases of pleuro-pneumonia were submitted. Sixty-two were free from taint, while thirteen were found contaminated with septic organisms, and were subsequently condemned as unfit for use.

Town.	Virus.	Setons.	Town.	Virus.	Setons.
Augathella .. .. .	2,400	..	Forward .. .. .	50,157	20,134
Banana .. .. .	1,000	..	Imbil .. .. .	1,550	..
Baralaba .. .. .	750	200	Injune .. .. .	750	750
Beaudesert .. .. .	4,875	2,245	Iveragh .. .. .	500	500
Benarkin .. .. .	850	850	Julia Creek .. .. .	110	110
Biloela .. .. .	94	94	Kilcoy .. .. .	2,585	535
Blackbutt .. .. .	240	90	Kinbombi .. .. .	2,400	1,500
Boompa .. .. .	1,150	450	Kingaroy .. .. .	300	..
Bororen .. .. .	270	..	Kyburra .. .. .	250	..
Brisbane .. .. .	11,815	6,970	Linville .. .. .	1,460	1,200
Bromfleet .. .. .	870	420	Lowmead .. .. .	800	200
Calliope .. .. .	500	..	Mitchell .. .. .	1,300	300
Camooweal .. .. .	10,250	..	Miraim Vale .. .. .	350	350
Capella .. .. .	1,200	..	Mondure .. .. .	1,100	45
Charleville .. .. .	550	..	Moolboolaman .. .. .	500	500
Clermont .. .. .	1,200	500	Moore .. .. .	4,220	..
Cloncurry .. .. .	500	450	Moorland .. .. .	260	100
Croydon .. .. .	600	..	Murgon .. .. .	1,180	730
Cunnamulla .. .. .	1,000	1,000	Murray's Creek .. .. .	50	..
Dalby .. .. .	20	20	Nanango .. .. .	325	..
Dalysford .. .. .	450	400	Proston .. .. .	100	100
Duaranga .. .. .	1,340	1,000	Rockhampton .. .. .	1,660	100
Edungalba .. .. .	2,000	..	St. Lawrence .. .. .	150	..
Eidsvold .. .. .	390	350	Tenterfield .. .. .	500	..
Esk .. .. .	1,145	1,095	Tirroan .. .. .	250	130
Gayndah .. .. .	1,121	850	Townsville .. .. .	5,400	..
Goomeri .. .. .	1,000	..	Ubobo .. .. .	1,400	..
Grandchester .. .. .	1,400	1,450	Wietalaba .. .. .	400	400
Grantham .. .. .	70	..	Winton .. .. .	3,000	3,000
Gympie .. .. .	740	1,400	Wondai .. .. .	600	..
Harlin .. .. .	362	300			
Forward .. .. .	50,157	20,134	Totals .. .. .	82,707	30,684



## POULTRY DISEASES.

Considering the insanitary conditions under which poultry are not infrequently kept, the number of specimens examined indicative of specific disease has been surprisingly few. It is of special interest to note that although tuberculosis in poultry is considered to be a significant factor in the dissemination of the disease in pigs, no lesions of tuberculosis have been discovered in any birds submitted for bacteriological examination for several years.

*Spirochetosis in Fowls.*

Losses from this disease have occurred during the past year in poultry farms within the metropolitan area. The spirillum, the active cause of the infection, is conveyed from diseased to healthy birds by the fowl tick, *Argus persicus*.

*Fowl Pest.*

This disease, which has hitherto not been observed in Queensland, appeared in November last, occurring almost simultaneously in several farms around Brisbane. The origin of this disease at first appeared obscure, largely owing to the fact that on bacteriological investigation no causative micro-organism was demonstrable microscopically or by culture experiments. Further investigation proved conclusively that these outbreaks were due to fowl pest, an acute contagious disease caused by an ultra-microscopical virus.

Under the prevailing system of intense poultry raising for egg production, the majority of holdings are limited in size and the whole subdivided area is so fully stocked that when a serious epizootic makes its appearance there are, practically speaking, no necessary facilities for the isolation of sick and suspected birds.

Consequently, most of the owners say, the disease will have to run its course, which means that very little attempt can be made to check the disease beyond the daily removal of all dead birds.

Fowl pest is an acute contagious infectious disease of fowls; turkeys, sparrows, and parrots are also susceptible; while geese, ducks, and pigeons usually resist the infection. During its progress the disease greatly resembles chicken cholera. It is, however, caused by an ultra-microscopical virus which is so small that it can pass through a porcelain filter.

The infective agent is contained in the blood adhering to the red blood cells, in the nervous system, in the nasal secretion, and in the droppings. The natural infection is transmitted mostly by the droppings and the nasal secretion of the affected birds. It has been proved experimentally that parasites such as ticks and lice living on affected birds cannot transmit the disease.

*Symptoms.*—The period of incubation in the natural infection is as a rule three to five days, and the termination appears to be fatal in the great majority of cases. Chickens which have recovered from the disease are not susceptible to subsequent infection.

The disease commences with depression and diminished appetite, which condition soon changes to conspicuous dulness and sleepiness,

manifested by symptoms similar to those of chicken cholera and fowl enteritis. In the meantime the comb and wattles become a dark red and finally blackish red in colour, while towards the termination of the disease greyish scales sometimes develop on the skin.

A similar discoloration is also observed around the eye, while the eyelids are usually closed, watery exudation accumulating under them profusely. The conjunctiva or white part of the eye is infected and swollen. A greyish or reddish tenacious mucus exudes from the nostrils and in the throat. Some birds intermittently shake their heads, at the same time giving a peculiar sound and expelling mucus from the nostrils and mouth. In some cases profuse diarrhoea is observed, the droppings being dirty grey or greenish fluid and exceptionally red-coloured. Towards the end of the disease the affected birds hold their heads turned towards the back (a noticeable diagnostic symptom), their respiration is very laboured, and finally paralysis appears, which progresses from the extremities to the head.

*Treatment and Prevention.*—The treatment of affected birds has thus far proved ineffective. In the prevention of the disease the same measures are indicated as those for chicken cholera. Great care should be exercised in order that the introduction of the disease by the purchase of new birds may be prevented. In addition, careful examination of the source should be made, and it is advisable to keep new birds separated for at least one week, and only after that period should they be allowed to mingle with birds of the flock.

If the disease has already appeared in the flock, entirely healthy birds should be taken to an absolutely clean place without delay. Those already affected or suspected should immediately be killed or taken to a separate place for treatment. All dead birds and affected droppings should be buried deep or, still better, burned. The walls and roosts of the chicken houses as well as drinking vessels and containers used for feeding should be scalded well with boiling water.

The floor should be sprayed with 1 in 160 solution of Hycol and then sprinkled with lime. The droppings from the affected as well as the healthy birds should be collected at least once daily and burned.

## SOFT BACON.

At one of our bacon factories considerable trouble was experienced with what is popularly spoken of as "Soft Bacon." The adipose tissue never becomes firm, but remains more or less flabby and oily. Investigations have shown that the primary cause of this condition is brought about by the use of unsuitable feeds, and becomes very pronounced when certain feeds are given alone.

Recent investigations in Canada have demonstrated that the feeding of barley alone, oats alone, or pollard alone was more conducive to the production of soft bacon than any of these feeds supplemented with separated milk. Any of these feeds—barley, oats, or pollard—although they gave very satisfactory gains when supplemented with milk, were found to be more productive of soft bacon than a mixed meal ration



of good balance, although barley fed alone with milk compared very favourably with the mixture, with oats a poor second, and pollard of little use unless it was fed in a mixture.

In the cases under review it was observed that the pigs which were productive of this characteristically soft bacon had come from the Kingaroy district, and were fed almost exclusively on peanuts.

#### TUBERCULOSIS IN PIGS.

This disease, which has assumed very serious proportions in most dairy centres, is one that can be comparatively easily controlled and even eradicated by means similar to those which have been so effective in Denmark. It is a great undertaking, and calls for the whole-hearted co-operation of all those directly and indirectly associated with the pig-raising industry. If owners would only realise how extremely susceptible these animals are to tuberculosis, greater care would be taken, and the number of cases reduced.

The prevalence of tuberculosis among pigs, as shown by the official returns from the various bacon factories, is a menace to the pig-raising industry, which will result in a heavy financial loss to the farmer. During the past twenty years not less than 10,000 pigs annually have been found to be affected with tuberculosis; in fact, the official returns for the year 1928-29 show that of 319,481 pigs slaughtered 15,412 were found tuberculous.

Unfortunately, unless the disease in a pig is very far advanced, there are practically no noticeable outward symptoms or lesions that would assist in diagnosing tuberculosis. More particularly is this so with regard to those pigs disposed of as baconers; and since the life of this class of pig is generally brief, i.e., they are killed when only about six months old, it will be understood why tuberculosis of such animals is usually localised and difficult to detect.

Unquestionably the use of milk from tuberculous cows is the chief cause, while some cases may be attributable to infection from pig to pig, and rarely to pigs eating the offal of tubercular cows.

Clean sound food is just as essential to the health of a pig as it is to a human being. How frequently does it occur that the milk from a certain cow is unfit for man, yet considered by some persons as good enough for the pigs!

Pigs which are allowed to drink raw milk or raw milk products such as buttermilk, whey, or raw offal, either of which may be from a tubercular animal, will eventually contract the disease. It develops more rapidly and is more likely to become generalised in this animal than any other.

That milk coming from a tuberculous udder is capable of transmitting the infectious principle is conceded by all who have given the subject any consideration. As a result of our numerous investigations, it has been equally established that in advanced generalised tuberculosis the udder may discharge tubercle bacilli without showing any indication of being affected.

Careful experiments performed by trained and responsible investigators have also demonstrated

beyond reasonable doubt that tubercle bacilli at certain times may be present in the milk of cows which are affected with tuberculosis to such a degree that the disease can be detected only by the tuberculin test; so that in an apparently healthy herd of cows there may be one or more animals secreting tuberculous milk which, even when diluted with the milk of healthy cows, makes the entire product dangerous.

Tuberculosis in pigs has its principal origin in the tuberculosis of cattle, and the main sources of infection are the excretions and the flesh of diseased cattle in which living tubercle bacilli are contained. The greatest danger comes from feeding pigs with the separated milk from dairies and the whey from cheese factories.

The heating of all dairy products to 180 deg. Fehr. has been found most effective in preventing the spread of tuberculosis to those animals consuming the by-products of such farms and factories.

In 1904 Denmark, who pioneered this movement, passed a law requiring all separated buttermilk and cheese whey to be pasteurised before it could be distributed from the factory to its patrons for feeding purposes, experiments having proved that no tubercle bacilli could withstand this amount of heat. In practically all the Danish factories for the past twenty-six years both milk and cream must be heated to the required temperature, thus assuring butter and cheese free from tubercular organisms as well as rendering by-products safe for use in feeding pigs and calves. The result of these regulations has been most satisfactory. The spread of tuberculosis to farms previously free from the disease by the separated milk, buttermilk, and whey from factories has been markedly checked, and the suppression of the disease in pigs has been plainly noticeable. In fact, in some parts of Denmark where tuberculosis among pigs used to be common the disease has completely disappeared wherever the animals are fed only on pasteurised milk products.

In those countries, notably Denmark, Canada, and the United States of America, where there is a growing progress in eradicating tuberculosis from dairy cattle by the application of the tuberculin test and destroying those that react, a very noticeable decline in this disease in pigs is taking place.

One bacon factory in the United States reports that a very striking example of the effect of this method of dealing with tuberculosis is shown as follows:—

“During the first year's operations the average loss per pig was 3s. 2d. This figure was the economic loss for pigs slaughtered at the works. In the second year the loss had been reduced to 2s. 9d., in the third to 2s., in the fourth to 1s. 4d., and in the fifth year to 1s. 1d.”

The present financial stringency may render action in this direction inopportune. Consequently, it is all the more necessary to attack the development and dissemination of this disease by concentrating on the system of pasteurisation of all dairy products before being fed to pigs.



## EXPERIMENTS AT YEERONGPILLY.

*Feeding Healthy Pigs on Raw and Pasteurised Milk from a Known Tuberculous Cow.*

As evidence of the unmistakable value of the application of pasteurisation in rendering tuberculous dairy products free from infectivity, the following experiment was carried out:—

Six healthy young pigs which had passed the tuberculin test were used for this experiment. Three of these pigs were fed with raw milk daily for 68 days almost continuously. Three other pigs were fed for the same period with pasteurised milk from the same diseased cow. When nine weeks had elapsed all six pigs were forwarded to the bacon factory and slaughtered.

*Result.*—The three pigs fed on the treated milk were found healthy, while of those fed on the untreated milk all had generalised tuberculosis.

The economic aspect of this experiment was obvious—viz., a cheque for the three pigs fed on pasteurised milk was received. The three pigs fed on raw milk were condemned.

## WHEY AS AN AGENCY FOR THE SPREAD OF TUBERCULOSIS.

There are sixty-two cheese factories, and of these only twenty pasteurise the milk (flash process) before being manufactured into cheese. It must be remembered, however, that the temperature in no case exceeds 160 deg. Fahr., which is not sufficiently high to destroy the vitality of tubercle bacilli. A fair margin of safety can only be obtained by subjecting all milk products to 180 deg. Fahr. for five minutes, which will with certainty kill all tubercle bacilli.

This high temperature of 180 deg. Fahr. cannot be utilised during the warmer months of the year, as coagulation (acid precipitation curd) would materially interfere with the manufacture of the cheese.

Therefore, the only alternative is to pasteurise at 180 deg. Fahr. for five minutes at the factory all whey before being returned to the farmer.

This recommendation is worthy of serious consideration, as under present conditions every cheese factory in the State is a possible source for the distribution of tuberculous material to be used as food for pigs.

## THE VIABILITY OF TUBERCLE BACILLI IN THE TISSUES OF SMOKED BACON.

Since bacon forms a very important article of food in all civilised countries, it becomes desirable to know whether the curing process (salting and smoking) will destroy the vitality and virulence of tubercle bacilli which may be present in the lymphatic glands, particularly those that are deeply seated. Furthermore, it is of interest to determine the length of time that living bacilli will continue to retain their capability for growth if removed from the tuberculous glands and placed under suitable conditions for their reproduction.

The salting and pickling of meat is generally credited with great efficacy, but on closer examination reveals that it is only the hygroscopicity (affinity for moisture) of the salt that

comes into play, and that the sole power the latter possesses is that of setting up plasmolysis (abstraction of water) in the germs present in or subsequently conveyed to the flesh, and so preventing their reproduction. Consequently the germs, especially those of a pathogenic nature, cannot be completely killed by these processes.

In the process of curing bacon the preservation of the meat is effected by a combination between actual drying, the extraction of water from the product by the salt, and the absorption of sodium chloride and occasionally of other inhibitory salts. It is readily demonstrable that a saturated salt solution limits or entirely stops the development of most micro-organisms, while only a prolonged exposure to such conditions will destroy their vitality.

Smoking dries the surface and impregnates the bacon with traces of acetic acid, formaldehyde, and creosote. Although the former volatilises from the food, the surface retains a good deal of the creosote. Smoking has only a surface preservation action, and does not reach the interior, so that pathogenic organisms like the tubercle bacilli, which may be present in the lymphatic glands, remain undestroyed and for some considerable time retain their virulence.

## OTHER EXPERIMENTS AT YEERONGPILLY.

Several pigs which were condemned for tuberculosis were subjected to the curing process, i.e., salting and smoking, at a local factory in precisely the same manner as for the manufacture of normal pork into bacon. This curing process takes about six weeks to complete, viz., 1 day in the chilling room, 21 days in the brine pickle, 21 days dry salting, and 3 days smoking; total, 46 days.

Immediately after the bacon was cured, portions of the tuberculous lymphatic glands were removed and introduced into the subcutaneous tissue inside the thigh of two guinea pigs. Result: One died in thirty-seven days, and the other in forty-nine days, of generalised tuberculosis.

Four guinea pigs were inoculated with lymphatic gland tissue from the same piece of bacon fourteen days after the curing process was completed. Result: Three of these became tuberculous, and the other remained unaffected.

Three guinea pigs were inoculated with gland tissue from the same piece of bacon twenty-eight days after curing. Result: One died of tuberculosis, while the other remained unaffected.

Four guinea pigs were inoculated with gland tissue from the same piece of bacon sixty-seven days after curing. Result: One died from tuberculosis, while the other three were unaffected.

It is of special interest to note that the tubercle bacilli in the last experiment exhibited marked evidence of attenuation after three months within the salted lymphatic gland tissue, as three guinea pigs survived the inoculation, while in the one that became infected the tuberculous changes developed so slowly that it lived for ninety days.



Having proved conclusively that tuberculous lesions in bacon remain infective for a period of sixty-nine days, it was deemed unnecessary for all practical purposes to continue this investigation further. Bacon kept beyond this period would under ordinary circumstances become unsaleable. It is the usual practice of retail shops to secure fresh supplies of bacon at periods ranging from twice weekly to once a month, according to weather conditions and the distance from the distributing houses.

#### INSTRUCTION WORK.

In July last I attended the Pig Industry School, at Gatton College, and delivered an illustrated lantern lecture on tuberculosis and other diseases of pigs, and methods for their prevention; also practical demonstrations on the value of different modern disinfectants. This was followed by special lectures on dairy hygiene to employees of butter and cheese factories.

During August, I held the annual instructional school at Yeerongpilly for Dairy Inspectors. The lectures and demonstrations included dairy hygiene, particularly with regard to the cleansing and sterilising of dairying utensils on the farm, also milk and cream cans at the factory; diseases of farm animals and methods for their prevention, with special reference to tuberculosis in dairy cows and pigs; contagious abortion, prophylactic and curative treatment of contagious mammitis; protective inoculation

for pleuro-pneumonia and tick fever; external and internal parasites; and the nature, use, and germicidal efficiency of different disinfectants.

As a result of attending the course, each member should now be competent to materially assist the dairy farmer by initiating him in the methods employed in order to produce a higher grade milk and cream, also to give instruction in the methods necessary to guard the health of his stock.

#### EXHIBITS AT THE ROYAL NATIONAL SHOW.

In the Agricultural Department Court a special exhibit from this institution was arranged dealing with various phases of dairy hygiene, illustrated by means of chart diagrams, plate and tube cultures demonstrating the relative merits of dry and wet milking, and the use of improperly washed and sterilised dairying utensils.

An exhibit was also arranged in a special building in connection with the Meat Industry Hall. This exhibit showed the different manifestations of diseases of stock obscure and commonly met with in the State, and forcibly brought under notice the methods of rigid meat inspection adopted by the Department to safeguard the public health.

C. J. POUND,  
Government Bacteriologist.



## APPENDIX B.

## REPORT OF THE SENIOR INSTRUCTOR IN SHEEP AND WOOL.

The number of sheep shorn in Queensland from the end of June, 1928, to the 1st July, 1929, was 18,438,630. The number of sheep in the State at 1st January, 1930, totalled 19,975,752.

Most of the sheep country of the State benefited by useful rains from time to time during the season, which resulted in a good growth of wool.

The extreme West and a fairly large scope of country south from Roma through the Surat district were unfortunate regarding rainfall. Many graziers were compelled to either hand-feed, sell, or agist their stock, but fortunately they had access to other areas at reasonable distance where conditions were more favourable, so that the actual losses were not numerous.

Fair to good lambings were general in most of the breeding areas, and a steady increase was maintained throughout the year, although in many instances losses occurred among the ewes before lambing. Malnutrition and an excess of salt could be traced as causing the losses in some cases, but in other cases ewes died where conditions seemed favourable. In all cases blindness was associated with the losses.

In order to assist growers in determining the value of their pasture many samples of grasses were secured for analysis, from which useful information was supplied by the Agricultural Chemist, but in reality the samples were obtained from pastures where sheep had free access during the season, when probably all the best and most nutritious grasses and herbs were eaten out. A system of protecting representative patches is necessary to secure the true feeding value of any pasture.

The Darling Downs is now running a large number of sheep, many of which are being fattened off on lucerne, wheat, and other cultivated crops, for which much of this area is suited.

The conservation of fodder on other holdings farther west has proved the wisdom of the undertaking, which it is trusted will be responsible for other stockowners following the lead.

Many holdings were visited during the year, the nature of the work performed being governed by circumstances, and included inspection of country, instruction in the selection of sheep, culling, shearing, preparing the clip for market, making and administering drenches, and giving other practical demonstrations of interest to growers.

## TESTING DRENCHES.

Owing to the large area infested to some extent with sheep parasites, especially the Stomach Worm (*Hemonchus contortus*) and Nodule Worm (*Oesophagostomum Columbianum*), and the number of sheep suffering from them, the matter of testing different drenches was gone into and proved to be of much importance and resulted in a definite conclusion—viz., that the following formulæ were reliable for treating

sheep in controlling stomach worms:—(1) Arsenic and Epsom salts; (2) bluestone and mustard; (3) arsenic, Epsom salts, and bluestone. The lastmentioned drench not only proved satisfactory for controlling stomach worms, but also for dispelling at least some of the larvæ of the Nodule Worm.

Lectures were delivered on matters pertaining to the sheep and wool industry to members of the Graziers' Association at different centres, as well as a few lantern lectures, while lecturettes were also broadcast by wireless.

The usual display of wools was staged at the Royal National Show in Brisbane, which was made as educational and informative as possible.

## WOOL.

Although low prices prevailed during the whole of the season, exceptionally good clearances were effected at each sale. In all there were 408,962 bales received into store. During the year 344,404 bales were sold, thus leaving approximately 64,558 bales in store. All wool received up to the end of June will be offered for sale during the two sales to be held in July. This means that 65,379 bales produced during the year will be carried over, but as the July sales are extra series the whole of the season's wool will be cleaned up.

This, with the clearances effected in all other countries, indicates that there will be practically no carry-over wool, and that the new season's clip should meet a stabilised if not an improved market.

The price of wool reached its lowest level during the February sales, when the average price for greasy was 8.84 d. per lb. The following is a summary of the year's wool sales:—

		Per Bale.		Per lb.	Average per Bale.		Average per lb.
		£	s.	d.	£	s.	d.
Sale No. 1—							
Greasy	..	14	6	9	10.66	14	14
Scoured	..	18	19	2	22.01	1	11.23
Sale No. 2—							
Greasy	..	16	13	4	12.39	16	17
Scoured	..	20	3	2	25.53	9	12.89
Sale No. 3—							
Greasy	..	16	0	4	12.04	16	2
Scoured	..	18	9	1	21.15	7	12.33
Sale No. 4—							
Greasy	..	13	5	0	10.02	13	6
Scoured	..	16	7	6	19.94	10	10.20
Sale No. 5—							
Greasy	..	11	12	5	8.57	11	14
Scoured	..	13	5	0	15.48	4	8.84
Sale No. 6—							
Greasy	..	11	19	4	8.82	12	3
Scoured	..	13	9	1	16.07	7	9.45
Sale No. 7—							
Greasy	..	14	8	7	10.62	14	13
Scoured	..	16	4	4	19.07	0	11.29
Sale No. 8—							
Greasy	..	14	9	8	10.35	14	11
Scoured	..	16	7	4	19.14	10	10.67



The amount realised from the 344,404 bales sold was £4,959,417. This, with the value of the approximate 64,558 bales held over for the July sales, based on the average price per bale for the season—£14 8s.—would give a total of £5,889,052, the value of the wool produced during the year.

The price of sheep during the year became very erratic. Sheep and lambs in store condition were ridiculously low in price as compared with those in prime quality. This, no doubt, was in sympathy with the low price of wool.

#### BLOWFLY PEST.

Although this pest was in evidence more or less throughout the year, very few losses were sustained, these being chiefly in the Central districts. Good autumn rains occurred throughout practically the whole of the sheep country, which were followed up with a mild showery winter, all of which should tend to ensure a safe spring.

#### FARMERS' WOOL SCHEME.

A greater quantity of wool has been received for classification this year than previously, which indicates that the small grower appreciates the efforts of the Department in placing the wool on the market to best advantage.

Out of the 108 consignments received, 70 classes were made, each class being distinct. Thus the buyers know the class of wool they are purchasing, and our agents, the Queensland Primary Producers' Co-operative Association, Limited, gave their assurance that the Departmental brand is becoming more popular amongst the buyers. This season 108,380 lb. of greasy wool was sold, which averaged just under 9d. per lb.

JAS. CAREW,  
Senior Instructor in Sheep and Wool.



APPENDIX C.

REPORT OF THE DEPUTY REGISTRAR OF BRANDS.

DETAILS OF REGISTRATIONS, TRANSFERS, &C. YEAR  
1929-1930.

—	Number.	Fees Received.			Number since Inception of Legislation.
		£	s.	d.	
Three-piece brands registered	1,044	522	0	0	81,589
Cancelled brands re-allotted	55	82	10	0	6,749
Symbol brands registered	50	250	0	0	1,474
Cattle earmarks registered	656	328	0	0	25,228
Brands transferred ..	1,720	430	0	0	41,642
Sheep brands and ear marks registered	319	106	5	0	10,811
Sheep brands and ear marks transferred	244	30	10	0	4,660
Distinctive brands registered	22	..	..	..	..
Alteration of address of brands	7,946	..	..	..	..
Brands cancelled ..	21	..	..	..	..
Earmarks cancelled ..	118	..	..	..	..
Total ..	..	1,749	5	0	

During the last financial year the registrations of cattle and horse brands, cattle earmarks, and

transfers of brands show an increase compared with the figures for the previous year, but there has been a falling off in the numbers of sheep brands and earmarks registered. The aggregate number of registrations, however, is in excess of those for the previous year, with a corresponding increase in the fees received.

The checking of the annual returns made by owners of brands and earmarks has resulted in over 7,900 alterations of addresses being gazetted, but further work in connection with transfers of brands, alterations of earmarks, &c., cannot be undertaken until the present staff has been augmented.

The biannual Brands Directory, revised to the 31st December, 1929, was published early in June last, and contains over 83,000 horse and cattle brands, and approximately 25,300 cattle earmarks.

Seven prosecutions for breaches of the Brands Act were instituted during the year, and warnings issued in the cases of other offenders.

H. S. ILIFF,  
Deputy Registrar of Brands.



## REPORT OF THE REGISTRAR OF CO-OPERATIVE ASSOCIATIONS.

## "THE PRIMARY PRODUCERS' CO-OPERATIVE ASSOCIATIONS ACTS, 1923 TO 1926."

In accordance with Rule 52 of Part II. of the Schedule to the abovenamed Acts, I have the honour to submit, for transmission to the Governor in Council, my report for the year ended 30th June, 1930.

Since my last report eighteen additional associations have been registered, making a total of 147 associations that have been registered under the Acts.

The eighteen associations registered for the year under review are comprised as follows:—

Bacon Association—Having a capital divided into shares with limited liability .. .. .	1
Cotton Association—Having a capital divided into shares with limited liability .. .. .	1
Dairy Butter and Cheese Associations—Having a capital divided into shares with limited liability .. .. .	4
Dipping Associations—Having a capital divided into shares with limited liability .. .. .	6
Egg Producers' Association—Without any share capital with liability limited to the assets of the Association .. .. .	1
Fruitgrowers' Associations—Without any share capital with liability limited to the assets of the Association .. .. .	3
Fruit, Vegetable, and Poultry Association—Having a capital divided into shares with limited liability .. .. .	1
Fur Farming Association—Having a capital divided into shares with limited liability .. .. .	1
	18

The associations that have been registered under the Acts to 30th June, 1930, are as enumerated below:—

Bacon Associations—Having a capital divided into shares with limited liability .. .. .	3
Canning, Jam, and Preserving Association—Having a capital divided into shares with limited liability .. .. .	1
Carrying Association—Having a capital divided into shares with limited liability .. .. .	1
Chicken Hatchery Association—Having a capital divided into shares with limited liability .. .. .	1
Cotton Association—Having a capital divided into shares with limited liability .. .. .	1
Dairy, Butter, and Cheese Associations— Having a capital divided into shares with limited liability .. .. .	49
Without share capital with liability limited to the assets of the Association .. .. .	2
Dipping Associations—Having a capital divided into shares with limited liability .. .. .	6
Egg Producers' Association—Without share capital with liability limited to the assets of the Association .. .. .	1
Farmers' Association—Without share capital with liability limited to the assets of the Association .. .. .	1
Farmers' Distributing Association—Having a capital divided into shares with limited liability .. .. .	1
Fat Pig Selling Association—Without share capital with liability limited to the assets of the Association .. .. .	1

## Fruitgrowers' Associations—

Having a capital divided into shares with limited liability .. .. .	5
Without any share capital with liability limited to the assets of the Association .. .. .	55
Fruit, Vegetable, and Poultry Associations—Having a capital divided into shares with limited liability .. .. .	1
Fur Farming Association—Having a capital divided into shares with limited liability .. .. .	1
Packing Associations—Having a capital divided into shares with limited liability .. .. .	2
Peanut Growers' Association—Having a capital divided into shares with limited liability .. .. .	1
Producers' Associations—Having a capital divided into shares with limited liability .. .. .	3
Publication Association—Having a capital divided into shares with limited liability .. .. .	1
Stock and Produce Associations—Having a capital divided into shares with limited liability .. .. .	3
Sugar Associations— Having a capital divided into shares with limited liability .. .. .	6
Without share capital with liability limited to the assets of the Association .. .. .	1
Associations without share capital with unlimited liability .. .. .	Nil
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Since the Acts came into force the Goombungee Co-operative Dairy Association, Limited, amalgamated with the Downs Co-operative Dairy Association, Limited; the Port Curtis Co-operative Dairy Association, Limited, took over the Dawson Valley Co-operative Association, Limited, the Bundaberg Co-operative Dairy Company, Limited, and the Central Queensland Dairymen's Co-operative Company, Limited; the Maryborough Co-operative Dairy Association, Limited, took over the Wondai Co-operative Dairy Association, Limited; the registration of the Wyreema Dairy Products Co-operative Association, Limited, has been cancelled; the registration of the Stanthorpe Co-operative Canning, Jam, and Preserving Association, Limited, has been cancelled; and three associations are now being wound-up voluntarily. At the present juncture there are actually 142 associations registered under the Acts.

Several associations have amended their rules to meet the changing circumstances, and there are other associations considering the question of amalgamation with a view to securing more economical working and further co-operative efficiency.

Some exemptions have been granted from the provisions of the Acts; and 114 auditors have been licensed thereunder.

JAMES P. ORR,  
Registrar of Co-operative Associations.



## REPORT OF THE DIRECTOR OF MARKETING.

In compliance with the provisions of "*The Primary Producers' Organisation and Marketing Acts, 1926 to 1928*," I have the honour to submit herewith a report for the year ended the 30th June, 1930.

The ground that has been traversed in giving effect to the existing type of agricultural organisation now operative in this State has been outlined in detail in the reports that have been issued in connection with the operations of former years, and it does not seem necessary or advisable to reiterate here the various stages leading up to the pooling of commodities and the constitution of marketing boards comprised of members elected by the growers or producers of the commodity brought into the pool. It would be sufficient at this juncture to say that, in every instance where a particular kind of produce has been created a "commodity" and a pool has been constituted, and a board appointed to control the marketing of that commodity under the provisions of the Primary Producers' Organisation and Marketing Acts, every pool so formed continues to function without exception. This of itself clearly indicates that the majority of primary producers are of opinion that it is a satisfactory position for them to be able to exercise a considerable measure of control over the marketing of their produce.

In a great majority of cases the boards have arranged to have the sales of their produce effected through the ordinary trade channels, and in this way they have taken advantage of the wide experience and facilities for trading that are existent, and by so doing it is considered that the growers have benefited very materially.

Under the Primary Producers' Organisation and Marketing Acts it is provided that controlled marketing may be applied to any commodity subject to 60 per cent. of the producers recording their vote being in favour of a pool being formed, and approving of the setting up of a board duly empowered to assume such control, and to undertake the financing, upon the security of the product, and to exercise the supervision and general control of all matters incidental to the marketing thereof.

During the year barley-growers were successful in arranging for the constitution of a barley pool. Under the Order in Council all barley-growers in the State were brought under the pool, but the board has exempted all barley other than that suitable for malting purposes from the operations of the pool. The season was fairly well advanced before the pool was formed, and its origin is possibly due to the fact that there was a fair amount of malting barley on growers' hands for which it was somewhat difficult to find a market, and it is doubtful if sales of this barley could have been effected so advantageously to the growers had the pool not been formed.

At the time of writing fifteen products have been brought under the system of controlled marketing, the particular products being as follows:—

- Arrowroot*, established in 1922 without any opposition;
- Atherton Maize*, established in 1923 without any opposition;
- Barley*, established in 1930 by an 81 per cent. majority;
- Broom Millet*, established in 1926 without any opposition;
- Butter*, established in 1925 by a 75 per cent. majority; renewed in 1928 without any opposition;
- Canary Seed*, established in 1925 by a 75 per cent. majority; renewed in 1928 without any opposition;
- Cheese*, established in 1922 by a 91 per cent. majority; renewed in 1925 without any opposition; renewed in 1927 without any opposition;
- Cotton*, established in 1926 without any opposition;
- Eggs*, established in 1923 by an 87 per cent. majority; renewed in 1925 by a 73 per cent. majority; renewed in 1926 by a 66½ per cent. majority; renewed in 1929 by a 70 per cent. majority;
- Fruit*—Committee of Direction of Fruit Marketing, established by special legislation in 1923 for a period of three years. The Act provided for a ballot being taken at the end of the three-year period in the event of 500 growers demanding such ballot, but until last year no such petition was received. The continuance of the Committee of Direction of Fruit Marketing for a further period of five years was affirmed by the growers in December 1929 by an 87 per cent. majority;
- Honey*, established in 1929 without any opposition;
- Northern Pigs*, established in 1923 without any opposition; renewed in 1926 without any opposition;
- Peanuts*, established in 1924 without any opposition; renewed in 1925 without any opposition; renewed in 1926 by a 90 per cent. majority;
- Strawberries*, established in 1929 with an 82 per cent. majority;
- Wheat* (under the Wheat Pool Acts), established in 1921 by a 97½ per cent. majority; extended in 1924 by an 89 per cent. majority; extended in 1928 without any opposition.



### THE ARROWROOT INDUSTRY.

Arrowroot bulbs were declared a commodity and a board was constituted in 1922, under what was then the Primary Products Pools Act, to control the sales of arrowroot bulbs and to exercise supervision over the sales of flour obtained by the treatment of the bulbs. Arrowroot bulbs were the first agricultural product that was made the subject of a pool under the abovementioned Act, which was afterwards merged into "*The Primary Producers' Organisation and Marketing Acts, 1926 to 1928*," and the pool for arrowroot bulbs has been in existence without interruption since that date. In the drafting of the latter Acts provision was made to clarify the position concerning arrowroot flour, and to declare arrowroot flour to be and to have always been a commodity under and for the purposes of the Act, and it is under these conditions that the board now functions.

The production of arrowroot bulbs is limited to the quantity necessary to meet the requirements of Australia in arrowroot flour—that is to say that there is no oversea market in which sales of arrowroot can be made at a figure satisfactory to the growers. On several occasions attempts have been made to place the flour on the London market. Trial shipments of limited tonnage have been consigned to London, but sales have been difficult to effect and the price realised has not been favourable to the producers.

From the opinion that has been formed over a series of years relative to the prospects of sales, and the conditions of the market in Great Britain, it is indicated that the sales in arrowroot there are limited, as the arrowroot is used principally for medicinal purposes, and for use in this way there is a decided preference for the product that is sold under the trade name of Bermuda arrowroot, which is a derivative of *Maranta arundinacea*, and it is claimed that this class of arrowroot has very material advantages over the Queensland product. The Queensland arrowroot is derived from the *Canna edulis*. The impression that has been formed in Great Britain in favour of Bermuda arrowroot is widespread, and it would be difficult to effect a change and create an atmosphere that would be conducive to trade for the Queensland product and to bring about a state of affairs that would lead to the supplantment of the British arrowroot with the Queensland product. Exception is taken to the colour of the Queensland product, which is not as white as that produced in Bermuda, and some authorities have gone as far as to voice the opinion that the term "arrowroot" should not be applied to the Queensland product as displayed for sale in Great Britain.

An investigation that has been made into the pros and cons of the products indicates that there is some substantiation for the views expressed by those in Great Britain, and it seems imminent that for some time to come the prospects of sales in Great Britain are decidedly unfavourable. Without the oversea outlet for this product, the production must naturally be limited to the needs of the Commonwealth, the requirements of which are at present about 700 tons of arrowroot per annum, and this quantity is being met by the growers now engaged in the production of the bulbs.

Some difference of opinion existed in the minds of the members of the pool board and the arrowroot millers as to the terms upon which the bulbs should be treated and the millers recompensed for their work in recovery of the flour. With a view to allowing a discussion upon the matters of difference, and to come to some mutual agreement as to the conditions under which the bulbs would be treated by the millers, a conference of representatives of the board and the millers was held in March 1930, when the basis for an agreement between the parties was mutually agreed upon.

It is anticipated that the friction that has existed between the board and the millers will now be terminated. The terms that have been agreed upon provide that the millers will be paid by the board at the rate of £16 per ton for all flour of first-class quality manufactured by them, and the first advance to growers will be at the rate of 18s. per ton for bulbs of satisfactory quality delivered to the mill for treatment.

There is practically no carry-over of arrowroot flour from last season's bulbs, and in this way the market will be clear. The price at which the arrowroot of this season will be offered is not yet decided.

### ATHERTON MAIZE POOL.

The deliveries of maize to the Atherton Tableland Maize Board for the season totalled 14,254 tons. This quantity is somewhat under normal, the average production for the past six years being 17,000 tons. The shrinkage in the figures does not necessarily mean that the production for the period has been less than usual, because it is known that more maize is now being fed direct to pigs by the growers. Rather more than half of the maize received by the board was sold in North Queensland, the balance of the crop being disposed of through interstate channels. The average price realised was £8 18s. 9d. per ton on trucks at the silos. The growers to date have been paid £6 17s. 6d. per ton, and it will not be until the whole of the crop has been disposed of that the full amount due to the growers can be determined.

During the year some concession in price for maize was made to local farmers feeding the grain to pigs or using it for other purposes, thereby relieving to some extent the storage accommodation and providing some assistance to the other industries on the tableland.

By a ballot during the year the growers favoured investigation being made into the matter of additional storage, and as a result the board has arranged for a representative of a storage and engineering firm to furnish the board with a report on the best means of supplementing the existing silos. The present accommodation, though very valuable to growers, has been found somewhat inadequate in capacity for the satisfactory handling of an average crop of the proportions of present-day production.

During the year illicit trading in maize grown in the pool area was detected, and a prosecution ensued, but the board failed to secure a conviction, and, with a view to arresting the occurrence of any further irregularity of this kind,



an Order in Council was issued for the purpose of preventing any further sales of maize being effected without the sanction of the board.

Owing to disagreement amongst the members of the board arising out of the conduct of the business of the board, the members, with one exception, tendered their resignations to the Minister. The Minister, after reviewing the whole of the circumstances, was not disposed to accept immediately the resignations, and asked the members concerned to continue to serve on the board. At a later date the Minister accepted the resignations and fresh nominations were invited, and the growers were asked by ballot to fill the vacancies, the result being that Messrs. L. R. Crouch, W. Bailey, E. Hall, and C. A. Hough were elected to serve with Mr. R. E. Moss as members of the board until the 31st March next.

The future of the maize industry is somewhat obscure owing to the additional extent to which motor-cars and tractors are being employed and displacing the horse for draught purposes. There is a possibility, however, that there will be a reversion to the horse, and in some countries the reports indicate that this has taken place to a more marked degree than is evidenced here. From observations made it seems that the horse may again come into more general use here. In other countries the production of maize has not diminished on account of the introduction of motor power; for instance, in the United States, where motor power is more fully utilised than in Australia, it is found that the production of maize is also greater than in any other part of the world. The maize crop there is disposed of without difficulty, a greater proportion of it being prepared for food for human consumption than is the custom elsewhere, and the balance is fed to animals on the farms.

#### THE BARLEY POOL.

For a number of years the farmer's in Queensland have given some attention to the growing of barley both for malting and feed purposes. This season the yield of malting barley was much greater than usual. Because of the fluctuation that occurs from year to year in the quantity of malting barley produced in this State, brewing interests have found it necessary to import malt rather than to place reliance on the malt supplies available from treatment of Queensland-grown barley. The requirements of the brewers of malt are comparatively steady from year to year, and if the growers of barley desire to hold this market and supply brewers with the barley grain for malting purposes, it is essential that they produce each year adequate quantities of barley to meet the needs in malt of the brewers. When the processes of malting are efficiently performed, Queensland barley produces a malt that is of highest quality and meets with the favour of brewers.

The difficulties that arose in disposing of the malting barley of this season's crop, by reliance upon the efforts that individual growers were capable of exerting, were such that the majority of growers came to the conclusion that it would be in their best interests to move towards the

formation of a pool under the Primary Producers' Organisation and Marketing Acts, and, with that objective in view, representatives approached the Government with the request that barley should be deemed a commodity under those Acts. This was done by virtue of an Order in Council issued on the 23rd January, 1930, and the necessary action was taken to constitute a barley pool and to appoint a board to carry out the marketing functions in connection therewith.

Upon the publication of the notice of intention to constitute the pool certain growers petitioned asking that the issue be determined by a ballot of the growers, and a poll was taken accordingly with the following result:—

In favour of setting up a Barley Board	117 votes.
Against the setting up of a Barley Board	27 votes.

The majority in favour of constituting the board was 81 per cent.

The pool will extend over a period of seven years from the 24th April, 1930, and provision has been made for the annual election of members of the board.

The members of the board gave early attention to the matter of the disposal of the unsold quantity of barley that was held by growers, and, through the efforts exerted by the Minister, conferences were convened between the representatives of the brewing interests and the members of the Barley Board, the outcome being that all barley of malting quality was acquired by the brewers from the board. This grain is being malted on account of the brewers at the premises known as the "Maltings" at Toowoomba that have been leased by the brewers from the Wheat Pool Board. The quantity of malting barley disposed of in this way was 29,355 bushels. The Maltings had not been used for malting purposes for a considerable number of years, and it is pleasing to note that operations are again being carried out there. The sincerity of the brewers in their desire to utilise as far as practicable malt produced from barley grown in Queensland was an important factor in making possible the sales of barley by the board, and there is every prospect of this industry becoming established permanently.

#### BROOM MILLET.

The total yield of the broom millet crop for the 1929 season amounted to 122 tons. The maximum price realised for hull during the season was £80 per ton. The minimum price was £20 per ton, and the average gross return for the whole of the crop was £61 10s. per ton. The crop was disposed of through the board's agents (the State Produce Agency Limited) and accounted direct to the growers. A deduction at the rate of 5 per cent. was made from the account sales to cover the expenses of the board. However, the business affairs of the pool were managed in an economical manner, and expenses kept at a minimum, with the result that at the end of the season the board was able



to make a refund to growers equal to 50 per cent. of the amount originally deducted from account sales on the board's behalf.

Broom millet is grown in several States of the Commonwealth, and the aggregate production is adequate in quantity to meet fully the trade requirements of Australia. There is no interstate avenue through which any appreciable quantity of the millet grown in Queensland could be disposed of. Unfortunately there is no immediate prospect of the expansion of this industry beyond Commonwealth requirements, which are, as previously stated, now fully met.

It is to be noted that some of the broom manufacturers are turning out brooms from their works with a brush which is not solely composed of millet hurl, and this practice tends to limit the complement of broom millet needed from time to time for broom-making purposes. The general opinion is that the quality of the broom in which the material employed to replace the millet is incorporated is not equal to the article manufactured solely from the hurl, and because of this there is the prospect that there may be reversion to the former practice of utilising nothing other than the millet hurl for making this particular class of household broom.

#### THE BUTTER BOARD.

The Butter Board was constituted on the 19th February, 1925, for a period of three years, growers having expressed their desire for marketing control by a 75 per cent. affirmative vote, the actual figures being—

For control	..	..	..	6,083
Against	..	..	..	1,948

Without any opposition the Board was continued from the 23rd February, 1928, for a further period which will expire on the 30th June, 1931. For the purpose of election of the Board, the State is divided into six districts, the producers in each to elect a representative. The Director of Marketing, by virtue of the provisions of the Act, is the Government representative on the board.

The board represents one of the foremost primary industries of the State, and has been particularly active and successful in benefiting the dairy farming interests. The board controls the marketing of the commodity without actually handling it. The policy has been invariably to interfere as little as possible with existing channels of trade. The board has been able to achieve its objective in this regard by requesting the manufacturing factories to submit the name or names of suitable firms or selling agents that are desired to handle their product, and the board, after satisfying itself as to the bona fides of the firms nominated, has proceeded to appoint the approved firms as its agents.

The board determines from time to time conditions upon which butter is to be sold on the local and interstate markets. It imposes a limit of 3 per cent. commission and requires the agent to take all risks in the matter of finance.

A considerable quantity of butter is sold direct by butter factory associations, and to embrace this trade the board appoints manufacturing companies as agents of the board subject to the general agency conditions. All agents of the board are required to submit monthly returns showing particulars of the output of butter, the quantity sold on the various markets, and the quantities carried over at the end of every month. From these returns the board is in a position to ascertain the total sales on the respective markets each month, and the pooling of prices is carried out on the monthly sales return basis.

The sales effected by the board on the local, interstate, and export markets result in the board having to take into consideration the net realisations for butter in each of these markets. The objective of the board is to pay to the manufacturing companies a similar price each month for the total output, irrespective of the market on which the butter is disposed of. To this end an equalisation scheme had to be brought into practice, and, although the Paterson scheme is not itself quite apart from the pool, the incidence of this scheme has to be taken into account when the equalisation price is being adjusted by the board, and this is done in such a way that in a monetary sense it makes little or no difference to a manufacturing company whether it disposes of its butter output through the local, interstate, or export channels.

The principle and details of the Paterson scheme have been published on numerous occasions, and there is no need to reiterate the particulars here other than to mention that the scheme is comparatively simple in its operation. It is administered by a Commonwealth body representative of the dairying interests in each of the States with the exception of Western Australia, and in addition there are State committees operative in each of the States for the purpose of carrying out the functions of the Commonwealth body. In its operation the scheme has been of appreciable monetary benefit to the cream producers within the Commonwealth.

A good deal of publicity has been given to the effect that a considerable decrease has taken place in the per capita consumption of butter during the period covered by the operations of the pool, and in this connection the following particulars are given:—

Year.	Population.	Consumption in pounds.	Per capita Consumption.
		Lb.	Lb.
1925-26 .. ..	861,185	22,501,186	26.1
1926-27 .. ..	882,193	22,831,088	25.9
1927-28 .. ..	899,176	22,929,312	25.5
1928-29 .. ..	916,689	23,099,224	25.1
1929-30 .. ..	930,871	23,576,504	25.3

It will be seen from the above figures that the consumption per capita in Queensland has been practically stationary throughout the period of the board's operations. For the year just closed the consumption shows a slight increase over that of the previous year.



The following statement has been supplied by the board showing the number of boxes of butter manufactured in Queensland, and the sales and consignments effected during the twelve months from the 1st July, 1929, to the 30th June, 1930:—

STATEMENT SHOWING TOTAL BOXES MANUFACTURED, SALES, AND CONSIGNMENTS OF QUEENSLAND BUTTER FOR PERIOD JULY, 1929, TO JUNE, 1930.

Month.	MANUFACTURE.				SALES.				CONSIGNMENTS TO GREAT BRITAIN.			
	First.	Second.	Third.	Pastry.	Queens-land.	Inter-state.	East and Tinnerns.	Stores & Others.	First.	Second.	Third.	Pastry.
1929.	*Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.
July ..	67,123	2,654	87	9	38,580	6,768	1,734	828	24,351	3,306	535	7
August ..	62,899	4,146	219	5	36,976	4,148	1,854	291	21,229	3,799	899	42
September ..	67,869	4,789	165	3	36,929	8,304	1,869	237	16,161	4,174	661	5
October ..	81,040	7,024	518	31	37,403	4,818	3,578	244	29,227	5,271	1,996	102
November ..	94,424	11,604	1,080	55	34,749	1,750	2,389	178	53,833	8,343	3,153	344
December ..	98,446	15,112	1,797	202	35,798	2,116	2,380	200	54,911	10,294	6,621	194
1930.												
January ..	146,229	21,113	3,187	48	33,208	2,628	1,704	250	90,225	14,399	10,710	535
February ..	156,075	20,403	3,115	265	29,601	2,424	2,204	554	101,623	15,549	13,342	503
March ..	152,941	17,137	1,623	135	32,743	4,721	2,431	128	108,267	14,204	9,904	487
April ..	119,381	9,281	789	34	35,184	6,788	3,708	485	92,468	9,272	7,638	121
May ..	96,129	4,317	545	58	35,524	25,051	6,559	497	24,647	2,401	1,983	132
June ..	82,093	2,483	192	80	33,694	15,196	3,093	392	35,528	1,194	1,274	87
Totals ..	1,224,649	120,063	13,317	925	420,389	84,712	33,503	4,284	652,470	92,206	58,716	2,559

\* A box = 56 lb. of butter.

#### CANARY SEED BOARD.

The production of canary seed is practically restricted to the Darling Downs. Attempts have been made to grow seed outside the Downs area but without success. Agriculturists in certain parts of the Southern States have also endeavoured to produce the seed but without satisfactory results. The plant is of a comparatively hardy nature but is rather exacting in respect of soil and climatic conditions. Canary seed is a "pool" commodity, and the sales of the seed are controlled by a board elected by the growers.

The first pool for canary seed was formed in December 1927, and the pooling principle has, subject to the endorsement of the growers, been continued since that time.

The canary seed requirements of Australia are estimated at about 1,500 tons per annum, and when the production in this State falls below the quantity mentioned it has been the custom to import canary seed from other countries, Argentine and Turkey being the principal sources from which supplies have been drawn.

The board approached the Federal Government with a view to obtaining increased tariff protection on canary seed. At that time the tariff rate was 6s. per cental in the British preferential tariff, 6s. in the intermediate, and 7s. 6d. in the general tariff. On the matter being referred to the Tariff Board by the Federal Government, the board took evidence in Brisbane, Sydney, and Melbourne during March and April of 1930.

As the outcome of the evidence given at these inquiries, an embargo has been placed on the importation of canary seed. The embargo will not be fully operative until the 1st December, 1930.

The board, through its agents, Denham's Limited, has effected sales of the whole of the production of the 1929 crop, and the market is clear at present of stocks of Australian-grown seed. A comparatively large area has been planted under canary seed this season, and if the yield is satisfactory there should be sufficient seed produced to meet Australian requirements for the year.

#### THE CHEESE INDUSTRY.

Cheese was declared to be a commodity under "The Primary Products Pools Act of 1922," and the pool then formed, and the control given to allow of the marketing of cheese being effected by the board elected by the growers has continued without cessation since that time. Queensland is the most important centre of production in the Commonwealth, the volume of cheese being greater than in any of the Southern States.

The channels through which the cheese is disposed of by the board are the local, interstate, and overseas markets, supplies of cheese going overseas to both Great Britain and to the East, London being the destination of most of the cheese consigned overseas. Particulars of the



quantity of cheese manufactured during the year ended the 30th June, and the markets through which it has been disposed of, are given below:—

DISPOSAL OF CHEESE PRODUCTION OF QUEENSLAND FOR THE YEAR 1929-30.

Year—1929-1930.	Local Sales.	Interstate Sales.	Eastern Sales.	PROCESSING IN—		Exported to Great Britain.
				Queensland.	Victoria.	
1929.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
July .. .. .	223,696	413,196	18,728	16,748	183,077	..
August .. .. .	206,192	301,643	4,381	25,703	153,111	46,547
September .. .. .	204,299	381,878	2,188	67,840	194,468	..
October .. .. .	206,486	313,964	10,694	78,187	148,430	184,938
November .. .. .	204,478	217,706	10,571	51,995	71,128	314,737
December .. .. .	201,115	108,106	15,581	40,258	60,981	492,234
1930.						
January .. .. .	220,173	95,543	21,658	61,595	239,436	698,888
February .. .. .	201,233	160,049	14,175	61,023	119,851	425,267
March .. .. .	225,689	200,658	11,119	46,952	158,791	330,640
April .. .. .	227,509	344,940	5,344	51,902	47,986	214,363
May .. .. .	254,158	513,153	5,372	57,746	..	152,626
June .. .. .	161,094	216,813	8,075	45,668	..	439,505

In common with the practice that maintains in all pool commodities, the members of the board are elected by the growers concerned, and, because it was found that some of the dairy farmers in districts where cheese was being produced had rather unequal representation on the board, a change was made to allow of all centres wherein cheese was manufactured being more equitably represented on the board.

As the cheese is sold on such a wide range of markets it is only natural to expect that there would be a considerable variance in the net proceeds derived from the sales of the product, and, in order that no individual factory shall experience any loss by sales that might be effected on a particular market from time to time, the board has adopted an equalisation scheme which, in operation, provides that the net return from sales to any factory is closely comparable, irrespective of whether cheese is sold on the local, interstate, or oversea markets.

Practically the whole of the export trade of the Commonwealth in cheese is carried on by Queensland.

#### THE COTTON INDUSTRY.

The first board that was elected by the growers for the purpose of controlling the marketing of seed cotton in this State became operative in 1926, and the system of controlled marketing has continued since that time. During the year the final payment to growers of the 1929 cotton crop was made early in December last, the average return to the growers (including bounty) being at the rate of 4.62d. per lb. of seed cotton.

The amount of seed cotton delivered to the Board in connection with the 1930 crop up to the 30th June was 12,468,020 lb. It is estimated that the total receipts of cotton for the season will exceed 16,000,000 lb., which is equivalent to about 11,000 bales of lint. These figures compare most favourably with the yields of former years, the particulars of the production of cotton

in Queensland during each year of the decade being as follows:—

	lb.
1920 .. .. .	57,065
1921 .. .. .	940,125
1922 .. .. .	3,878,225
1923 .. .. .	11,769,502
1924 .. .. .	15,179,046
1925 .. .. .	18,182,642
1926 .. .. .	9,007,022
1927 .. .. .	7,059,828
1928 .. .. .	12,221,598
1929 .. .. .	7,965,339
1930 (estimate) .. .. .	16,000,000

The acreage under cotton for the season 1930 is 32,000 acres and the number of growers is 2,241.

The usual arrangements were made by the Cotton Board to finance its operations and to make advances to growers through the Rural Credits Department of the Commonwealth Bank on the basis of .8d. per lb. of seed cotton, to cover all expenses including the cost of ginning, plus advance payments to the growers varying in accordance with the grade and staple length from 2½d. per lb. (XXX 1) to 4½d. per lb. (A3 seed cotton), the rates being inclusive of bounty.

It will be remembered that the Premier (Hon. A. E. Moore) announced that the State Government would guarantee an average price of 5d. per lb. for seed cotton of the 1930 crop, and amongst the conditions applicable to the guarantee it was stipulated that the guarantee would be for one year only and restricted in its application to a 10,000-bale crop, the total amount of the guarantee to be limited to the sum of £30,000. There is no doubt that this guarantee was of material benefit to the industry, and is responsible in no small degree for the appreciable increase that has taken place in the cotton yield this year.

Last November the Commonwealth Government tabled a tariff schedule providing amongst other things for a substantial duty on cotton yarns. Yarns spun in counts of 50 or finer, also yarns of two or more ply containing one



or more ply spun in counts 50 or finer, are not included. Additionally, a wide range of yarns required for specific purposes is exempted. Full publicity was given to the proposals of the Federal Government at the time they were first announced, and the detailed particulars need not be repeated here.

Under an agreement made by the Cotton Board with the Australian spinners, it is anticipated that the whole of the crop of lint of suitable quality will be disposed of to Australian spinners. The price arranged is on the basis of Liverpool spot quotations for the Friday of the week of ginning, plus premiums for grade and staple which range from 25 points off for good ordinary under an inch in length up to 320 points on for middling fair cotton  $1\frac{1}{8}$  inch up to  $1\frac{3}{8}$  inch in length, the spinners being required to take delivery of the lint cotton by the 31st March next.

The complement of cotton seed produced in Queensland at present is inadequate to provide sufficient cotton-seed oil to meet Australian requirements, and in order to meet the requirements of this trade it has been necessary to import seed from other countries. The utmost care has to be exercised in the selection of the countries from which this seed is drawn, and an embargo is placed on the importation from certain countries because of the possibility of the introduction of disease or cotton pests. During the year the Cotton Board imported 4,834,434 lb. of seed from East Africa, the landed cost in store at Whinstanes being little short of £28,000. It would certainly be helpful if the cotton production were increased sufficiently to supply the seed required for oil purposes and to render unnecessary the importation of cotton seed from overseas.

During the year the board decided to despatch its manager (Mr. R. J. Webster) to the United States for the purpose of making investigation into the many matters related to cotton production. Some of the matters listed for investigation are enumerated below—

1. Mechanical cotton-pickers;
2. Latest developments in regard to cotton cleaning and handling machinery;
3. Definite costs with regard to the purchase and installation of ginneries;
4. Definite costs with regard to the purchase and installation of an oil mill;
5. Production costs and latest developments in oil milling and ginning practices.

As the result of the information obtained by Mr. Webster, the cotton industry benefited very materially during the negotiations that later took place between the representatives of the British-Australian Cotton Association and the Cotton Board at the time the proposals of the prospective purchase of the ginneries were under way.

These negotiations culminated in the Cotton Board arranging for the purchase of the assets of the British-Australian Cotton Association. The terms and conditions of sale were agreed to between the parties at a conference of the combined interests which was convened and presided over by the Minister for Agriculture (Hon. H. F. Walker). The Minister's interest and

assistance in the negotiations and in arranging the necessary finance required by the Cotton Board were particularly helpful; otherwise it would not have been practicable for the board to have completed the purchase. The whole of the assets of the British-Australian Cotton Association were acquired by the board at a figure of £137,500. The Cotton Board, supported in its views by the knowledge that had been acquired by its manager during his visit to the United States, was definitely of the opinion that the ginning plants installed at the various centres by the British-Australian Cotton Association needed modernising in certain respects so as to allow of the more economic working of the ginneries. The cost involved in effecting these alterations was estimated at about £18,000. Thus the capital necessary to purchase the assets of the British-Australian Cotton Association, and to remodel the plant in certain respects at an estimated cost of £18,000, necessitated that the Cotton Board should be placed in a position to command £155,500. The Commonwealth Bank undertook to make available this sum of money conditional upon the State Government being prepared to guarantee the amount to the bank. The Minister informed the conference that he had discussed the matter with his colleagues, and was in a position to advise the conference that the Government was prepared to guarantee the sum required by the board, and in this way there was brought to conclusion what stands to date as the most important monetary transaction that has been effected by any of the commodity boards operating in this State. The board made claim that by the acquisition of the ginneries it would be possible for them to conduct the ginning of cotton in a manner that would lead to considerable economy and benefit to the industry, provided that the ginneries could be purchased at a figure in keeping with their intrinsic value, thereby relieving the industry of the expense incurred by the unduly heavy "overhead" that had to be carried by the British-Australian Cotton Association.

The board advises that the results obtained by the ginning of the cotton to date have substantiated the ideas that it held relative to the possibility of effecting economy in ginning operations, and it is anticipated that a very substantial profit to the growers will be gained as a consequence of the board's control of the ginning and oil-milling operations. Since the inception of the pooling system being applied to cotton the board has held the view that any profits that were to be won by the ginning of cotton and processing of the seed should rightly be placed to the credit of the growers, but of course this principle was not possible of achievement until the board was able to take over the ginning and oil plant. This stage has now been reached, and the growers will from now on obtain a fuller share of the proceeds derived from their industry. The land, premises, machinery, plant, and equipment requisite for the ginning and processing of the cotton seed were purchased by an association which was formed under the Co-operative Associations Acts styled the Australian Cotton Co-operative Association Limited, and provision was made that the members of the Cotton Board should also be appointed as



the directors of the Cotton Association, and in this way the interests of the Cotton Board controlling the raw product and the association owning the ginning and oil-milling plant are co-ordinated in an effective manner.

### THE HONEY POOL.

As the result of action that was taken at the instigation of apiarists in this State, an Order in Council was promulgated in March 1929 declaring honey and beeswax produced in Queensland by persons owning not less than five hives of bees to be commodities under the Primary Producers' Organisation and Marketing Acts, and constituting a board in regard thereto. There was no petition tendered by beekeepers in opposition to the project, and members of the first Honey Board were elected by growers for a period of twelve months in April 1929, but the pool itself was constituted for a term of five years. Upon the expiration of the term for which the first elected Honey Board held office, an election was held for the purpose of deciding the personnel of the board for the following twelve months, and resulted in the election of Messrs. R. V. Woodrow, H. E. Fagg, O. N. Tanner, and J. Schutt as growers' representatives on the board.

One of the early actions taken by the board was to bring about an improvement in the system of selling the honey both on the local and interstate markets. A firm in Brisbane handling comparatively large quantities of honey was appointed as metropolitan honey agents for the board, on a commission at the rate of  $7\frac{1}{2}$  per cent. subject to the agent rebating an amount equal to  $1\frac{1}{2}$  per cent. commission deducted from the sales, to the board, to meet the board's administrative costs. The rebate of the commission was designed to obviate the necessity for the imposition of special levy on beekeepers to raise funds to cover the cost of administration of the pool.

Exemption from the board's control was approved in the case of beekeepers who desire to sell honey direct to retail vendors, or to local consumers subject to conditions approved by the board.

The conditions under which honey is marketed throughout Australia, and particularly in Queensland, have not been altogether satisfactory. Generally, the quantity of honey produced is somewhat in excess of Australian requirements, but the volume of honey available for export has been irregular and has fluctuated very materially in quantity and in the season of the year when it is available. These factors have militated against the export trade being placed on a good footing.

The preparation and packing of honey for market is a matter to which the board is at present giving some attention, and it is a field in which there is much scope for the introduction of improved methods. It is the custom of some growers to market honey which is not always of first-class quality, and to place it in containers lacking in attractiveness, and which are generally unsuited for the purpose. There is no uniformity in the type of containers in which the honey is

marketed. In marketing all produce, particularly edible products for table use, it has been demonstrated time and again that an attractive "pack" is an essential in obtaining a satisfactory price for the article. There is no economy in using an unsuitable type of container. The appeal that is made to the prospective purchaser by the neat and attractive package results in the price realised more than recouping the grower for the extra cost. In the case of any export trade the advantage of the suitable packages is even more pronounced than is the case on the local market.

The board is at present grappling with this and other matters associated with the marketing of honey and beeswax, and, in order that they may become apprised of the quantity of honey and beeswax that will be available for marketing this season, the board called upon all growers owning more than five hives of bees to furnish the secretary of the board with the necessary particulars.

### NORTHERN PIG BOARD.

This board was constituted in 1923 for a three-year period, and the term of the board was extended in 1926 for a further term of five years. The extension of the term of the pool was not challenged by the growers. The term of the present board will expire on the 31st December, 1930. The growers of pigs will be afforded an opportunity of expressing their views as to whether they desire a continuance of the pool or otherwise.

Particulars of the operations of the board for the financial year ended the 30th June, together with information concerning the transactions of the former year, are given below for comparative purposes:—

	1928-29.	1929-30.
Number of pigs handled ..	11,248	11,881
Amount paid therefor .. ..	£33,244	£33,747
Number of pigs allocated to Bacon Company	9,595	10,806

#### PRICES PAID. 1928-29.

	1st	2nd	3rd	Small Goods.
	d.	d.	d.	d.
July and August .. ..	6	5	4	$2\frac{1}{2}$
September 1928 to June 1929	7	6	4	3
1929-30.				
July to December, 1929 ..	$7\frac{1}{2}$	6	4	3
January, February, and March	7	6	4	3
April, 1930 .. ..	6	5	4	3
May and June, 1930 ..	$5\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{1}{2}$	3

A comparison indicates that the business operations for the year just terminated were, from the viewpoint of pigs slaughtered and bacon manufactured, quite satisfactory. The volume of output of pig products shows a substantial increase, but the price received by the grower of the pigs was on a somewhat lower scale.



Prior to the establishment of a bacon factory on the tableland, the producers of pigs there were at a disadvantage, and suffered somewhat as a result of their isolation and remoteness from a bacon-curing works. This difficulty was overcome by the building of a bacon factory at Floreat Siding, near Mareeba, and allowed dairy farmers to produce pigs on a more extensive scale than would have been practicable had they been compelled to rely solely on the somewhat limited sales that could be made for fresh pork.

Dairying and maize-growing are well-established industries on the tableland, and both milk and maize are products that can be utilised advantageously in the raising of pigs, and it would be rather surprising if pig-raising did not in the near future occupy a more prominent position than is at present the case.

### THE PEANUT INDUSTRY.

The board controlling the sales of peanuts found it necessary that it should provide increased storage and additional plant for the treatment of the nuts preparatory to their disposal, and during the year storage bins and additional plant were erected at Kingaroy at an estimated cost of approximately £50,000. The ceremony attaching to the opening of the silos was performed by the Minister for Agriculture in August 1929, in the presence of a large number of growers.

The amount required for this purpose was made available by the Commonwealth Bank under a guarantee from the State Government. The period of the loan was for five years in the first instance, but it was realised at the outset that the five years' term as originally arranged for the repayment of the loan to the bank would later have to be readjusted. The board has collected funds towards meeting its obligation to the bank by a levy imposed on the peanuts produced from year to year, and in this way it accumulated a considerable sum of money, and from this levy fund the board has been able to reduce its indebtedness to the bank to an amount of £24,000, and the Government has intimated to the board that the Treasury would be prepared to give consideration to an extension of the period of repayment of the balance of the loan for such term as might be arranged later, up to a maximum of fifteen years.

Peanut-growing is an industry that particularly lends itself to the pooling system. The cost involved in providing storage and plant for treatment of peanuts even on a small scale is much too great to allow of the individual farmer providing these facilities on his farm. To do so would leave the industry bare of any profit. The erection of the storage bins and the equipment necessary for the treatment of the nuts is comparatively costly, and the plant would only be in operation for a limited period of the year, and would thereby inflate the overhead costs. By the pooling of the whole of the production of nuts, which are delivered later to the board, the volume of nuts to be stored and treated is so great that the board is placed in a position to arrange for storage bins and cleaning and treat-

ment equipment at a cost that is much lower than would be the case if these services were undertaken by the individual growers.

Queensland is capable of producing the whole of the peanut supplies for the Commonwealth. Peanuts, however, are grown in many countries of the world where black labour is utilised, and from these countries nuts were being imported into Australia at an unjustifiably low figure, and swamping the market to such an extent that it became almost impracticable to place the Queensland nuts on the market here. The board placed the position before the Commonwealth Government, who caused investigation to be made into the matter, with the result that an embargo was placed on the importation of peanuts for a period up to 30th June, 1930, and this relief gave the board opportunity to clear stocks they had on hand. The board, however, foresaw difficulties in the termination of the embargo on the 30th June, and again approached the Commonwealth Government and made strong representations for the continuance of the embargo on the importation of peanuts. After exhaustive inquiry into the matter the Federal Government agreed to grant an embargo against the importation of peanuts from the 1st July, 1930, for an indefinite period subject to the following conditions:—

- (1) That no increase is to be effected in the selling price of Australian-grown peanuts above the price ruling during the financial year 1928-29;
- (2) That the board is not to oppose the admission, free of duty under Customs by-laws, of that quantity of peanuts required for purposes of peanut oil over and above that which the Queensland Peanut Board can supply.

The onus of supplying the whole of the requirements of the Commonwealth in peanuts now rests with the Queensland growers.

A variety of peanut known as "Virginia Cluster" is in favour for some class of trade within the Commonwealth, but this variety was not grown formerly in any quantity. Arrangements have been made to provide sufficient seed of this variety to meet full requirements. Kingaroy continues to hold its place as the principal centre of peanut production.

### THE POULTRY INDUSTRY.

Eggs were first declared to be a commodity under the Primary Products Pools Act in January 1923. The pool has been in operation continuously since that date, and the sales of eggs coming under the pool have been carried out under the supervision of the board then constituted. The pool applies only to those persons owning fifty or more fowls.

The production of eggs in Queensland is in excess of the requirements of this State, and, in addition to the sales on the local market, export and interstate trade are engaged in. The board arranges for the packing of eggs for export, and in a lesser degree arranges for the pulping of eggs. The quantity of eggs marketed through



the board and its agents during the year was 4,789,449 dozen, the quantity actually handled by the board being 3,592,613 dozen. The local sales made by the board in 1929-30 were as follows:—

Eggs in shell, 1,359,026 dozen.

Eggs pulped, 728 tins (approximately 24,024 dozen.)

The eggs exported overseas amounted to 919,410 dozen in shell, while the quantity marketed interstate consisted of 1,082,880 dozen in shell and 6,281 tins pulped, approximately 207,273 dozen. The eggs pulped or otherwise treated were 7,009 tins pulp or approximately 231,297 dozen.

The disposal of the eggs handled by the board for the year ended the 30th June, 1930, may be set out as follows:—

Month.	Local and Interstate Sales.	Exported.	Pulped.
1929.	Dozens.	Dozens.	Dozens.
July .. ..	221,507	..	5,883
August .. ..	254,590	15,000	25,744
September .. ..	454,639	134,850	15,985
October .. ..	419,554	65,400	19,363
November .. ..	406,357	44,670	35,344
December .. ..	299,427	59,490	23,065
1930.			
January .. ..	181,866	..	31,363
February .. ..	180,070	..	17,916
March .. ..	189,702	..	12,162
April .. ..	134,481	..	2,251
May .. ..	152,030	..	1,142
June .. ..	120,190	..	592

Naturally there is some fluctuation in the prices realised for eggs disposed of through the different marketing channels, and, so that an individual grower would not stand to materially benefit or lose anything over and above the other growers whose eggs were pooled, the board imposed a levy upon all eggs marketed, and the proceeds of this levy fund are utilised for the purpose of equalisation of price returned to the growers by the board.

There are at least five States in the Commonwealth that engage in the export trade of eggs, and this gave rise to a proposal for the establishment of a Commonwealth-wide board to undertake the control and disposal of eggs in shell or pulp that are available for export. An interstate conference of representatives drawn from organisations connected with the poultry industry of the Commonwealth was convened by the Queensland Egg Board, and held in Melbourne during April last. Representatives were present from all the States of the Commonwealth. The outcome of the conference was a proposal for the establishment of a Commonwealth board to undertake the control and disposal of eggs in shell and egg pulp outside the State in which the eggs were produced. Additionally it was considered that the board should arrange the cold storage of any surplus eggs over and above the requirements of the local market in each State. It was also suggested that the further functions of the board, when formed, might include—

- (1) To initiate and apply an equalisation scheme by levying on production;

- (2) (a) To arrange during the export season (this period to be determined by the board) that all the excess production within the Commonwealth shall be exported overseas, all eggs of  $1\frac{3}{4}$  oz. and over and of suitable quality to be exported in shell, and all eggs of smaller size to be exported as pulp.

- (b) To restrict eggs being sent from one State to another during the export period, and to regulate interstate trade during the balance of the year.

- (3) To arrange a uniform standard and conditions of sale for pulp throughout the Commonwealth, the board to levy on each State to finance its operations.

Other sections of primary industry that have found it necessary to have recourse to the overseas markets for the disposal of portion of their production have found it of advantage to conduct the trade under uniform conditions, and no doubt it would be beneficial for the egg producers exporting their product from the various States to arrange that the trade be conducted on uniform lines right throughout the Commonwealth. It is certain Australia exporting as a whole will always command a more prominent position in the world's market than is to be attained by the individual States each attempting to preserve its identity by the adoption of different methods of marketing, packing, and preparation of their products for export.

#### THE WHEAT INDUSTRY.

It has been the case throughout the history of Queensland that the production of wheat in this State has been inadequate to meet the State's requirements in flour and mill offals. Both the Government and the Wheat Pool Board realised the weakness of the position, which was aggravated by the fact that on occasions comparatively large quantities of wheat were supplied by Queensland to the overseas markets. The shortage of supply of local wheat for gristing purposes made the position difficult for Queensland millers to hold the trade here in flour and other mill offals, and to preserve even part of the trade necessitated that the millers had to introduce wheat from the South. The anomalous position that had been created by Queensland producing wheat in quantities insufficient to meet the State's requirements and marketing a quantity of the wheat overseas, thereby widening the disparity between the aggregate production and the amount needed for local milling purposes, prompted the Minister for Agriculture (Hon. H. F. Walker) to convene a conference of the Wheat Pool Board and the milling interests, with a view of seeking a means whereby improvements could be effected in the conditions of the wheat-growers and those engaged in the gristing and intermediary stages from the milling of flour to the placing of the loaf on the breakfast table of the consumer.

As the outcome of the conference a scheme was devised which will allow of an increased acreage being planted under wheat, and at the same time removing the necessity for the Wheat Board to engage in the export trade in wheat



except for the purpose of clearing any quantity other than the excess over and above local requirements. The scheme also secured for the millers ample supplies of State-grown wheat to meet the requirements of flour and mill offals in Queensland. Ultimately the decisions arrived at by conference formed the basis of an agreement that was entered into between the State Wheat Board and the flour-millers. The agreement is for a period of three years and applies to wheat harvested during the seasons 1929-30, 1930-31, and 1931-32.

Amongst the further provisions of the agreement which apply only to wheat of millable quality are the following:—

The miller acts as a receiving agent on behalf of the Wheat Board and does everything involved in receiving wheat from farmers at country stations and sidings as directed by the board. The millers receive the wheat notwithstanding the amount tendered by the farmers under the board's direction is in excess of the quantity estimated.

The millers, on behalf of the board, insure and keep insured against loss or damage by fire all products of wheat the property of the board in the miller's possession or control.

All wheat received has to be classified and weighed by officers of the board and accepted by the miller at intake weight and quality.

The board has agreed to facilitate the carrying out by the miller of all the services to be rendered by him, and to insure and keep insured in the name of the board all wheat the property of the board in the miller's possession or control.

The millers are to take from the board 3,500,000 bushels of wheat each season, and each miller has agreed to grist a specified quantity if same is available during the season.

Provision has been made for the appointment of arbitrators and an umpire in cases where disputes arise necessitating their being referred to arbitration.

The three and a-half million bushels of f.a.q. milling wheat is to be purchased by the millers at a formula price on rails country stations of 1d. per bushel above Darling Harbour, Sydney, quotations from week to week.

The millers have the first option of purchasing a further half-a-million bushels at a price not less than the ruling Sydney price landed in Brisbane.

The millers receive payment of 1½d. per bushel for handling the wheat both inwards and outwards and for the protection of the wheat which is received into the pool.

Arising out of the agreement entered into between the State Wheat Board and the millers are features that are of advantage to growers, amongst which may be mentioned that an

increased quantity of wheat will be sold to local millers and gristed in the State without resort to export overseas, and in this connection it is to be remembered that the local market is always the most profitable to growers. A first advance on the wheat delivered can be paid to the grower upon delivery of his wheat at country stations with greater promptitude and at a proportionately higher rate than was possible formerly.

For the 1929-30 season the total quantity of wheat delivered to the pool was 3,969,784 bushels, constituting a record delivery since the pool's inception. Of this quantity 97.72 per cent. was of milling quality and 2.28 per cent. feed.

With the object of a more equitable allocation of expenses involved in the handling of feed wheat, this commodity was, for financial purposes, kept separate from the general pool throughout the season. A first advance on wheat of this quality was made on the following basis:—

		s.	d.
Feed 1A	..	3	3 per bushel.
Feed 1	..	2	9 per bushel.
Feed 2	..	2	3 per bushel.

#### HAIL INSURANCE.

Up to the end of May 1930 a sum of £1,911 4s. 4d. was paid by way of compensation for wheat destroyed by hail, and, allowing for estimated further distributions yet to be made, the cost will represent approximately .166d. per bushel for the 1929-30 season's wheat.

#### COMMONWEALTH WHEAT POOL.

During the year action was taken by the Commonwealth Government for the establishment of a Commonwealth Wheat Pool, the main provisions being—

A guarantee to the wheatgrowers of 4s. per bushel;

At least three of the wheat-producing States of the Commonwealth were to come under the scheme before it would become operative.

In the event of an affirmative vote of the growers in at least three States being recorded it was the intention of the Commonwealth Government to constitute an Australian Wheat Pool Board and clothe that Board with statutory authority. At a conference convened for the purpose of discussing this matter, Mr. Parker Moloney said it was his intention to introduce a Bill designed for the purpose of setting up an Australian Wheat Pool, and later this action was taken, but the Bill was rejected by the Senate.

There seems to be a considerable difference of opinion regarding the quantity of wheat required to meet the needs of this State. Taking the Commonwealth as a whole, it is found that the amount required for home use is approximately 5.06 bushels per capita. Taking the utilisation of wheat for all purposes on this basis,



Queensland would require for all local uses 4,691,085 bushels per annum. This quantity would include the wheat sufficient to produce the flour requirements, the needs in respect of wheat for feed purposes, and the complement necessary for seed purposes. There seems to be no justification for the assumption that the requirements in wheat are on a higher scale than prevails in other parts of the Commonwealth.

#### THE FRUIT INDUSTRY.

Practically the whole of the production of tropical fruits within Australia is centred in Queensland; and this State, with its wide range of climate and soils, also produces a large number of other fruits. With the object of improving marketing conditions and benefiting the industry generally, a legislative measure known as the Fruit Marketing Organisation Act was passed in 1923. Under its provisions the Committee of Direction of Fruit Marketing was constituted, and, conjointly with Sectional Group Committees formed to deal with the particular kinds of fruit, exercises control over the marketing of fruit, and acts generally in the interests of the fruitgrowers, particularly in respect of transport arrangements.

The term of the Committee of Direction has been extended from time to time, and in the course of the year a ballot of growers was taken for the purpose of obtaining an expression of opinion as to whether the majority of those engaged in fruitgrowing desired continuance of the Committee or otherwise. Following was the result of the voting:—

Number of ballot papers issued	5,332
Number of growers voting for continuance .. ..	3,240
Number of growers voting against continuance ..	476
Informal .. ..	32
Number of growers voting .. ..	3,748

equivalent to 70.3 per cent. voting, and the percentage in favour of continuance being 87.2.

From an economic standpoint, bananas and pineapples are still the most important kinds of fruit produced in Queensland. Much time and energy have been devoted to the investigation of problems affecting these fruits, particularly in respect of their carriage during transport, and the changes that occur in transit, chiefly to Southern markets. As a result of this work, increased knowledge of transport difficulties and methods of surmounting them has been gained. This work of the Committee has made it possible to deliver many kinds of highly perishable fruits on the Southern markets in an attractive and wholesome condition. The practice of arranging with the canners to preserve quantities of pineapples from time to time has been continued, and in this way the increased production has been dealt with satisfactorily. There are indications of considerable expansion in this trade. In quality, the Queensland pack is of exceptionally high standard and should hold its place in competition with the canned products of other countries.

Following are particulars of consignments of bananas and pineapples handled by the Committee for the period ended 30th June, 1930:—

#### Bananas—

Southern Consignments—	Cases.
To Melbourne .. ..	374,288
To Sydney .. ..	304,022
To other Southern Towns ..	3,554
Total .. ..	681,864

Bunch Bananas—Brisbane, 282,491 bunches.

#### Pineapples—

Southern Consignments—	Cases.
To Melbourne .. ..	95,662
To Sydney .. ..	115,999
To other Southern Towns ..	966
Total .. ..	212,627

#### Factory Consignments—

Winter pack, '29 .. ..	36,061
Summer pack, '30 .. ..	150,849
Total .. ..	186,910

Queensland Sales—Approximately 85,028

Grand Total .. .. 484,565

In order to transport fruit to Southern States with the least delay possible, it is the practice of the organisation to arrange fruit train specials to both Sydney and Melbourne, and the following figures indicate the extent of this service:—

	Packages.
To Melbourne .. ..	536,557
To Sydney .. ..	1,100,908
Total .. ..	1,637,465

A further increase in the quantity of strawberries produced during the year is recorded. Strenuous efforts were made to obtain a reasonable return to the growers, but the quantity offering was so much in excess of immediate requirements that it was found impracticable to effect sales of the whole of the berries at satisfactory prices. The Committee made every endeavour to keep growers informed of the position from time to time. The seasonal returns show a marked and rapid increase in the production. Last year there was also a heavy crop of strawberries, and some 179 tons were processed at the canneries. This quantity nearly equalled the total used by the factories for the previous three years. After the factories had refused to take any more for their own requirements, 29 tons were treated on behalf of the C.O.D. Marketing difficulties were accentuated because of a heavy crop in Tasmania. The Sydney market normally absorbs about 60 per cent. of the Queensland output of strawberry conserve. It was unable to do so last year. Strawberry growers were warned of the difficult position before planting this year, but, in the face of such warning, twice the acreage was planted this season as against that of last season. The number of growers this year is over 630, compared with 180 four years ago. Strawberry growers have for the last few years fixed a mini-



mum price of 6s. 6d. per dozen boxes for the berries marketed in boxes on the Brisbane market. This year every strawberry grower was advised of the probable difficulty that would be experienced in maintaining this minimum price if the factories were not operating. The usual custom has been to divert to the factories any surplus remaining after the day's sales. The growers, however, decided to maintain the minimum of 6s. 6d.

A ballot was taken as to whether growers would agree to a levy for advertising, in view of the probability of an over-supplied market. Growers decided against this course.

In spite of the abnormal difficulties, the Committee of Direction endeavoured to quit the berries by—

- (a) Making special efforts through departmental stores and distributions to warehouses and offices of the surplus remaining after the market sales; and
- (b) Placing the final surplus with the factories.

Growers have been free to send to any market they chose, but most of the country towns of Queensland along the coast up to Townsville are amply supplied from local resources. There has been very little outlet, therefore, in the country trade. Arrangements were made for the supply of berries in 4-lb. containers, for which growers received 1s. 6d. delivered on the floor. The container cost 3d. and the cartage to the Committee of Direction was 1d., the net return to the grower for the 4 lb. of berries being 1s. 2d. Berries were also supplied in 15-lb. containers at a price of 6s. delivered to householders, or sold to retailers at 5s. 3d., the charges being 9d. for the container and 2½ per cent. for collection.

Owing to the factories being able to absorb only a small proportion of the crop available, each grower is rationed as to what he may send to the factories. Every grower is entitled to share in factory supplies and all are treated on the same basis. Apart from this allocation to the factories and the control of the box strawberries on the Brisbane market, no grower is prevented from disposing of his crop as he chooses. The Committee of Direction is not

operating a strawberry pool, and the growers are perfectly free agents in respect of marketing, other than as to the restrictions mentioned.

The Committee of Direction has, this year, been successful in sending strawberries to Melbourne. These have been packed in airtight containers and sent under refrigeration. Large quantities have been sent by steamer each Saturday, and the relief to the Brisbane market has been considerable. The Sydney market has been receiving large quantities daily.

The new and shorter railway route to Sydney, by which the necessity of border transshipment is obviated, will be of especial advantage in fostering the interstate trade. This should be of particular advantage in the case of fruit, particularly as the time which the fruit is held in the trucks in transit will be shortened by several hours.

#### OFFICE OF DIRECTOR OF MARKETING.

Mr. L. R. Macgregor, who for a number of years held the position of Director of Marketing in this State, was in March last appointed as Australian Trade Commissioner in Canada by the Commonwealth Government. In July 1922 Mr. Macgregor was selected, from seventy-two applicants, to the position of the Director of the Queensland Producers' Association, on the recommendation of the Council of Agriculture, and during the eight years that have since passed Mr. Macgregor rendered valuable service to the primary producers in this State, particularly in the organisation of the farmers and in the direction of the establishment of methods of organised marketing, through the formation of pools, and in other ways that have proved to be advantageous to primary producers.

To fill the vacancy occasioned by Mr. Macgregor's resignation of the position of Director of Marketing, arrangements have been made to merge that office with that of the Under Secretary of the Department of Agriculture and Stock.

E. GRAHAM,

Under Secretary for Agriculture and  
Stock and Director of Marketing.



# REPORT OF THE REGISTRAR-GENERAL ON AGRICULTURAL PRODUCTION FOR THE YEAR 1929.

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## DAIRYING.

Table No. I.—RETURN SHOWING THE PROGRESS OF THE DAIRYING INDUSTRY SINCE THE YEAR 1909

Year.	Dairying Establishments, Exclusive of Factories.	DAIRY COWS.				—	Production of Butter.	Production of Cheese.
		In Milk.	Dry.	Heifers within three months of milking.	Total.			
							Lb.	Lb.
						1890	*2,000,000	*170,240
						1895	3,719,523	1,841,799
						1900	8,680,389	1,984,705
1909	15,279	228,497	105,342	...	333,839	1905	20,319,976	2,682,089
1910	16,079	262,788	102,656	...	365,444	1910	31,258,333	4,146,661
1911	16,225	237,997	119,098	...	357,095	1911	27,858,535	3,718,257
1912	16,579	267,847	107,813	...	375,660	1912	30,307,339	3,947,615
1913	17,866	285,403	106,036	...	391,439	1913	35,199,387	5,395,050
1914	18,029	288,334	98,977	...	387,311	1914	37,230,240	7,931,869
1915	17,876	218,511	116,732	...	335,243	1915	25,456,714	4,383,410
1916	18,410	247,855	95,456	...	343,311	1916	28,967,279	8,495,825
1917	19,404	303,133	96,375	...	399,508	1917	38,930,690	11,142,114
1918	19,313	255,039	126,466	...	381,505	1918	32,371,575	8,636,700
1919	18,952	211,331	161,815	...	373,146	1919	26,213,514	8,296,318
1920	20,457	335,026	113,608	...	448,634	1920	40,751,373	11,512,262
1921	21,695	423,251	130,957	...	554,208	1921	60,923,194	15,200,527
1922	21,931	418,351	145,332	...	563,683	1922	53,785,599	10,560,316
1923	22,019	357,203	155,326	...	512,529	1923	40,659,634	7,221,355
1924	22,599	433,531	151,355	...	584,886	1924	58,187,954	11,093,886
1925	22,581	463,436	147,990	...	611,426	1925	70,748,646	14,242,721
1926	22,451	397,606	157,913	55,708	611,227	1926	50,991,985	8,740,355
1927	22,547	436,337	139,970	69,009	645,316	1927	62,552,917	12,233,520
1928	22,457	492,405	144,562	33,838	670,805	1928	73,820,292	15,047,825
1929	22,763	507,100	142,477	31,000	680,577	1929	77,483,845	13,229,337

\* Estimated.

Table No. II.—RETURN SHOWING DETAILS OF THE PRINCIPAL DAIRYING DIVISIONS FOR THE YEAR 1929.

District.	Total Milk Obtained.	HOW UTILISED.						
		For Butter on Farms.	For Cheese on Farms.	For Domestic Purposes by Producer.	Separated for Sale.	Sold for Consumption as Milk.	Sold to Condensed Milk Factories.	Sold to Cheese Factories.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Moreton	68,038,176	1,956,017	...	1,925,318	57,413,264	5,145,651	1,576,866	21,060
Wide Bay	54,071,543	1,846,383	6,350	1,572,410	49,725,056	655,359	...	265,985
Port Curtis	9,467,663	610,866	30	346,382	8,039,005	471,380	...	...
Rockingham	6,420,831	169,828	...	313,365	5,416,253	213,231	...	308,154
Maranoa	1,376,097	80,699	...	76,761	1,185,232	33,405	...	...
Downs	42,759,893	1,116,669	900	1,245,698	27,342,184	408,188	...	13,646,344
Other Districts	1,439,355	291,874	...	428,679	230,998	487,804	...	...
Total, 1929	a 183,573,558	6,072,336	7,280	5,908,523	149,351,992	7,415,018	1,576,866	13,241,543
Total, 1928	b 180,129,877	5,910,741	1,672	5,888,863	144,830,348	7,125,329	1,548,515	14,824,409
Increase, 1929	3,443,681	161,595	5,608	19,660	4,521,644	289,689	22,351	...
Decrease, 1929	...	...	...	...	...	...	...	1,582,866

District.	ESTABLISHMENTS.			DAIRY CATTLE.		BUTTER MADE.			CHEESE MADE.		
	Dairying.	Butter Factories.	Cheese Factories.	In Milk.	Dry.	At Factories.	By Farmers.	Total.	At Factories.	By Farmers.	Total.
	No.	No.	No.	No.	No.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Moreton	7,752	15	1	191,674	43,519	24,898,076	915,308	25,813,382	14,243	...	14,243
Wide Bay	6,007	13	2	164,898	47,337	24,886,049	842,913	25,728,962	240,516	5,780	246,296
Port Curtis	1,429	6	...	34,140	13,026	5,925,449	224,335	6,149,784	...	20	20
Rockingham	1,144	4	3	17,020	6,622	2,995,966	70,877	3,066,843	297,764	...	297,764
Maranoa	279	1	...	4,826	2,140	563,864	31,655	595,519	...	...	...
Downs	4,645	12	61	87,313	23,849	15,406,700	499,712	15,906,412	12,670,637	377	12,671,014
Other Districts	1,507	1	...	7,229	5,984	114,869	168,074	222,943	...	...	...
Total, 1929	22,763	52	67	*507,100	142,477	74,790,973	2,692,872	77,483,845	13,223,160	6,177	13,229,337
Total, 1928	22,457	48	71	†492,405	144,562	71,162,096	2,658,196	73,820,292	15,046,702	1,123	15,047,825
Increase, 1929	306	4	...	14,695	...	3,628,877	34,676	3,663,553	...	5,054	...
Decrease, 1929	...	...	4	...	2,085	...	...	...	1,823,542	...	1,818,488

a 2,279,973 gallons of this were sent from the Moreton Division to New South Wales.

b 1,150,452 gallons of this were sent from the Moreton Division to New South Wales.

\* Exclusive of 31,000 Heifers intended for milking.

† Exclusive of 33,838 Heifers intended for milking.

Table No. III.—RETURN SHOWING CLASSIFICATION OF DAIRY ESTABLISHMENTS (NOT FACTORIES) ACCORDING TO NUMBER OF DAIRY COWS (INCLUDING HEIFERS INTENDED FOR MILKING).

District.	Under 5.	5 to 9.	10 to 14.	15 to 19.	20 to 29.	30 to 49.	50 to 99.	100 & over.	Total.
Moreton	1,098	379	536	713	1,601	1,958	1,248	219	7,752
Wide Bay	815	376	269	311	877	1,689	1,451	219	6,007
Port Curtis	149	101	99	117	280	374	246	63	1,429
Rockingham	530	95	38	15	84	200	158	24	1,144
Maranoa	63	46	20	8	35	65	37	5	279
Downs	991	356	422	455	817	992	548	64	4,645
Other Districts	830	351	100	49	61	61	41	14	1,507
Totals, 1929	4,476	1,704	1,484	1,668	3,755	5,339	3,729	608	22,763



Table No. IV.—BUTTER, CHEESE, AND CONDENSED MILK.  
RETURN SHOWING QUANTITY EXPORTED OVERSEA FOR FIVE YEARS (AUSTRALIAN PRODUCE ONLY).

Year.	BUTTER.			CHEESE.			CONDENSED MILK.		
	Quantity Exported Oversea.	Value.	Value per lb.	Quantity Exported Oversea.	Value.	Value per lb.	Quantity Exported Oversea.	Value.	Value per lb.
	lb.	£	s. d.	lb.	£	s. d.	lb.	£	s. d.
1924-25 ..	44,127,410	2,808,598	1 3½	7,803,009	273,494	0 8½	1,096,802	52,920	0 11½
1925-26 ..	36,605,395	2,404,626	1 3½	6,463,120	250,683	0 9½	507,899	24,193	0 11½
1926-27 ..	22,825,542	1,502,957	1 3½	3,465,261	121,628	0 8½	3,401	168	0 11½
1927-28 ..	45,337,350	3,021,294	1 4	6,702,765	249,702	0 9	1,100	39	0 8½
1928-29 ..	45,008,530	3,180,298	1 2½	7,925,026	311,051	0 9½	2,028	100	0 11½

Table No. V.—CONDENSED MILK MANUFACTURED—RETURN FOR FIVE YEARS

	Lb.
1925	9,725,423
1926	6,533,966
1927	5,686,632
1928	5,877,384
1929	6,024,126

### POULTRY.

Table No. VI.—RETURN SHOWING THE NUMBERS OF POULTRY ON FARMS AND EGGS PRODUCED IN THE PRINCIPAL DISTRICTS OF THE STATE FOR THE YEAR 1929.

Petty Sessions District.	Fowls.	Ducks.	Geese.	Turkeys.	Other.	Eggs.	Total Poultry Sold or Killed for Food.		Value of Eggs Sold or Used.
	Number.	Number.	Number.	Number.	Number.	Dozen.	Number.	£	£
Allora ..	9,108	..	..	21	300	36,040	665	76	1,851
Atherton ..	24,438	457	51	221	9	105,301	7,411	1,047	5,396
Ayr ..	11,889	872	106	247	42	44,146	1,621	207	3,990
Beaudesert ..	15,528	867	123	690	27	91,330	6,155	837	4,049
Biggenden ..	11,043	50	8	57	15	68,778	2,421	247	3,273
Brisbane (A) ..	86,263	2,146	21	23	..	638,782	38,637	4,222	38,080
Brisbane (B) ..	51,536	742	91	..	990	469,176	20,253	2,409	26,565
Bundaberg ..	17,905	286	25	93	..	171,351	3,830	484	4,396
Caboolture ..	11,442	20	..	..	..	92,587	5,362	504	4,707
Cairns ..	16,237	749	8	14	1	51,216	5,805	1,080	5,413
Childers ..	7,448	121	41	54	12	28,842	16,516	1,070	1,372
Cleveland ..	12,238	215	7	18	..	91,990	4,218	446	4,911
Clifton ..	22,353	96	4	90	..	87,749	6,872	736	4,046
Condamine ..	5,273	46	42	342	499	31,119	1,917	167	1,749
Crow's Nest ..	13,224	622	114	83	18	58,604	1,139	116	1,746
Dalby ..	15,661	221	28	334	14	72,417	4,313	501	3,832
Dugandan ..	30,504	2,318	308	199	80	155,537	8,707	731	5,652
Esk ..	6,087	350	88	217	21	33,417	2,369	247	1,581
Gatton ..	23,986	2,092	493	332	20	87,815	7,426	824	3,966
Gayndah ..	18,156	470	42	240	..	65,015	5,230	496	3,363
Gin Gin ..	6,277	163	8	53	..	25,768	1,024	139	1,332
Gladstone ..	10,407	207	13	295	33	37,918	1,896	281	1,862
Goombungee ..	6,440	92	85	91	..	34,036	2,062	160	1,306
Gympie ..	32,900	1,339	112	614	1,469	168,569	14,903	1,803	8,434
Harrisville ..	25,458	881	96	172	..	155,700	4,148	431	6,629
Helidon ..	8,504	346	27	80	..	44,238	2,061	366	2,232
Highfields ..	9,670	154	39	97	..	36,811	3,898	386	1,749
Ingham ..	14,534	342	25	3	..	47,532	2,794	469	3,895
Innisfail ..	13,633	312	20	37	6	30,870	3,748	941	3,757
Ipswich ..	9,316	506	62	66	..	59,365	2,649	326	2,646
Laidley ..	14,903	1,771	357	202	5	70,713	3,965	461	2,323
Logan ..	17,530	529	32	40	80	94,319	4,863	540	4,926
Lowood ..	15,229	2,081	603	255	..	72,814	5,211	455	2,031
Mackay ..	31,806	1,218	75	332	57	139,107	6,645	835	17,482
Marburg ..	10,397	1,053	104	77	..	56,800	2,277	228	1,565
Maroochy ..	47,036	932	14	69	1	311,227	13,016	1,635	14,750
Maryborough ..	46,693	356	22	22	..	70,060	3,690	451	3,742
Mount Morgan ..	9,329	173	34	228	20	30,419	1,615	223	1,670
Nanango ..	29,996	959	71	357	19	137,367	9,490	1,678	5,797
Oakey ..	23,731	314	209	464	7	118,936	3,951	396	5,203
Pittsworth ..	15,391	51	43	129	67	113,500	5,752	704	4,573
Redcliffe ..	11,459	371	7	15	..	67,342	2,833	451	3,710
Rockhampton ..	31,234	759	59	710	299	206,355	12,546	1,371	9,101
Roma ..	8,485	288	13	359	48	28,363	1,118	137	1,682
Rosewood ..	22,284	1,251	95	140	56	128,234	15,939	1,009	6,600
Southport ..	9,056	576	207	281	6	31,881	5,581	990	1,663
Stanthorpe ..	9,687	43	8	91	13	60,299	872	94	3,078
Tiaro ..	7,167	172	34	139	28	25,464	468	60	1,356
Toowoomba ..	13,884	309	29	58	..	65,867	4,262	456	2,938
Townsville ..	6,366	175	36	25	52	38,690	2,502	414	2,484
Warwick ..	27,967	250	40	1,152	28	107,315	5,384	684	5,287
Wienholt ..	36,985	1,024	138	196	9	176,042	9,635	1,140	8,213
Wynnum ..	30,626	455	2	1	120	256,301	30,140	2,575	14,027
All Other Districts ..	82,990	2,321	436	895	119	303,597	22,681	2,752	18,807
Totals, 1929 ..	1,107,689	34,513	4,755	12,020	4,590	5,833,031	364,486	41,488	306,788
Totals, 1928 ..	1,047,083	37,927	4,948	13,147	3,429	5,210,967	355,869	38,386	278,062
Increase, 1929 ..	60,606	..	..	..	1,161	622,064	8,617	3,102	28,726
Decrease, 1929 ..	..	3,414	193	1,127	..	..	..	..	..

NOTE.—Total value poultry and eggs—1928, £619,327; 1929, £635,145.

N.B.—Brisbane (B) refers to South Brisbane.



APIARIES.  
Table No. VII.

RETURN SHOWING THE PARTICULARS OF THE BEE INDUSTRY FOR THE YEAR 1929.

Petty Sessions District.	Number of Hives.		Honey.	Average per Productive Hive.	Wax.
	Productive.	Non- Productive.			
Brisbane (A) .. .. .	398	108	Lb. 25,320	Lb. 64	Lb. 316
Beaudesert .. .. .	164	17	9,280	57	87
Caboolture .. .. .	930	311	45,710	49	220
Chinchilla .. .. .	16	5	7,875	49	170
Cook .. .. .	161	10	12,308	76	220
Dalby .. .. .	250	86	12,420	50	300
Dugandan .. .. .	133	14	7,055	53	50
Gatton .. .. .	271	202	10,610	39	212
Gayndah .. .. .	105	..	9,000	86	224
Highfields .. .. .	350	100	21,000	60	50
Killarney .. .. .	842	114	64,144	76	903
Logan .. .. .	761	67	21,919	29	458
Mackay .. .. .	193	17	7,780	40	214
Maroochy .. .. .	511	118	25,940	49	493
Maryborough .. .. .	893	316	35,371	40	905
Redcliffe .. .. .	200	15	7,310	37	63
Rockhampton .. .. .	1,565	173	91,191	58	1,333
Warwick .. .. .	970	213	82,305	85	1,036
Woodford .. .. .	231	76	19,444	84	170
All Other Districts .. .. .	3,866	2,340	198,086	51	3,315
Totals, 1929 .. .. .	12,810	3,302	714,068	56	10,739
Totals, 1928 .. .. .	14,194	3,053	667,846	47	13,629
Increase, 1929 .. .. .	..	249	46,222	9	..
Decrease, 1929 .. .. .	1,384	..	..	..	2,890

NOTE.—Total value of honey and wax—1928, £14,491; 1929, £13,052.

Table No. VIII.

RETURN SHOWING PROGRESS OF HOLDINGS AND AREA CULTIVATED.—RETURN FOR 10 YEARS.

Year.	Number of Holdings Returned.	Increase per cent. on Previous Year.	Increase per cent. on Figures of 1904.	Area under Culti- vation.	Increase per cent. on Previous Year.	Increase per cent. on Figures for 1904.
1904 ...	17,854	...	...	577,896	...	...
1920 ...	26,921	0·78	50·78	1,018,444	3·02	76·23
1921 ...	28,122	4·46	57·51	1,045,342	2·64	80·89
1922 ...	29,390	4·51	64·61	1,090,816	4·35	88·76
1923 ...	31,464	7·06	76·23	1,198,166	9·84	107·33
1924 ...	32,359	2·84	81·24	1,275,039	6·42	120·63
1925 ...	33,533	3·63	87·82	1,241,118	—2·66	114·76
1926 ...	32,051	—4·42	79·52	1,288,518	3·82	122·97
1927 ...	31,414	—5·11	70·35	1,295,992	0·58	121·26
1928 ...	30,586	0·57	71·31	1,268,475	—2·12	119·51
1929 ...	30,701	0·38	71·95	1,269,242	0·06	119·63

The minus sign (—) implies a decrease.



**Table No. IX.**—RETURN SHOWING LABOUR EMPLOYED, INCLUDING OWNERS OR OCCUPIERS WORKING ON HOLDINGS, AND THE CAPITAL INVESTED IN FARMING MACHINERY, ETC., 1929.

PETTY SESSIONS DISTRICT.	LABOUR.				VALUE OF MACHINERY AND IMPLEMENTS				
	Farming Principally.		Dairying Principally.		Farming.	Dairying	Irrigation.	Travelling Machinery.	Total.
	Males.	Females.	Males.	Females.	£	£	£	£	£
Atherton .. ..	639	14	655	386	52,288	29,075	1,475	7,206	90,044
Ayr .. ..	1,567	2	1	1	175,775	166	396,572	108,161	680,674
Beaudesert .. ..	588	9	674	485	45,714	46,668	1,717	1,745	95,844
Biggenden .. ..	278	18	512	288	14,054	28,237	335	1,685	44,311
Bowen .. ..	382	24	12	6	15,568	506	22,394	9,761	48,229
Brisbane (A) .. ..	1,016	79	531	175	28,119	10,202	6,752	24,335	69,408
Bundaberg .. ..	1,817	24	301	746	135,928	14,028	12,000	37,105	199,061
Cairns .. ..	1,894	6	30	6	153,405	585	650	92,375	247,015
Childers .. ..	730	4	53	27	49,569	1,557	..	26,723	77,849
Cleveland .. ..	422	53	22	6	10,627	642	35,114	8,215	54,598
Clifton .. ..	753	9	179	254	192,821	10,402	90	43,752	247,065
Crow's Nest .. ..	396	2	314	356	34,044	27,529	60	1,820	63,453
Dalby .. ..	518	17	686	334	39,729	35,919	..	2,004	77,652
Douglas .. ..	294	..	34	18	45,936	1,312	..	..	47,248
Dugandan .. ..	913	16	606	593	84,380	20,904	1,977	8,973	116,234
Gatton .. ..	824	11	566	460	62,066	13,754	6,862	8,038	90,720
Gayndah .. ..	547	35	834	546	40,668	36,854	1,335	1,770	80,627
Gin Gin .. ..	408	1	76	102	34,414	3,981	..	10,450	48,845
Gladstone .. ..	683	28	723	372	40,174	34,573	1,640	1,245	77,632
Gympie .. ..	1,792	71	1,904	1,397	43,314	70,993	450	3,828	118,585
Harrisville .. ..	621	31	594	345	54,776	13,205	672	1,305	69,958
Ingham .. ..	1,436	25	4	3	116,466	375	75	102,509	219,425
Innisfail .. ..	1,657	3	8	1	264,313	192	..	475	264,980
Killarney .. ..	290	2	254	66	56,634	8,731	370	4,650	70,385
Laidley .. ..	679	16	434	407	61,151	9,560	1,455	4,330	76,496
Logan .. ..	669	72	596	323	23,731	9,991	4,236	3,155	41,113
Lowood .. ..	601	81	561	405	47,136	10,823	990	540	59,489
Mackay .. ..	3,238	22	68	32	331,718	4,335	120	33,736	369,909
Maroochy .. ..	1,538	54	791	464	44,303	26,274	2,371	10,735	83,683
Maryborough .. ..	624	42	248	199	39,244	6,644	250	12,029	58,167
Mount Morgan .. ..	388	17	223	121	28,568	7,424	1,679	5,702	43,373
Nanango .. ..	895	18	1,267	559	132,805	86,457	190	6,760	226,212
Oakey .. ..	860	4	722	599	159,556	48,435	..	2,150	210,141
Pittsworth .. ..	838	1	560	304	181,002	25,332	40	1,270	207,644
Proserpine .. ..	557	14	7	5	60,772	1,105	..	21,714	83,591
Redcliffe .. ..	409	14	435	244	18,009	15,147	2,050	7,191	42,397
Rockhampton .. ..	741	53	715	314	52,576	25,126	11,442	11,465	100,609
Rosewood .. ..	508	7	453	306	33,805	10,549	125	2,913	47,392
Roma .. ..	359	6	326	149	38,012	7,245	60	2,086	47,403
Southport .. ..	279	9	684	387	18,771	25,150	1,293	4,687	49,901
Stanthorpe .. ..	1,041	15	55	8	40,298	74	800	660	41,832
Tiaro .. ..	388	..	443	242	39,770	16,666	60	..	56,496
Toogoolawah .. ..	302	39	396	217	25,426	14,791	700	3,145	44,062
Toowoomba .. ..	559	5	373	253	54,813	15,979	2,149	12,835	85,776
Warwick .. ..	923	7	423	250	164,482	17,960	..	8,210	190,652
Wienholt .. ..	1,529	25	1,711	1,140	130,508	87,280	275	10,249	228,312
All Other Districts .. ..	5,111	232	3,854	2,720	288,337	166,171	36,725	75,981	567,214
Totals, 1929 .. ..	43,501	1,237	24,918	16,621	3,805,575	1,048,908	557,550	749,673	6,161,706
Totals, 1928 .. ..	40,928	1,238	22,735	15,622	3,713,419	991,748	579,349	613,856	5,898,372
Increase, 1929 .. ..	2,573	..	2,183	999	92,156	57,160	..	135,817	263,334
Decrease, 1929 .. ..	..	1	..	..	..	..	21,799	..	..

**Table No. X.**—RETURN SHOWING LAND TREATED FOR CULTIVATION, ETC., FOR THE YEARS 1928 AND 1929.

	1928.	1929.
	Acres.	Acres.
Under crop .. ..	1,044,632	1,046,235
In fallow .. ..	77,254	85,990
Previously cropped but not during 1928 and 1929 respectively .. ..	146,589	137,017
Under cultivation .. ..	1,268,475	1,269,242*
Under permanent artificially sown grasses .. ..	587,434	639,871
New ground cleared during the year but not ploughed .. ..	20,964	12,562
Grand total .. ..	1,876,873	1,921,675

\* See Table No. XII. for details of areas and owners.

**Table No. XI.**—RETURN SHOWING THE VALUE OF AGRICULTURAL CROPS FOR THE YEARS 1928 AND 1929.

	1928.	1929.	Increase or — Decrease, 1929.
	£	£	£
Grain crops .. ..	1,472,588	2,106,278	633,690
Green forage .. ..	812,358	834,496	22,138
Hay and straw .. ..	457,639	451,928	— 5,711
Root crops .. ..	133,980	319,522	185,542
Sugar-cane .. ..	7,209,778	7,163,024	— 46,754
Fruit .. ..	1,693,762	1,737,143	43,381
All other .. ..	928,936	1,191,401	262,465
Total .. ..	12,709,041	13,803,792	1,094,751

The minus sign (—) indicates a decrease.



Table No. XII.

RETURN SHOWING NUMBER OF FARMS GROUPED ACCORDING TO AREA UNDER CULTIVATION FOR THE YEAR 1929.

Petty Sessions District.	Under 5 Acres.		5 and under 20 Acres.		20 and under 50 Acres.		50 Acres and over.		Totals.	
	No of Farms.	Acres.	No of Farms.	Acres.	No of Farms.	Acres.	No of Farms.	Acres.	No of Farms.	Acres.
Allora .. ..	..	..	1	11	12	451	303	49,394	316	49,856
Atherton .. ..	78	228	174	1,732	99	3,201	174	16,177	525	21,338
Ayr .. ..	1	1	11	153	87	3,152	465	41,946	564	45,252
Beaudesert .. ..	17	53	230	2,820	172	5,026	37	2,605	456	10,504
Biggenden .. ..	33	93	119	1,263	54	1,457	3	235	209	3,048
Bowen .. ..	22	64	142	1,891	57	1,588	4	253	225	3,796
Brisbane (A) .. ..	153	404	436	4,251	86	2,387	6	355	681	7,397
Bundaberg .. ..	92	268	331	4,043	382	12,440	129	17,327	934	34,078
Cairns .. ..	18	44	89	1,079	193	7,052	325	31,778	625	39,953
Cardwell .. ..	11	41	38	438	152	5,894	60	3,645	261	10,018
Cleveland .. ..	65	202	208	2,170	27	652	..	..	300	3,024
Childers .. ..	9	24	71	780	76	2,677	122	13,993	278	17,474
Chinchilla .. ..	5	15	27	282	34	1,125	37	3,595	103	5,017
Clifton .. ..	1	3	8	84	20	751	490	88,966	519	89,804
Condamine .. ..	12	30	45	493	45	1,259	43	4,987	145	6,769
Cooyar .. ..	5	12	30	360	55	1,908	20	1,396	110	3,676
Crow's Nest .. ..	9	27	66	888	165	5,710	123	9,846	363	16,471
Dalby .. ..	6	17	64	712	107	3,223	157	16,743	334	20,695
Douglas .. ..	5	11	31	375	63	2,021	59	5,006	158	7,413
Dugandan .. ..	19	52	101	1,360	370	12,457	131	9,022	621	22,891
Eidsvold .. ..	11	36	61	667	63	1,840	21	1,672	156	4,215
Esk .. ..	17	57	54	640	58	1,768	20	1,376	149	3,841
Gatton .. ..	4	11	50	613	278	9,116	194	14,292	526	24,032
Gayndah .. ..	52	139	196	2,378	173	5,554	54	4,801	475	12,872
Gin Gin .. ..	14	34	71	821	118	3,848	73	5,576	276	10,279
Gladstone .. ..	106	282	234	2,510	107	3,420	34	3,231	481	9,443
Goombungee .. ..	..	..	8	113	46	1,698	95	9,451	149	11,262
Gympie .. ..	363	959	776	8,383	207	5,666	10	764	1,356	15,772
Harrisville .. ..	5	14	79	983	197	6,563	86	6,202	367	13,762
Helidon .. ..	6	18	58	721	92	3,188	51	4,223	207	8,150
Highfields .. ..	1	1	28	344	81	2,579	132	10,795	242	13,719
Ingham .. ..	9	27	63	733	116	3,841	393	36,892	581	41,493
Inglewood .. ..	2	6	15	174	19	559	34	3,701	70	4,440
Innisfail .. ..	2	6	40	533	258	9,118	317	26,044	617	35,701
Ipswich .. ..	13	37	77	866	57	1,798	16	1,073	163	3,774
Jondaryan .. ..	1	2	3	45	8	304	70	9,467	82	9,818
Killarney .. ..	4	11	13	124	22	709	138	14,989	177	15,833
Laidley .. ..	5	17	59	816	210	6,723	152	10,866	426	18,422
Logan .. ..	56	146	309	3,824	84	2,119	..	..	449	6,089
Lowood .. ..	8	17	54	745	182	6,175	97	7,001	341	13,938
Mackay .. ..	45	140	197	2,374	494	16,498	717	69,109	1,453	88,121
Marburg .. ..	5	13	21	247	104	3,693	44	2,805	174	6,758
Maroochy .. ..	334	975	742	7,606	142	3,880	7	386	1,225	12,847
Maryborough .. ..	70	180	264	3,114	148	4,178	12	822	494	8,294
Mount Morgan .. ..	19	43	66	740	134	4,262	141	13,530	360	18,575
Nanango .. ..	30	85	123	1,446	316	10,689	402	37,015	871	49,235
Oakey .. ..	7	18	48	583	135	4,677	374	53,291	564	58,569
Pittsworth .. ..	..	..	6	65	57	1,981	460	73,905	523	75,951
Proserpine .. ..	11	29	69	922	173	5,653	89	7,530	342	14,134
Redcliffe .. ..	48	148	202	2,352	53	1,432	4	226	307	4,158
Rockhampton .. ..	171	427	277	2,840	104	2,992	35	2,601	587	8,860
Roma .. ..	15	40	42	491	61	2,028	149	21,013	267	23,572
Rosewood .. ..	9	27	68	862	182	5,734	60	3,847	319	10,470
Stanthorpe .. ..	57	154	458	4,364	158	5,369	9	572	682	10,459
St. Lawrence .. ..	1	2	15	209	41	1,322	31	2,521	88	4,054
Tiaro .. ..	42	121	141	1,534	69	2,005	9	651	261	4,311
Toogoolawah .. ..	2	6	39	505	92	3,021	72	5,095	205	8,627
Toowoomba .. ..	51	115	70	730	74	2,478	180	24,455	375	27,778
Warwick .. ..	17	54	81	910	100	3,227	478	63,553	676	67,744
Wienholt .. ..	23	65	183	2,251	404	13,333	384	29,652	994	45,301
All Other Districts	510	1,273	888	8,832	260	7,194	102	8,796	1,760	26,095
Totals, 1929 ..	2,707	7,324	8,470	94,195	7,933	256,663	8,434	911,060	27,544	1,269,242
Totals, 1928 ..	2,630	6,991	8,339	92,210	7,833	250,025	8,410	919,249	27,212	1,268,475
Increase, 1929 ..	77	333	131	1,985	100	6,638	24	..	332	767
Decrease, 1929 ..	..	..	..	..	..	..	..	8,189	..	..

Note:—The number of Farms shown above does not agree with number of Holdings in Table VIII, on account of there being some Holdings devoted only to Dairying with no cultivation on them.

Table No. XIII.

IRRIGATION.—RETURN FOR 10 YEARS.

Year.					Acres Irrigated.	Year.					Acres Irrigated.
1920	...	...	...	...	9,803	1925	...	...	...	...	21,669
1921	...	...	...	...	11,264	1926	...	...	...	...	24,250
1922	...	...	...	...	14,314	1927	...	...	...	...	21,411
1923	...	...	...	...	18,417	1928	...	...	...	...	25,344
1924	...	...	...	...	18,235	1929	...	...	...	...	26,282



Table No. XIV.

RETURN SHOWING THE AREA IRRIGATED AND THE PRINCIPAL CROPS TREATED FOR THE YEAR 1929.

Petty Sessions District.	Number of Irrigators.	Acres Irrigated.	*Cost of Power, Water, &c., Used.	Original Source of Water Supply.	Means Employed for Procurement and Utilisation.	Principal Crops Treated.
			£			
Ayr .. ..	521	20,090	68,766	Spears and wells ..	Drains and fluming .. ..	Sugar cane
Banana .. ..	92	1,478	2,652	River .. ..	Gravitation canal system ..	Gotton, maize, lucerne, and vegetables
Brisbane (A) ..	53	284	3,066	River, wells, and creeks	Oil and petrol engine, pipes, and sprays	Market gardens, vegetables, and fruit trees
Brisbane (B) ..	44	102	1,205	Springs and bores ..	Oil engine, flooding, and sprays	Market gardens, vegetables, and fruit trees
Bowen .. ..	109	825	2,494	Wells and creeks ..	Oil and petrol engines, drains ..	Vegetables
Charters Towers..	35	130	644	River and wells ..	Petrol engines, windmills, pipes, sprays and trenches,	Fruit, vegetables, lucerne
Cleveland ..	151	599	2,914	Creeks and wells ..	Oil engines, pipes, and sprays ..	Fruit and vegetables
Dugandan ..	36	168	1,114	Creeks .. ..	Flooded .. ..	Vegetables and lucerne
Gatton .. ..	29	338	1,390	Creeks and wells ..	Oil engine, tractor, flooding, sprays, and flooding	Vegetables and lucerne
Gladstone ..	6	91	614	River and wells ..	Oil engine, tractor, flooding and sprays	Vegetables and lucerne
Logan .. ..	14	78	511	River .. ..	Oil engine, spray, flooded ..	Maize, potatoes, vegetables
Proserpine ..	4	164	5,994	River .. ..	Oil engine, flooding .. ..	Sugar cane
Rockhampton ..	81	472	2,345	Creek, wells, river, and bores	Oil engine, pipes, and sprays ..	Fruit, vegetables, and lucerne
Townsville ..	44	327	1,247	River and well ..	Oil engine, windmill, drains, and furrows	Market gardens, cane, maize, and vegetables
Toowoomba ..	34	113	3,515	Bore .. ..	Windmills, pipes, and sprinklers	Fruit and vegetables
All Other Districts	234	1,023	186,757	..	..	..
Total ..	1,487	26,282	285,228			

Sugarcane, 20,280 acres ; Cotton, 1,085 acres ; Cereals, 163 acres ; Green Fodder, 378 acres ; Fruit and Vegetables, 3,466 acres ; Miscellaneous Crops, 910 acres. N.B.—Brisbane (B) refers to South Brisbane. \* Exclusive of value of machinery shown in Table IX.

Table No. XV.

## WHEAT (GRAIN).

RETURN FOR TEN YEARS SHOWING THE AREA AND PRODUCE OF WHEAT FOR GRAIN.

Year.	Area.	Produce.	Average per Acre.	INCREASE OR — DECREASE ON THE PREVIOUS YEAR.		
				Area.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.
1920 .. ..	177,320	3,707,357	20·91	130,842	3,395,719	14·20
1921 .. ..	164,670	3,025,786	18·37	— 12,650	— 681,571	— 2·54
1922 .. ..	145,492	1,877,836	12·91	— 19,178	— 1,147,950	— 5·46
1923 .. ..	51,149	243,713	4·76	— 94,345	— 1,634,123	— 8·15
1924 .. ..	189,145	2,779,829	14·70	137,996	2,536,116	9·94
1925 .. ..	165,999	1,973,477	11·89	— 23,146	— 806,352	— 2·81
1926 .. ..	57,084	379,339	6·65	— 108,915	— 1,594,138	— 5·24
1927 .. ..	215,073	3,783,584	17·59	157,989	3,404,245	10·94
1928 .. ..	218,069	2,515,561	11·54	2,996	— 1,268,023	— 6·05
1929 .. ..	204,116	4,235,172	20·75	— 13,953	1,719,611	9·21
Average of Ten Years	158,812	2,452,165	15·44	...	...	...

Table No. XVI.

## WHEAT.

RETURN FOR TEN YEARS SHOWING AVERAGE YIELD PER ACRE IN EACH STATE.

States.	Average Produce per Acre—Bushels.										Mean for 10 Years ending 1929.
	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	
Queensland ...	20·91	18·37	12·91	4·76	14·70	11·89	6·65	17·59	11·54	20·75	14·01
New South Wales ...	17·79	13·39	9·74	11·26	16·83	11·56	14·13	8·92	12·04	8·70	12·44
Victoria ...	17·19	16·80	13·50	15·40	17·51	11·64	16·08	8·54	12·59	7·13	13·64
South Australia ...	15·80	10·46	11·73	14·29	12·21	11·60	12·84	8·18	7·79	6·40	11·13
Western Australia ...	9·60	10·41	8·92	11·42	12·79	9·69	11·68	12·13	10·10	10·95	10·77
Tasmania ...	20·01	20·62	22·56	21·07	17·86	20·72	23·15	26·25	20·17	25·00	21·74



Table No. XVII.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCE OF WHEAT FOR GRAIN IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE.

Divisions and Petty Sessions Districts.	1928.			1929.			INCREASE OR — DECREASE.		
	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.
<b>MORETON.</b>	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.
Cooyar ...	70	574	8.20	...	...	...	70	574	8.20
Crow's Nest ...	187	1,349	7.21	231	3,222	13.95	44	1,873	6.74
Dugandan ...	56	1,414	25.25	33	604	18.30	23	810	6.95
Esk ...	8	300	37.50	9	150	16.67	1	150	20.83
Gatton ...	26	550	21.15	47	1,152	24.51	21	602	3.36
Harrisville ...	...	...	...	32	264	8.25	32	264	8.25
Kilcoy ...	7	150	21.43	...	...	...	7	150	21.43
Rosewood ...	20	240	12.00	...	...	...	20	240	12.00
Total, Moreton ...	374	4,577	12.24	352	5,392	15.32	22	815	3.08
<b>WIDE BAY.</b>									
Gayndah ...	364	2,547	7.00	282	3,135	11.12	82	588	4.12
Nanango ...	470	5,464	11.63	414	3,942	9.52	56	1,522	2.11
Wienholt ...	450	5,947	13.22	215	1,267	5.89	235	4,680	7.33
Total, Wide Bay ...	1,284	13,958	10.87	911	8,344	9.16	373	5,614	1.71
<b>PORT CURTIS.</b>									
Banana ...	2	29	14.50	191	1,500	7.85	189	1,471	6.45
Mount Morgan ...	...	...	...	94	1,945	20.69	94	1,945	20.69
Rockhampton ...	5	108	21.60	3	60	20.00	2	48	1.60
Total, Port Curtis ...	7	137	19.57	288	3,505	12.17	281	3,368	7.40
<b>MARANOVA.</b>									
Mitchell ...	784	3,288	4.19	308	2,079	6.75	476	1,209	2.56
Roma ...	17,949	127,169	7.09	14,436	62,468	4.33	3,513	64,701	2.76
Yeulba ...	54	126	2.33	...	...	...	54	126	2.33
Total, Maranoa ...	18,787	130,583	6.95	14,744	64,547	4.38	4,043	66,036	2.57
<b>DOWNES.</b>									
Allora ...	28,598	399,271	13.96	27,209	645,590	23.73	1,389	246,319	9.77
Chinchilla ...	214	968	4.52	95	1,155	12.16	119	187	7.64
Clifton ...	54,477	574,373	10.54	49,667	1,115,561	22.46	4,810	541,188	11.92
Condamine ...	876	16,049	18.32	595	3,510	5.90	281	12,539	12.32
Dalby ...	5,668	53,604	9.46	4,583	57,525	12.55	1,085	3,921	3.09
Goombungee ...	1,730	24,336	14.07	1,500	37,689	25.13	230	13,353	11.06
Goondiwindi ...	1,235	9,410	7.62	70	558	7.97	1,165	8,852	0.15
Highfields ...	629	9,840	15.64	310	5,721	18.45	319	4,119	2.81
Inglewood ...	1,862	1,245	0.67	718	3,141	4.37	1,144	1,896	3.70
Jondaryan ...	1,126	9,191	8.16	2,410	54,602	22.66	1,284	45,411	14.50
Killarney ...	9,116	153,647	16.85	7,561	176,627	23.36	1,555	22,980	6.51
Oakey ...	16,653	199,138	11.96	19,416	401,159	20.66	2,763	202,021	8.70
Pittsworth ...	39,199	423,875	10.81	36,289	798,501	22.00	2,910	374,626	11.19
Toowoomba ...	8,225	98,330	12.02	8,581	202,713	23.62	356	103,883	11.60
Warwick ...	28,009	392,529	14.01	28,817	649,332	22.53	808	256,803	8.52
Total, Downes ...	197,617	2,366,306	11.97	187,821	4,153,384	22.11	9,796	1,787,078	11.14
Total, State ...	218,069	2,515,561	11.54	204,116	4,235,172	20.75	13,953	1,719,611	9.21

Table No. XVIII.

RETURN SHOWING THE QUANTITY OF WHEAT TREATED IN QUEENSLAND DURING THE YEAR 1928-9.

District.	Number of Establishments.	Number of Hands Employed.	Pairs of Stones.	Sets of Rollers.	Wheat Treated.	FLOUR MADE.		MEAL MADE.		BRAN AND POLLARD.	
						Tons.	Value.	Tons.	Value.	Bushels.	Value.
Metropolitan } 1928-9	3 }	368	Pairs.	Sets.	Bushels.		£		£		£
Elsewhere }	8 }		7	96	2,618,689	54,433	708,418	930	11,993	2,243,575	223,500
Total, 1927-8 ...	12	308	7	109	2,577,769	53,858	775,727	818	11,783	2,146,973	211,133

Table No. XIX.

## BARLEY.

RETURN FOR TWO YEARS SHOWING THE RESULT OF THE CROP.

Barley.						1928.	1929.
						Acres.	Acres.
Reaped for grain ...	...	...	...	...	...	7,654	9,754
Mown for hay ...	...	...	...	...	...	82	73
Used for green food ...	...	...	...	...	...	11,188	14,003
Totals ...	...	...	...	...	...	18,924	23,830



Table No. XX.

## BARLEY.

RETURN FOR TWO YEARS SHOWING RESULT OF GRAIN CROP.

Year.	Area for Grain.	Produce.	Average Produce per Acre.
	Acres.	Bushels.	Bushels.
1928 ... ..	7,654	107,593	14·06
1929 ... ..	9,754	205,567	21·08
Increase, 1929 ... ..	2,100	97,974	7·02

Table No. XXI.

## BARLEY.

RETURN SHOWING RESULT OF CROP, DISTINGUISHING BETWEEN MALTING AND OTHER VARIETIES, FOR THE YEAR 1929.

Petty Sessions District.	Malting Grain.			Other Varieties Grain.		
	Acres.	Bushels.	Average per Acre, Bushels.	Acres.	Bushels.	Average per Acre, Bushels.
Allora ... ..	962	21,169	22·01	102	2,480	24·31
Chinchilla ... ..	...	...	...	10	40	4·00
Clifton ... ..	2,716	64,409	23·71	745	16,123	21·64
Cooyar ... ..	...	...	...	9	90	10·00
Crow's Nest ... ..	17	506	29·76	15	220	14·67
Dalby ... ..	60	1,085	18·08	...	...	...
Dugandan ... ..	3	33	11·00	12	116	9·67
Goombungee ... ..	...	...	...	25	391	15·64
Highfields ... ..	25	444	17·76	34	546	16·06
Inglewood ... ..	...	...	...	100	300	3·00
Jondaryan ... ..	12	360	30·00	10	330	33·00
Killarney ... ..	26	516	19·85	340	12,302	36·18
Nanango ... ..	...	...	...	54	297	5·50
Oakey ... ..	151	2,661	17·62	89	897	10·08
Pittsworth ... ..	517	9,153	17·70	449	2,197	4·89
Texas ... ..	...	...	...	24	324	13·50
Toowoomba ... ..	1,489	31,430	21·11	56	770	13·75
Warwick ... ..	340	7,838	23·05	1,362	28,540	20·95
Total, 1929 ... ..	6,318	139,604	22·10	3,436	65,963	19·20

Table No. XXII.

## MALT.

RETURN FOR TEN YEARS SHOWING QUANTITY OF MALT MADE AND HOW DEALT WITH.

Year.	Made from Imported Barley.	Made from Queens-land Barley.	Total Malt Made.	Beer (including Waste).	Malt used in Breweries as returned to Excise.
	Bushels.	Bushels.	Bushels.	Gallons.	Bushels.
1919 ... ..	66,119	1,270	67,389	8,466,242	256,658
1920 ... ..	43,400	24,898	68,298	9,063,791	261,992
1921 ... ..	...	64,000	64,000	7,476,595	225,749
1922 ... ..	...	58,958	58,958	6,887,772	201,436
1923 ... ..	...	42,974	42,974	6,843,125	211,136
1924-25 ... ..	...	38,333	38,333	6,488,405	209,995
1925-26 ... ..	...	25,413	25,413	7,045,713	227,617
1926-27 ... ..	...	13,919	13,919	6,675,966	215,818
1927-28 ... ..	...	29,029	29,029	6,361,144	206,637
1928-29 ... ..	...	46,342	46,342	6,541,534	199,925

Table No. XXIII.

## MAIZE.

RETURN FOR FIVE YEARS SHOWING THE AREA AND PRODUCE OF MAIZE.

Year.	Grain.		Average per Acre.
	Acres.	Bushels.	Bushels.
1925 ... ..	154,252	3,384,172	21·94
1926 ... ..	137,542	2,858,895	19·33
1927 ... ..	234,013	6,703,518	28·65
1928 ... ..	192,173	5,135,607	26·72
1929 ... ..	171,614	4,376,412	25·50



Table No. XXIV.

## MAIZE (GRAIN).

RETURN SHOWING THE AREA AND PRODUCTION IN EACH DIVISION OF THE STATE FOR THE YEAR 1929.

Division or Group.	Acres.	Produce.	Average.	Proportion of Divisional Area to Total Area of Maize for Grain.
		Bushels.	Bushels.	Per cent.
Moreton ... ..	57,288	1,515,849	26.46	33.38
Wide Bay ... ..	46,855	1,128,404	24.08	27.30
Port Curtis ... ..	2,605	53,418	20.51	1.52
Edgecumbe ... ..	56	773	13.80	0.03
Rockingham ... ..	19,553	574,026	29.36	11.39
York Peninsula ... ..	64	1,564	24.44	0.04
Carpentaria ... ..	70	960	13.71	0.04
Central Western ... ..	...	...	...	...
South Western ... ..	...	...	...	...
Central ... ..	79	619	7.84	0.05
Maranoa ... ..	65	347	5.34	0.04
Downs ... ..	44,979	1,100,452	24.47	26.21
Total ... ..	171,614	4,376,412	25.50	100.00

Table No. XXV.

## MAIZE.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCE IN EACH PRINCIPAL DISTRICT OF THE STATE.

Petty Sessions District.	Area for Grain.			Produce.			Average per Acre.		
	1928.	1929.	Increase or Decrease	1928.	1929.	Increase or Decrease	1928.	1929.	Increase or Decrease
	Acres.	Acres.	Acres.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Allora ... ..	5,641	4,284	-1,357	126,097	108,697	-17,400	22.35	25.37	3.02
Atherton ... ..	21,408	19,261	-2,147	901,624	568,154	-333,470	42.17	29.50	-12.67
Beaudesert ... ..	3,385	3,474	89	96,785	105,506	8,721	28.59	30.37	1.78
Clifton ... ..	10,960	9,624	-1,336	182,088	248,625	66,537	16.61	25.83	9.22
Cooyar ... ..	1,345	1,050	-295	36,680	28,982	-7,698	27.27	27.60	0.33
Crow's Nest ... ..	6,780	6,126	-654	167,323	188,941	21,618	24.68	30.84	6.16
Dugandan ... ..	9,728	8,811	-917	270,833	217,858	-52,975	27.84	24.73	-3.11
Gatton ... ..	7,271	6,864	-407	184,548	181,635	-2,913	25.38	26.46	1.08
Gayndah ... ..	2,317	2,394	77	63,457	64,662	1,205	27.39	27.01	-0.38
Goombungee ... ..	3,498	2,670	-828	80,910	75,164	-5,746	23.13	28.15	5.02
Harrisville ... ..	4,864	3,926	-938	144,745	99,842	-44,903	29.76	25.43	-4.33
Helidon ... ..	1,571	1,353	-218	31,930	33,439	1,509	20.32	24.71	3.39
Highfields ... ..	4,196	3,210	-986	108,099	88,293	-19,806	25.76	27.51	1.75
Killarney ... ..	6,085	3,999	-2,086	164,559	107,928	-56,631	27.04	26.98	-0.06
Laidley ... ..	8,605	8,082	-523	245,396	247,733	2,337	28.52	30.65	2.13
Lowood ... ..	5,715	5,891	176	121,774	149,007	27,233	21.31	25.29	3.98
Marburg ... ..	2,240	2,082	-158	39,284	37,244	-2,040	17.54	17.89	0.35
Nanango ... ..	19,175	18,694	-481	584,836	631,724	46,888	30.50	33.79	3.29
Oakey ... ..	6,662	5,084	-1,578	127,327	102,249	-25,078	19.11	20.11	1.00
Pittsworth ... ..	3,378	2,011	-1,367	40,226	36,159	-4,067	11.91	17.98	6.07
Rosewood ... ..	2,698	2,495	-203	60,964	50,671	-10,293	22.60	20.31	-2.29
Toogoolawah ... ..	2,272	2,083	-189	62,328	50,536	-11,792	27.43	24.26	-3.17
Toowoomba ... ..	4,928	3,651	-1,277	95,119	83,427	-11,692	19.30	22.85	3.55
Warwick ... ..	13,829	8,904	-4,925	323,226	228,428	-94,798	23.37	25.65	2.28
Wienholt ... ..	19,126	21,221	2,095	544,676	311,013	-233,663	28.48	14.66	-13.82
All other Districts ... ..	14,496	14,370	-126	330,773	330,495	-278	22.82	23.00	0.18
Totals ... ..	192,173	171,614	-20,559	5,135,607	4,376,412	-759,195	26.72	25.50	-1.22

Table No. XXVI.

## OATS.

RETURN FOR FIVE YEARS SHOWING THE AREA UNDER CROP.

Oats.	1925.	1926.	1927.	1928.	1929.
	Acres.	Acres.	Acres.	Acres.	Acres.
Reaped for grain ... ..	1,293	210	2,272	916	2,003
Mown for hay ... ..	2,214	790	2,468	2,192	2,608
Cut for green fodder ... ..	46,160	45,687	34,559	49,588	55,896
Totals ... ..	49,667	46,687	39,299	52,696	60,507



Table No. XXVII.

## OATS.

RETURN FOR TWO YEARS SHOWING THE RESULT OF THE GRAIN CROP.

Year.							Area for Grain.	Produce.	Average per Acre.
							Acres.	Bushels.	Bushels.
1928	...	...	...	...	...	...	916	13,737	15.00
1929	...	...	...	...	...	...	2,003	38,494	19.22
Increase, 1929							1,087	24,757	4.22

Table No. XXVIII.

## RYE.

RETURN FOR FIVE YEARS SHOWING THE AREA AND PRODUCE OF THE GRAIN CROP.

Year.							Area.	Produce.	Average per Acre.
							Acres.	Bushels.	Bushels.
1925	...	...	...	...	...	...	26	615	23.65
1926	...	...	...	...	...	...	3	89	29.67
1927	...	...	...	...	...	...	25	634	25.52
1928	...	...	...	...	...	...	70	1,092	15.60
1929	...	...	...	...	...	...	27	364	13.48

Table No. XXIX.

## POTATOES.

RETURN FOR FIVE YEARS SHOWING THE AREA, PRODUCTION, AND VALUE OF THE ENGLISH POTATO CROP

			Acres.				Tons.				Value.
1925	..	..	10,478	..	..	..	15,386	..	..	..	£220,597
1926	..	..	8,642	..	..	..	9,749	..	..	..	£169,246
1927	..	..	10,035	..	..	..	18,914	..	..	..	£178,895
1928	..	..	8,154	..	..	..	9,687	..	..	..	£80,322
1929	..	..	8,116	..	..	..	13,214	..	..	..	£225,739

Table No. XXX.

## COTTON.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCE OF COTTON.

Petty Sessions District.				AREA.		Increase or Decrease— 1929.	Bearing, 1929.	Not Bearing, 1929.	PRODUCE (UNGINNED).	
				1928.	1929.				1928.	1929.
				Acres.	Acres.	Acres.	Acres.	Acres.	Lbs.	Lbs.
Banana	...	...	...	864	2,095	1,231	763	1,332	187,282	609,333
Eidsvold	...	...	...	770	1,478	708	466	1,012	370,094	183,053
Gayndah	...	...	...	956	1,146	190	362	784	475,126	148,227
Gin Gin	...	...	...	49	150	101	59	91	29,502	31,211
Gladstone	...	...	...	5,047	3,435	— 1,612	2,323	1,112	2,187,779	1,101,617
Lowood	...	...	...	64 *	127	63	48	79	34,707	34,825
Mount Morgan	...	...	...	13,528	16,779	3,151	9,532	7,247	6,792,409	5,445,245
Rockhampton	...	...	...	2,633	1,358	— 1,275	835	523	1,252,709	278,373
Springsure	...	...	...	389	188	— 201	141	47	185,226	34,523
Wienholt	...	...	...	200	183	— 17	72	111	80,521	28,949
All other Districts	...	...	...	1,522	720	— 802	402	318	695,555	129,146
Total State				*26,122	†27,659	1,537	15,003	12,656	12,290,910	8,024,502

\* Of this area 989 acres was returned as ratooned for 1928.

† Of this area 710 acres was returned as ratooned for 1929.



Table No. XXXI.  
SUGAR.

RETURN SHOWING THE NUMBER OF PLANTATIONS, AREA OF AND AVERAGE AREA FOR THE YEAR 1929.

	Number of Plantations under 5 ac es	Number of Plantations 5 acres and over.	Area under Cane.	Average to each Planter.
			Acres.	Acres.
No. 1 District .. ...	17	2,124	113,870	53
No. 2 District .. ...	83	2,452	110,407	44
No. 3 District .. ...	731	1,289	61,414	30
No. 4 District .. ...	233	382	5,969	10
Total .. ...	1,064	6,247	291,660	40

Table No. XXXII.

RETURN FOR FIVE YEARS SHOWING THE NUMBER OF PLANTATIONS, AREA, AND PRODUCE OF SUGAR-CANE.

Year.	Number of Plantations under 5 acres.	Number of Plantations 5-acres and over.	Average to each Planter.	Acres Cultivated.	Acres Crushed.	PRODUCE.	
						Tons Cane.	Tons Sugar, at 94 per cent. Net Titre.
1925 ...	909	6,730	35	269,509	*189,466	3,668,252	485,585
1926 ...	736	6,608	36	266,519	189,312	2,925,662	389,272
1927 ...	655	6,587	38	274,838	203,748	3,555,827	485,745
1928 ...	617	6,502	40	283,476	215,674	3,736,311	520,620
1929 ..	1,064	6,247	40	291,660	214,880	3,581,265	518,516

\*Not including 209 acres cut, but cane destroyed, 4,007 tons.

Table No. XXXIII.

RETURN FOR FIVE YEARS SHOWING PERCENTAGES OF YIELDS.

Year.	TO EACH ACRE CRUSHED.		Tons of Cane to One Ton of Sugar.
	Tons of Cane.	Tons of Sugar.	
1925 ... ..	19.36	2.56	7.55
1926 ... ..	15.45	2.06	7.52
1927 ... ..	17.45	2.38	7.32
1928 ... ..	17.32	2.41	7.18
1929 ... ..	16.67	2.41	6.91

Table No. XXXIV.

RETURN SHOWING AREA, PRODUCE, &amp;C., IN EACH DIVISION OF THE STATE FOR THE YEAR 1929.

Division and District.	Area for Plants.	Area Stand-over or Un- productive.	Area Crushed for Sugar.	Total Area for Sugar.	Weight of Cane.	Sugar 94 N.T.	Molasses Returned.
	Acres.	Acres.	Acres.	Acres.	Tons.	Tons.	Gallons.
<i>Rockingham and York Peninsula—</i>							
Cairns and Douglas ..	1,086	4,685	34,946	40,717	702,950	106,428	3,123,282
Ingham and Innisfail, &c. .	2,392	11,259	59,502	73,153	1,159,029	167,392	4,530,817
Total .. ..	3,478	15,944	94,448	113,870	1,861,979	273,820	7,654,099
<i>Edgecumbe—</i>							
Ayr and Townsville ..	1,122	13,524	21,165	35,811	524,932	81,984	2,518,407
Proserpine and Bowen ..	250	2,591	7,494	10,335	78,555	14,119	415,000
Mackay .. ..	1,882	18,339	44,040	64,261	508,428	77,351	2,288,202
Total .. ..	3,254	34,454	72,699	110,407	1,111,915	173,454	5,221,609
<i>Wide Bay—</i>							
Bundaberg, Gin Gin, &c. .	507	8,772	25,490	34,769	318,722	42,659	1,920,260
Biggenden, Childers, Mary- borough, Tiaro, &c. .	360	6,884	15,522	22,766	189,293	20,628	767,652
Gympie .. ..	3	113	192	308	2,636	*	..
Total .. ..	870	15,769	41,204	57,843	510,651	63,287	2,687,912
<i>Port Curtis—</i>							
St. Lawrence .. ..	107	848	2,616	3,571	36,941	†	..
<i>Moreton—</i>							
Logan and Southport ..	10	464	725	1,199	12,713	1,445	46,416
Maroochy, &c. .. ..	20	1,562	3,188	4,770	47,066	6,510	251,912
Total .. ..	30	2,026	3,913	5,969	59,779	7,955	298,328
TOTAL STATE .. ..	7,739	69,041	214,880	291,660	3,581,265	518,516	15,861,948

\* Cane crushed at Maroochy and Tiaro.

† Cane crushed at Mackay.

|| Cane part crushed at Maroochy,



Table No. XXXV.

RETURN SHOWING THE SUGAR AVERAGES IN EACH DIVISION OF THE STATE FOR THE YEAR 1929.

Divisions or Groups and Districts.	Tons of Cane per Acre Crushed.	Tons of Sugar per Acre Crushed.	Tons of Cane per Ton of Sugar.
<i>Rockingham and York Peninsula—</i>			
Cairns and Douglas, &c. ... ..	20·12	3·02	6·67
Ingham and Innisfail, &c. ... ..	19·48	2·90	6·72
Total ... ..	19·71	2·94	6·70
<i>Edgecumbe—</i>			
Ayr and Townsville ... ..	24·80	3·68	6·75
Bowen and Proserpine ... ..	10·48	1·61	6·53
Mackay ... ..	11·54	1·71	6·85
Total ... ..	15·29	2·25	6·78
<i>Wide Bay—</i>			
Bundaberg, Gin Gin, &c. ... ..	12·50	1·53	8·19
Biggenden, Childers, Maryborough, Tiaro, &c. ... ..	12·20	1·56	7·84
Gympie* ... ..	13·73	*	*
Total ... ..	12·39	1·54	8·05
<i>Port Curtis—</i>			
St. Lawrence† ... ..	14·12	†	†
Total ... ..	14·12	†	†
<i>Moreton—</i>			
Logan and Southport‡ ... ..	17·54	2·02	†8·69
Maroochy, &c. ... ..	14·76	2·00	7·38
Total ... ..	15·28	2·00	7·62
TOTAL STATE ... ..	16·67	2·41	6·91

\* Crushed in Maroochy and Tiaro.

† Crushed in Mackay.

‡ Cane part crushed in Maroochy.

Table No. XXXVI.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCE IN EACH DIVISION OF THE STATE.

Division.	AREA UNDER CULTIVATION.			PRODUCTION.					
	1928.	1929.	Increase or —Decrease	1928.		1929.		Increase or —Decrease in 1929.	
				Area Crushed.	Sugar.	Area Crushed.	Sugar.	Area Crushed.	Sugar.
	Acres.	Acres.	Acres.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Rockingham and York Peninsula	113,627	113,870	243	95,758	255,188	94,448	273,820	— 1,310	18,632
Edgecumbe ... ..	106,039	110,407	4,368	74,431	184,343	72,699	173,454	— 1,732	— 10,889
Port Curtis* ... ..	3,275	3,571	296	2,664	...	2,616	...	— 48	...
Wide Bay† ... ..	55,496	57,843	2,347	39,807	75,850	41,204	63,287	1,397	— 12,563
Moreton ... ..	5,039	5,969	930	3,014	5,239	3,913	7,955	899	2,716
Total ... ..	283,476	291,660	8,184	215,674	520,620	214,880	518,516	— 794	— 2,104

\* Crushed in Edgecumbe and Wide Bay.

† Part of the cane grown in Gympie was crushed in the Moreton Division.

Table No. XXXVII.

RETURN FOR TWO YEARS SHOWING PERCENTAGES IN EACH DIVISION OF THE STATE.

Division.	TO EACH ACRE CRUSHED.				TONS CANE TO EACH TON SUGAR.	
	Tons of Cane.		Tons of Sugar.		1928.	1929.
	1928.	1929.	1928.	1929.		
Rockingham and York Peninsula	19·82	19·71	2·71	2·94	7·30	6·70
Edgecumbe ... ..	16·00	15·29	2·33	2·25	6·86	6·78
Port Curtis ... ..	15·69	14·12	*	*	*	*
Wide Bay ... ..	14·26	12·39	1·91	1·54	7·47	8·05
Moreton ... ..	12·77	15·28	1·70	2·00	7·54	7·62
Total ... ..	17·32	16·67	2·41	2·41	7·18	6·91

\* Included in Edgecumbe and Wide Bay.

Table No. XXXVIII.

RETURN SHOWING THE AREA AND PRODUCTION OF SUGAR-CANE AND SUGAR BEET IN AUSTRALIA FOR THE YEAR 1929.

	Area under Cultivation.	Area Cut or Dug for Manufacture.	Yield of Cane, &c.	Sugar Obtained.
	Acres.	Acres.	Tons.	Tons.
Queensland ... ..	291,660	214,880	3,581,265	518,516
New South Wales ... ..	*	7,967	174,110	19,574
Victoria (beet) ... ..	2,500	2,500	26,525	3,472

\* Not available.



Table No. XXXIX.

RETURN SHOWING NUMBER OF SUGAR MILLS IN QUEENSLAND DURING THE YEAR 1928-29.

Manufactories.	Works.	Hands Employed.	VALUE.		
			Machinery.	Land and Premises.	Output.
	No.	No.	£	£	£
Refineries } In operation, 1928-9 { ...	2	} 6,355	6,517,082	1,131,878	12,330,939
Sugar Mills } ..	35				
Total ... ..	37				

Table No. XL.  
SUGAR MILLS.

- |  |  |  |  |  |  |  |  |  |       |
|--|--|--|--|--|--|--|--|--|-------|
| 1. Number of Sugar Mill Companies to which advances have been made under—                      |  |  |  |  |  |  |  |  |       |
| The Sugar Works Guarantee Acts .. .. .   |  |  |  |  |  |  |  |  | 13    |
| "The Sugar Works Act of 1911" (Babinda and South Johnstone) .. .. .                            |  |  |  |  |  |  |  |  | 2     |
| "The Sugar Works Act of 1922" (Tully River Mill) .. .. .                                       |  |  |  |  |  |  |  |  | 1     |
| From Consolidated Revenue (North Eton and Racecourse) .. .. .                                  |  |  |  |  |  |  |  |  | 2     |
| From General Loan Fund .. .. .   |  |  |  |  |  |  |  |  | 6     |
| 2. Number of Tramway Companies to which advances have been made under—                         |  |  |  |  |  |  |  |  |       |
| The Sugar Works Guarantee Acts (Double Peak) .. .. .   |  |  |  |  |  |  |  |  | 1     |
| 3. Under other conditions .. .. .  |  |  |  |  |  |  |  |  | None. |
| 4. Total amount of advances made to 31st December, 1929, under the Sugar Works Guarantee Acts— |  |  |  |  |  |  |  |  |       |

							£	s.	d.	£	s.	d.
Marian Mill	..	..	..	..	..	..	39,000	0	0			
Mount Bauple Mill	..	..	..	..	..	..	32,480	16	1			
Pleystowe Mill	..	..	..	..	..	..	35,472	1	3			
Nerang River Mill	..	..	..	..	..	..	19,998	18	10			
Gin Gin Mill	..	..	..	..	..	..	50,000	0	0			
Plane Creek Mill	..	..	..	..	..	..	65,000	0	0			
North Eton Mill	..	..	..	..	..	..	18,200	0	0			
Proserpine Mill	..	..	..	..	..	..	54,000	0	0			
Moreton Mill	..	..	..	..	..	..	32,864	15	0			
Mulgrave Mill	..	..	..	..	..	..	46,000	0	0			
Isis Mill	..	..	..	..	..	..	38,636	0	0			
Mossman Mill	..	..	..	..	..	..	66,300	0	0			
Johnstone Mill	..	..	..	..	..	..	847	17	8			
										498,800	8	10
5. Under "The Sugar Works Act of 1911"—												
Babinda Mill	..	..	..	..	..	..	405,429	18	8			
South Johnstone Mill	..	..	..	..	..	..	648,009	7	8			
										1,053,439	6	4
Under "The Sugar Works Act of 1922"—												
Tully River Mill	..	..	..	..	..	..	..			795,221	0	0
From Consolidated Revenue—												
North Eton Mill	..	..	..	..	..	..	26,000	0	0			
Racecourse Mill	..	..	..	..	..	..	21,000	0	0			
										47,000	0	0
From General Loan Fund—												
North Eton Mill	..	..	..	..	..	..	62,965	18	4			
Mount Bauple Mill	..	..	..	..	..	..	8,500	0	0			
Gin Gin Mill	..	..	..	..	..	..	2,000	0	0			
Proserpine Mill	..	..	..	..	..	..	17,765	9	4			
Moreton Mill	..	..	..	..	..	..	14,350	0	0			
Mossman Mill	..	..	..	..	..	..	14,071	14	0			
										119,653	1	8
Indebtedness at 31st December, 1929—												
6. Under "The Sugar Works Act of 1911"—												
Babinda Mill	..	..	..	..	..	..	..			102,723	7	7
Under "The Sugar Works Act of 1922"—												
Tully River Mill	..	..	..	..	..	..	..			709,867	14	11
Under "The South Johnstone, Gin Gin, North Eton, and Mount Bauple Sugar Works Act of 1927"—												
Gin Gin Mill	..	..	..	..	..	..	26,362	7	2			
Mount Bauple Mill	..	..	..	..	..	..	20,000	0	0			
North Eton Mill	..	..	..	..	..	..	55,719	7	6			
South Johnstone Mill	..	..	..	..	..	..	407,347	17	11			
										509,429	12	7



Table No. XLI.  
ARROWROOT.

RETURN FOR TWO YEARS SHOWING AREA AND PRODUCE, &C., OF ARROWROOT TUBERS IN PETTY SESSIONS DISTRICTS.

Petty Sessions District.	1928.		1929.		Increase or Decrease — 1929.	
	Area.	Produce.	Area.	Produce.	Area.	Produce
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Atherton ... ..	...	...	1	5	1	5
Banana ... ..	1	4	1	3	...	— 1
Beaudesert ... ..	8	83	7	112	— 1	29
Bundaberg ... ..	13	101	9	84	— 4	— 17
Dugandan ... ..	...	...	1	3	1	3
Gympie ... ..	39	338	49	458	10	120
Herberton ... ..	...	...	3	5	3	5
Kilcoy ... ..	2	33	5	59	3	26
Logan ... ..	131	927	185	1,619	54	692
Lowood ... ..	...	...	4	23	4	23
Marburg ... ..	2	1	1	5	— 1	4
Maroochy ... ..	34	269	43	340	9	71
Nanango ... ..	3	60	9	32	6	— 28
Rosewood ... ..	4	8	1	20	— 3	12
Southport ... ..	294	4,038	275	2,073	— 19	— 2,015
Tiaro ... ..	2	6	1	1	— 1	— 5
Toogoolawah ... ..	1	3	2	7	1	4
Woodford ... ..	4	17	4	21	...	4
Total State ... ..	538	5,938	601	4,870	63	— 1,068

Table No. XLII.

RETURN SHOWING ARROWROOT MANUFACTURED DURING THE YEAR 1928-29.

Petty Sessions District.							Hands Employed.	Tuber.	Arrowroot.
							Number.	Tons.	Lb.
Beaudesert ... ..	...	...	...	...	...	...	67	3,886	870,910
Cleveland ... ..	...	...	...	...	...	...			
Logan ... ..	...	...	...	...	...	...			
Southport ... ..	...	...	...	...	...	...			

Table No. XLIII.

TOBACCO.

RETURN FOR TWO YEARS SHOWING AREA AND PRODUCTION OF TOBACCO.

Division and Petty Sessions District.	1928.		1929.		Increase or Decrease — 1929.	
	Area.	Produce Dried Leaf.	Area.	Produce Dried Leaf.		
	Acres.	Lb.	Acres.	Lb.	Acres.	Lb.
Edgecumbe—						
Ayr ... ..	3	1,350	...	...	— 3	— 1,350
Proserpine ... ..	1	400	...	...	— 1	— 400
Townsville ... ..	...	...	5	334	5	334
Rockingham—						
Atherton ... ..	...	...	10	155	10	155
Downs—						
Inglewood ... ..	16	20,600	16	16,800	...	— 3,800
Texas ... ..	118	89,535	128	175,654	10	86,119
Total State ... ..	138	111,885	159	192,943	21	81,058



Table No. XLIV.  
COFFEE.  
RETURN FOR TWO YEARS SHOWING AREA AND PRODUCTION OF COFFEE.

DIVISION AND PETTY SESSIONS DISTRICT.	Not Bearing.		Bearing.				Average per Acre (Bearing).		1929. Increase or Decrease—Bearing Area.	1929. Increase or Decrease—in Produce.
	1928.	1929.	1928.		1929.		1928.	1929.		
	Acres.	Acres.	Acres.	Lb. (Parchment.)	Acres.	Lb. (Parchment.)	Lb.	Lb.		
Moreton— Maroochy ... ..	3	1	6	1,802	11	8,227	300	748	5	6,425
Wide Bay— Gayndah ... ..	1	...	...	...	...	...	...	...	...	...
Maryborough ... ..	...	...	1	300	...	...	300	...	— 1	— 300
Totals ... ..	4	1	7	2,102	11	8,227	300	748	4	6,125

Table No. XLV.  
VINES.  
RETURN FOR TWO YEARS SHOWING AREA AND PRODUCTION OF VINES.

Year.	VINEYARD.			Grapes Gathered.	Average per Acre (Bearing).
	Acres Bearing.	Acres not Bearing.	Total.		
1928 ... ..	1,627	160	1,787	Lb. 3,946,788	Lb. 2,426
1929 ... ..	1,617	132	1,749	4,230,703	2,616

Table No. XLVI.  
RETURN FOR TWO YEARS SHOWING AREA UNDER VINES AND PRODUCTION OF GRAPES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	AREA UNDER VINES.								
	1928.			1929.			Increase or Decrease—	1928.	1929.
	Bearing.	Not Bearing.	Total Area.	Bearing.	Not Bearing.	Total Area.		Grapes Gathered.	Grapes Gathered.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Lb.	Lb.
Brisbane (A) ... ..	323	20	343	336	20	356	13	493,338	629,296
Charters Towers ... ..	16	1	17	18	5	23	6	48,524	50,684
Chinchilla ... ..	2	1	3	1	1	2	— 1	7,522	14,370
Cleveland ... ..	4	1	5	4	1	5	...	7,356	8,020
Herberton ... ..	7	...	7	8	...	8	1	12,310	24,630
Logan ... ..	12	...	12	6	...	6	— 6	37,065	13,340
Lowood ... ..	16	...	16	27	4	31	15	31,810	252,153
Maryborough ... ..	21	3	24	19	5	24	...	32,727	33,585
Oakey ... ..	5	1	6	3	...	3	— 3	6,732	7,986
Redcliffe ... ..	4	...	4	3	1	4	...	5,331	11,402
Rockhampton ... ..	21	2	23	19	1	20	— 3	44,292	56,343
Roma ... ..	420	9	429	398	10	408	— 21	549,600	669,937
Stanthorpe ... ..	670	115	785	666	70	736	— 49	2,388,282	2,237,518
Tiaro ... ..	1	...	1	1	...	1	...	1,100	10,800
Toowoomba ... ..	9	...	9	11	...	11	2	24,637	36,488
Warwick ... ..	34	2	36	35	...	35	— 1	117,696	51,184
Wynnum ... ..	9	...	9	9	...	9	...	31,450	32,280
All other Districts ... ..	53	5	58	53	14	67	9	107,016	90,682
Totals ... ..	1,627	160	1,787	1,617	132	1,749	— 38	3,946,788	4,230,703



Table No. XLVII.

RETURN FOR FIVE YEARS SHOWING THE AVERAGE PRODUCTION OF GRAPES IN CERTAIN PETTY SESSIONS DISTRICTS OF THE STATE.

Petty Sessions District.	1925. Average per Acre.	1926. Average per Acre.	1927. Average per Acre.	1928. Average per Acre.	1929. Average per Acre.
	Lb.	Lb.	Lb.	Lb.	Lb.
Brisbane (A) ... ..	1,935	2,119	2,006	1,527	1,873
Roma ... ..	1,890	1,744	1,326	1,309	1,683
Stanthorpe ... ..	3,696	4,550	4,147	3,565	3,360
Tcowoomba ... ..	1,648	2,123	4,717	2,737	3,317
Warwick ... ..	3,136	3,723	4,466	3,462	1,462
State ... ..	2,486	2,848	2,561	2,426	2,616

Table No. XLVIII.

## WINE.

RETURN FOR FIVE YEARS SHOWING NUMBER OF MAKERS, WINE MADE, AND WINE SPIRIT DISTILLED.

Year.	Number of Makers.	Quantity of Wine Made.	Quantity of Wine Spirit Distilled.
		Gallons.	Gallons.
1925 ... ..	48	39,375	281
1926 ... ..	49	32,974	316
1927 ... ..	50	38,571	268
1928 ... ..	51	37,210	449
1929 ... ..	56	48,174	583

Table No. XLIX.

RETURN SHOWING THE PRINCIPAL DISTRICTS IN WHICH WINE WAS MADE DURING THE YEAR 1929.

Petty Sessions District.	Number of Makers.	Quantity of Wine Made.	Quantity of Wine Spirit Distilled.
		Gallons.	Gallons.
Brisbane (A) ... ..	2	2,530	...
Maryborough ... ..	6	1,978	...
Toowoomba ... ..	8	1,486	...
Roma ... ..	1	33,697	...
Warwick ... ..	1	800	...
All other Districts ... ..	38	7,683	...
Totals ... ..	56	48,174	583



Table No. L.

## BANANAS.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF BANANAS IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.				Produce.		Increase or Decrease—1929.	
	1928.	Bearing, 1929.	Not yet Bearing, 1929.	Total, 1929.	1928.	1929.	Area.	Produce.
	Acres.	Acres.	Acres.	Acres.	Bunches.	Bunches.	Acres.	Bunches.
Brisbane (A) ..	1,062	594	195	789	189,924	127,185	— 273	— 62,739
Bundaberg ...	211	133	67	200	30,971	41,954	— 11	10,983
Caboolture ...	668	560	127	687	163,964	130,589	19	— 33,375
Cairns ...	225	162	10	172	34,903	24,055	— 53	— 10,848
Cardwell ...	53	142	65	207	2,744	29,874	154	27,130
Cleveland ...	82	84	64	148	12,437	20,771	66	8,334
Esk ...	75	90	32	122	37,200	11,020	47	— 26,180
Gladstone ...	186	157	121	278	20,773	26,700	92	5,927
Gympie ...	10,018	5,928	3,422	9,350	1,646,455	1,385,136	— 668	— 261,319
Kilcoy ...	490	450	128	578	76,712	81,657	88	4,945
Logan ...	481	329	139	468	80,959	87,737	— 13	6,778
Mackay ...	100	98	97	195	15,025	21,410	95	6,385
Maroochy ...	2,339	1,375	883	2,258	341,742	336,298	— 81	— 5,444
Maryborough ...	254	138	83	221	29,091	34,150	— 33	5,059
Redcliffe ...	1,073	722	354	1,076	196,173	191,858	3	— 4,315
Rockhampton ...	603	395	111	506	101,394	83,967	— 97	— 17,427
Southport ...	737	644	159	803	172,280	155,553	66	— 16,727
Tiaro ...	303	191	113	304	39,659	54,130	1	14,471
Woodford ..	288	400	200	600	27,601	63,195	312	35,594
All other Districts	502	282	113	395	45,154	33,444	— 107	— 11,710
Totals ...	19,750	12,874	6,483	19,357	3,265,161	2,940,683	— 393	— 324,478

Table No. LI.

RETURN SHOWING THE AVERAGE YIELD OF BANANAS IN THE PRINCIPAL DISTRICTS OF THE STATE DURING THE YEAR 1929.

Average per Acre— Bunches.				Average per Acre— Bunches.			
Brisbane (A) ...	...	...	214	Logan ...	...	...	267
Bundaberg ...	...	...	315	Maroochy ...	...	...	245
Caboolture ...	...	...	233	Maryborough ...	...	...	247
Cairns ...	...	...	148	Redcliffe ...	...	...	266
Cleveland ...	...	...	247	Rockhampton ...	...	...	213
Gladstone ...	...	...	170	Southport ...	...	...	242
Gympie ...	...	...	234	Tiaro ...	...	...	283
Kilcoy ...	...	...	181				

Table No. LII.

## PINEAPPLES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF PINEAPPLES IN THE STATE.

Petty Sessions District.	1928.		1929.				Increase or Decrease—1929.	
	Area.	Produce.	Bearing.	Not yet Bearing.	Total Area.	Produce.	Area.	Produce.
	Acres.	Dozen.	Acres.	Acres.	Acres.	Dozen.	Acres.	Dozen.
Bowen ...	189	37,075	142	67	209	20,752	20	— 16,323
Brisbane (A) ...	340	70,750	251	187	438	65,434	93	5,316
Brisbane (B) ...	223	39,121	182	43	225	45,096	2	5,975
Bundaberg ...	36	6,970	38	11	49	8,675	13	1,705
Caboolture ...	556	95,685	404	201	605	115,218	49	19,533
Cairns ...	80	13,310	87	10	97	12,947	17	— 363
Cleveland ...	531	144,874	369	262	631	126,053	100	— 18,821
Gympie ...	290	20,805	172	112	284	32,548	— 6	11,743
Logan ...	212	37,751	77	44	121	27,527	— 91	— 10,224
Maroochy ...	1,520	363,769	1,101	621	1,722	300,799	202	— 62,970
Maryborough ...	135	29,447	95	46	141	34,277	6	4,830
Rockhampton ...	225	31,596	198	35	233	31,403	8	— 193
Townsville ...	63	4,316	51	15	66	6,572	3	2,256
Wynnum ...	61	7,123	46	33	79	9,766	18	2,643
All other Districts	273	35,743	180	64	244	20,049	— 29	— 15,694
Total ...	4,734	938,335	3,393	1,751	5,144	857,116	410	— 81,219

N.B.—Brisbane (B) refers to South Brisbane.



Table No. LIII.  
ORANGES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF ORANGES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.		Bearing, 1929.	Not yet Bearing, 1929.	Produce.		Increase or Decrease - 1929.	
	1928.	1929.	Area.	Area.	1928.	1929.	Area.	Produce.
	Acres.	Acres.			Bushels.	Bushels.		
Allora ... ..	27	25	25	...	2,002	1,236	- 2	- 766
Atherton ... ..	24	25	16	9	1,512	2,097	- 1	- 585
Beaudesert ... ..	29	27	18	9	3,520	1,659	- 2	- 1,871
Brisbane (A) ... ..	14	41	21	20	1,326	1,668	27	342
Bowen ... ..	107	96	70	26	2,292	1,203	- 11	- 1,089
Bundaberg ... ..	32	45	31	14	7,699	6,832	13	- 867
Caboolture ... ..	92	90	66	24	8,941	5,922	- 2	- 3,019
Cairns ... ..	105	84	51	33	3,120	3,583	- 21	- 463
Cardwell ... ..	78	136	84	52	4,068	13,107	58	9,039
Charters Towers ... ..	61	59	55	4	2,965	4,433	- 2	- 1,468
Childers ... ..	61	61	53	8	5,149	5,322	...	173
Cleveland ... ..	27	45	18	27	1,968	1,259	18	- 709
Cook ... ..	58	49	44	5	900	2,038	- 9	- 1,138
Crow's Nest ... ..	23	22	11	11	2,242	1,245	- 1	- 997
Emerald ... ..	19	25	21	4	2,006	2,036	6	30
Esk ... ..	66	79	63	16	3,856	2,699	13	- 1,157
Gatton ... ..	63	87	75	12	11,585	13,019	24	1,434
Gayndah ... ..	73	87	55	32	8,074	2,836	14	- 5,238
Gladstone ... ..	42	41	25	16	2,730	1,929	- 1	- 801
Gympie ... ..	50	43	10	33	1,848	1,048	- 7	- 800
Helidon ... ..	24	22	20	2	2,572	1,877	- 2	- 695
Ingham ... ..	19	20	18	2	2,192	2,678	1	486
Logan ... ..	107	121	99	22	14,033	13,756	14	- 277
Lowood ... ..	17	28	23	5	3,038	2,985	11	- 53
Mackay ... ..	58	39	27	12	4,169	4,965	- 19	- 796
Maroochy ... ..	1,046	1,064	812	252	134,064	72,816	18	- 61,248
Maryborough ... ..	474	494	350	144	56,905	42,990	20	- 13,915
Proserpine ... ..	28	29	21	8	3,447	4,128	1	681
Redcliffe ... ..	41	35	23	12	2,448	1,103	- 6	- 1,345
Rockhampton ... ..	341	302	223	79	37,346	24,185	- 39	- 13,161
Roma ... ..	60	50	38	12	2,210	1,179	- 10	- 1,031
Southport ... ..	108	170	136	34	9,849	9,514	62	- 325
Tiaro ... ..	73	73	71	2	7,297	2,941	...	- 4,356
Toowoomba ... ..	19	20	19	1	1,590	1,513	1	- 77
All other Districts ... ..	268	238	182	56	18,214	11,000	- 30	- 7,214
Total ... ..	3,734	3,872	2,874	998	377,177	272,801	138	- 104,376

Table No. LIV.  
MANGOES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF MANGOES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.		Bearing, 1929.	Not yet Bearing, 1929.	Produce.		Increase or Decrease - 1929.	
	1928.	1929.	Area.	Area.	1928.	1929.	Area.	Produce.
	Acres.	Acres.			Bushels.	Bushels.		
Atherton ... ..	6	4	3	1	439	1,108	- 2	- 669
Bowen ... ..	36	43	33	10	30,098	8,919	7	- 21,179
Coen ... ..	...	2	2	...	...	1,244	2	1,244
Douglas ... ..	6	4	4	...	1,877	1,854	- 2	- 23
Ingham ... ..	7	12	12	...	1,889	4,055	5	2,166
Logan ... ..	18	21	19	2	10,837	2,698	3	- 8,139
Mackay ... ..	38	12	11	1	7,041	3,153	- 26	- 3,888
Maryborough ... ..	8	9	9	...	2,519	1,868	1	- 651
Proserpine ... ..	17	16	15	1	5,045	5,622	- 1	- 577
Rockhampton ... ..	25	23	21	2	5,344	4,470	- 2	- 874
Townsville ... ..	11	10	9	1	1,188	1,623	- 1	- 435
All other Districts ... ..	77	48	44	4	12,332	9,009	- 29	- 3,323
Totals ... ..	249	204	182	22	78,609	45,623	- 45	- 32,986



Table No. LV.  
STRAWBERRIES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.		Produce.		Increase or Decrease —	
	1928.	1929.	1928.	1929.	1929.	1929.
	Acres.	Acres.	Quarts.	Quarts.	Acres.	Quarts.
Beaudesert ... ..	...	1	...	160	1	160
Brisbane (A) ... ..	13	16	10,195	10,346	3	151
Brisbane (B) ... ..	1	5	786	2,299	4	1,513
Caboolture ... ..	2	1	580	1,140	— 1	560
Cleveland ... ..	84	81	102,667	197,965	— 3	95,298
Gladstone ... ..	1	1	400	300	...	100
Gympie ... ..	4	2	5,407	2,910	— 2	2,497
Helidon ... ..	1	...	33	...	— 1	33
Logan ... ..	...	1	...	100	— 1	100
Maroochy ... ..	36	48	25,497	83,098	12	57,601
Maryborough ... ..	...	1	...	65	1	65
Nanango ... ..	1	...	100	...	— 1	100
Redcliffe ... ..	...	2	...	1,716	2	1,716
Rockhampton ... ..	4	7	8,529	9,518	3	989
Southport ... ..	1	2	1,120	610	1	510
Toogoolawah ... ..	...	1	...	50	1	50
Townsville ... ..	...	1	...	1,000	1	1,000
Wynnum ... ..	4	12	6,270	19,010	8	12,740
Totals ... ..	152	182	161,584	330,287	30	168,703

N.B.—Brisbane (B) refers to South Brisbane.

Table No. LVI.

APPLES.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF APPLES IN THE PRINCIPAL DISTRICTS OF THE STATE.

Petty Sessions District.	Area.		Increase or Decrease — 1929.	Bearing, 1929.	Not Bearing, 1929.	Produce.		Increase or Decrease — 1929.
	1928.	1929.				1928.	1929.	
	Acres.	Acres.				Bushels.	Bushels.	
Atherton ... ..	2	...	— 2	...	...	31	...	— 31
Condamine ... ..	1	1	...	1	...	6	9	3
Crow's Nest ... ..	1	1	...	1	...	38	22	— 16
Herberton ... ..	8	8	...	7	1	64	225	161
Inglewood ... ..	...	1	1	1	...	...	1	1
Nanango ... ..	1	1	...	1	...	13	11	— 2
Redcliffe ... ..	...	1	1	1	...	...	10	10
Stanthorpe ... ..	3,587	3,774	187	3,261	513	160,741	166,475	5,734
Toowoomba ... ..	4	3	— 1	3	...	82	272	190
Warwick ... ..	526	219	— 307	197	22	22,436	10,020	— 12,416
Wienholt ... ..	...	1	1	1	...	...	7	7
Wynnum ... ..	2	1	— 1	1	...	50	10	— 40
All other Districts ... ..	1	1	...	...	1	...	...	...
Totals ... ..	4,133	4,012	— 121	3,475	537	183,461	177,062	— 6,399

Table No. LVII.

OTHER FRUITS.

RETURN SHOWING THE AREA AND PRODUCTION OF OTHER FRUITS DURING THE YEAR 1929.

—							Bearing.	Not Bearing.	Yield.
							Acres.	Acres.	
Almonds ..	...	...	...	...	...	...	...	...	...
Apricots ...	...	...	...	...	...	...	106	16	5,530 bushels
Cherries ...	...	...	...	...	...	...	3	...	294 bushels
Custard apples ...	...	...	...	...	...	...	241	59	31,693 bushels
Figs ...	...	...	...	...	...	...	15	...	3,676 bushels
Lemons ...	...	...	...	...	...	...	130	49	16,423 bushels
Nectarines ...	...	...	...	...	...	...	82	...	5,449 bushels
Olives ...	...	...	...	...	...	...	...	...	...
Passion fruit ...	...	...	...	...	...	...	182	...	12,839 bushels
Papaws ...	...	...	...	...	...	...	417	276	87,494 dozens
Peaches ...	...	...	...	...	...	...	1,517	117	109,315 bushels
Pears ...	...	...	...	...	...	...	215	56	13,829 bushels
Persimmons ...	...	...	...	...	...	...	8	3	575 bushels
Plums ...	...	...	...	...	...	...	1,132	209	56,121 bushels
Quinces ...	...	...	...	...	...	...	13	...	523 bushels



Table No. LVIII.

## OTHER VEGETABLES.

RETURN FOR TWO YEARS SHOWING AREA AND PRODUCTION OF OTHER VEGETABLES.

Other Vegetables.	1928.		1929.	
	Acres.	Produce.	Acres.	Produce.
Pulse { Beans ... ..	19	1,246 bushels	9	485 bushels
Peas ... ..	21	1,106 bushels	34	1,294 bushels
Green { Beans ... ..	972	86,132 bags	1,188	102,568 bags
Peas ... ..	675	46,367 bags	814	47,176 bags
Cabbages and Cauliflowers ...	1,417	240,197 dozen	1,464	317,691 dozen
Cucumbers ... ..	317	159,325 dozen	363	222,186 dozen
Marrows ... ..	...	...	...	...
Onions ... ..	277	16,069 cwt.	467	33,798 cwt.
Tomatoes ... ..	3,429	289,597 bushels	4,165	458,325 bushels
Turnips ... ..	124	529 tons	171	745 tons

Table No. LIX.

## PRINCIPAL OTHER CROPS.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF OTHER CROPS.

	1928.		1929.	
	Acres.	Produce.	Acres.	Produce.
Broom millet ... ..	307	240,980 lb. straw	378	175,346 lb. straw
Canary seed ... ..	711	98,210 lb.	948	627,648 lb.
Cassava ... ..	...	...	...	...
Cocoanuts ... ..	541	30,400 dozen	461	27,500 dozen
Grass seed ... ..	727	14,884 bushels	1,100	22,686 bushels
Lucerne seed ... ..	21	2,160 lb.	94	7,524 lb.
Mangold wurzel ... ..	104	485 tons	120	605 tons
Millet seed ... ..	118	1,800 bushels	130	2,829 bushels
Peanuts ... ..	9,994	6,764,876 lb.	5,582	8,070,433 lb.

Table No. LX.

## PASTURAGE AND OTHER FODDER CROPS.

RETURN FOR FIVE YEARS SHOWING THE AREA UNDER PASTURAGE.

	1925. Acres.	1926. Acres.	1927. Acres.	1928. Acres.	1929. Acres.
Hay .. ..	66,828	40,141	65,412	55,498	49,745
Green forage .. ..	247,482	342,580	155,843	180,524	208,624
Artificially sown pasture .. ..	532,052	543,528	546,575	587,434	639,871
Total .. ..	846,362	926,249	767,830	813,456	898,240

Table No. LXI.

## HAY.

RETURN FOR TWO YEARS SHOWING THE AREA AND PRODUCTION OF HAY CROPS.

Hay Crops.	Area.		Increase or Decrease — 1929.	Produce.		Increase or Decrease — 1929.
	1928.	1929.		1928.	1929.	
	Acres.	Acres.	Acres.	Tons.	Tons.	Tons.
Wheat ... ..	4,585	3,811	— 774	4,673	3,613	— 1,060
Oats ... ..	2,192	2,608	416	2,683	3,389	706
Lucerne ... ..	45,476	40,013	— 5,463	73,085	67,507	— 5,578
Other ... ..	3,245	3,313	68	5,210	5,074	— 136
Totals ... ..	55,498	49,745	— 5,753	85,651	79,583	— 6,068



**Table No. LXII.**  
**ARTIFICIALLY SOWN PASTURE.**  
**RETURN FOR TWO YEARS SHOWING THE AREA UNDER ARTIFICIALLY SOWN PASTURES.**

Petty Sessions District.						1928.	1929.	Increase, 1929.	Decrease, 1929.
						Acres.	Acres.	Acres.	Acres.
Atherton	...	...	...	...	...	50,289	50,680	391	...
Beaudesert	...	...	...	...	...	11,942	12,834	892	...
Biggenden	...	...	...	...	...	21,008	24,465	3,457	...
Chinchilla	...	...	...	...	...	6,503	6,939	436	...
Cooyar	...	...	...	...	...	7,029	7,621	592	...
Crow's Nest	...	...	...	...	...	7,523	7,731	208	...
Dalby	...	...	...	...	...	23,669	23,377	...	292
Dugandan	...	...	...	...	...	5,462	6,628	1,166	...
Eidsvold	...	...	...	...	...	836	6,568	5,732	...
Gayndah	...	...	...	...	...	11,186	36,531	25,345	...
Gladstone	...	...	...	...	...	25,666	25,428	...	238
Gympie	...	...	...	...	...	102,436	110,438	8,002	...
Herberton	...	...	...	...	...	4,046	5,998	1,952	...
Maroochy	...	...	...	...	...	48,101	45,189	...	2,912
Mt. Morgan	...	...	...	...	...	4,684	6,929	2,245	...
Nanango	...	...	...	...	...	46,837	52,310	5,473	...
Oakey	...	...	...	...	...	7,611	10,621	3,010	...
Pittsworth	...	...	...	...	...	5,594	6,085	491	...
Redcliffe	...	...	...	...	...	11,028	12,203	1,175	...
Rockhampton	...	...	...	...	...	25,237	24,747	...	490
Southport	...	...	...	...	...	42,797	31,147	...	11,650
Tiaro	...	...	...	...	...	10,087	10,012	...	75
Toowoomba	...	...	...	...	...	10,387	106	...	10,281
Wienholt	...	...	...	...	...	47,362	64,467	17,105	...
Woodford	...	...	...	...	...	21,632	23,422	1,790	...
All other Districts	...	...	...	...	...	28,482	27,395	...	1,087
Totals	...	...	...	...	...	587,434	639,871	52,437	...

**Table No. LXIII.**  
**ENSILAGE.**  
**RETURN FOR TWO YEARS SHOWING NUMBER OF MAKERS AND ENSILAGE MADE IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE.**

Petty Sessions District.						1928.		1929.		Increase, 1929.	Decrease, 1929.
						No. of Makers.	Tons.	No. of Makers.	Tons.	Tons.	Tons.
Atherton	...	...	...	...	...	4	285	1	80	...	205
Beaudesert	...	...	...	...	...	2	150	2	140	...	10
Biggenden	...	...	...	...	...	1	4	...	...	...	4
Brisbane (A)	...	...	...	...	...	2	130	1	40	...	90
Brisbane (B)	...	...	...	...	...	11	1,002	4	520	...	482
Bundaberg	...	...	...	...	...	1	25	...	...	...	25
Cairns	...	...	...	...	...	1	80	1	40	...	40
Charters Towers	...	...	...	...	...	2	136	1	20	...	116
Chinchilla	...	...	...	...	...	1	75	2	120	45	...
Cleveland	...	...	...	...	...	...	...	1	50	50	...
Clifton	...	...	...	...	...	1	2	...	...	...	2
Condamine	...	...	...	...	...	1	30	...	...	...	30
Crow's Nest	...	...	...	...	...	1	20	...	...	...	20
Dugandan	...	...	...	...	...	...	...	2	39	39	...
Esk	...	...	...	...	...	7	528	...	...	...	528
Gatton	...	...	...	...	...	1	75	1	146	71	...
Gayndah	...	...	...	...	...	2	125	2	120	...	5
Gladstone	...	...	...	...	...	...	...	3	90	90	...
Goodna	...	...	...	...	...	...	...	1	44	44	...
Goombungee	...	...	...	...	...	1	75	...	...	...	75
Helidon	...	...	...	...	...	2	40	...	...	...	40
Herberton	...	...	...	...	...	1	40	...	...	...	40
Ipswich	...	...	...	...	...	2	100	1	50	...	50
Logan	...	...	...	...	...	1	50	...	...	...	50
Maroochy	...	...	...	...	...	2	110	1	20	...	90
Maryborough	...	...	...	...	...	2	130	...	...	...	130
Nanango	...	...	...	...	...	...	...	1	10	10	...
Pittsworth	...	...	...	...	...	2	80	...	...	...	80
Redcliffe	...	...	...	...	...	2	56	...	...	...	56
Rockhampton	...	...	...	...	...	6	35	1	20	...	15
Rosewood	...	...	...	...	...	4	131	2	230	99	...
Springsure	...	...	...	...	...	1	160	1	150	...	10
Southport	...	...	...	...	...	1	100	1	2	...	98
Toogoolawah	...	...	...	...	...	...	...	4	340	340	...
Toowoomba	...	...	...	...	...	1	120	1	40	...	80
Townsville	...	...	...	...	...	5	142	5	392	250	...
Woodford	...	...	...	...	...	...	...	2	130	130	...
Wynnum	...	...	...	...	...	1	1	1	100	99	...
Totals	...	...	...	...	...	72	4,037	43	2,933	...	1,104

Value of Ensilage made 1928, £8,416; 1929, £8,334.

N.B.—Brisbane (B) refers to South Brisbane.



**Table No. LXIV.**  
**RETURN SHOWING THE RESULTS OF THE DAIRYING INDUSTRY IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1929.**

Districts.	Total Milk Obtained.	HOW UTILISED.						ESTABLISHMENTS.			DAIRY CATTLE.			Average Cows per Cow.	BUTTER MADE.			CHEESE MADE.		
		For Butter on Farms.	For Cheese on Farms.	For Domestic Purposes by Producer.	Separated for Sale.	Sold for Consumption as Milk.	Sold to Condensed Milk Factories.	Sold to Cheese Factories.	Dairying.	Butteries.	Cheese Factories.	In Milk.	Dry.	Heifers, &c.	At Factories.	By Farmers.	Total.	At Factories.	By Farmers.	Total.
		Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No.	No.	No.	No.	No.	No.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
<i>Moreton.</i>																				
Brisbane (A)	2,328,412	102,130	..	135,371	501,374	1,589,537	..	..	518	..	..	7,042	2,319	324	..	55,649	55,649	..	..	..
Brisbane (B)	880,460	9,125	..	46,803	20,331	793,201	..	..	159	..	..	2,364	945	441	..	3,677	3,677	..	..	..
Beaudesert	7,867,609	151,779	..	150,379	7,485,777	79,674	..	..	469	..	..	21,428	4,907	1,230	..	2,723,718	2,794,839	..	..	..
Caboolture	575,526	11,740	..	18,509	497,999	47,278	..	..	81	1	1	2,305	643	796	..	3,111,506	3,117,222	..	..	..
Cleveland	123,031	16,184	..	23,299	66,665	16,883	..	..	143	..	..	407	175	211	..	7,087	7,087	..	..	..
Coolyar	1,107,239	42,198	..	30,088	1,034,653	300	..	..	107	..	..	3,697	915	125	..	19,962	19,962	..	..	..
Crow's Nest	3,745,465	115,855	..	73,294	3,548,324	7,992	..	..	357	..	..	10,004	2,320	288	..	57,294	57,294	..	..	..
Dugandan	5,377,036	139,251	..	145,036	5,078,955	13,794	..	..	596	1	1	14,253	2,284	435	..	68,773	3,710,692	..	..	..
Esik	1,330,651	49,331	..	44,121	1,228,207	8,992	..	..	153	1	1	5,307	1,330	197	..	1,200,233	1,223,651	..	..	..
Gatton	3,494,991	152,615	..	128,033	3,189,749	13,394	..	..	514	2	..	8,689	2,640	424	..	946,534	1,008,182	..	..	..
Goodna	113,492	3,070	..	7,480	52,691	50,251	..	..	18	..	..	320	134	13	..	1,035	1,035	..	..	4,956
Harrisville	3,102,738	98,131	..	83,834	2,861,758	59,015	..	..	358	..	..	8,298	1,540	352	..	48,888	48,888	..	..	..
Helidon	2,071,541	61,783	..	63,736	1,932,411	13,611	..	..	205	..	..	5,075	1,023	432	..	30,601	30,601	..	..	..
Ipswich	1,118,543	42,614	..	50,560	785,839	239,530	..	..	189	3	..	4,583	1,150	231	..	21,240	3,845,732	..	..	..
Kilcoy	1,798,040	42,484	..	40,254	1,710,922	4,380	..	..	112	..	..	5,626	1,227	215	..	20,120	20,120	..	..	..
Laidley	2,977,671	117,349	..	101,226	2,759,096	322,609	..	..	414	1	1	7,716	1,736	604	..	1,520,039	1,571,949	..	..	..
Logan	3,079,571	146,958	..	87,460	2,522,544	2,547	..	..	441	1	..	6,884	1,034	521	..	4,249,672	4,301,791	..	..	..
Lowood	2,093,174	66,353	..	81,927	1,941,987	13,671	..	..	336	..	..	3,873	703	960	..	34,090	34,090	..	..	..
Marburg	5,274,737	199,167	..	179,796	4,875,151	22,623	..	..	186	1	..	16,039	3,618	957	..	20,568	20,568	..	..	..
Maroochy	3,130,706	57,380	..	75,414	1,585,031	22,623	..	..	914	1	..	9,040	2,247	544	..	90,695	1,429,450	..	..	..
Redcliffe	2,540,796	80,591	..	69,615	2,235,756	145,334	..	..	297	1	..	8,815	1,835	237	..	25,122	224,339	..	..	..
Rosewood	7,337,191	81,414	..	94,967	7,043,174	117,636	..	..	328	..	1	16,444	3,874	664	..	199,217	40,059	..	..	9,287
Southport (a)	2,757,831	44,070	..	68,371	1,061,857	6,667	..	..	369	..	..	7,492	2,042	337	..	42,105	42,105	..	..	..
Toongoolawah	2,256,428	67,162	..	52,550	2,136,716	161,851	..	..	209	1	..	8,111	1,565	254	..	855,857	889,698	..	..	..
Wynnum	204,752	16,029	..	20,472	6,400	..	..	..	73	..	..	324	138	44	..	6,796	6,796	..	..	..
<b>Total Moreton</b>	<b>68,038,176</b>	<b>1,956,017</b>	<b>..</b>	<b>1,925,318</b>	<b>57,413,264</b>	<b>5,145,651</b>	<b>1,576,866</b>	<b>21,060</b>	<b>7,752</b>	<b>15</b>	<b>1</b>	<b>191,674</b>	<b>43,519</b>	<b>10,914</b>	<b>24,898,076</b>	<b>915,306</b>	<b>25,813,382</b>	<b>14,243</b>	<b>..</b>	<b>14,243</b>
<i>Wide Bay.</i>																				
Biggenden	6,051,987	100,825	..	53,857	5,520,292	112,778	..	..	280	1	2	11,548	2,542	620	..	1,265,964	1,307,490	..	..	240,516
Bundaberg	1,802,663	239,618	..	181,711	1,204,155	177,179	..	..	698	1	..	8,351	3,388	630	..	980,526	1,091,547	..	..	..
Childers	1,326,803	41,260	..	83,036	1,190,904	11,603	..	..	204	..	..	1,433	694	124	..	..	19,612	..	..	..
Edsvold	1,280,509	52,642	..	42,189	1,185,678	..	..	..	169	..	..	4,389	2,012	420	..	..	29,141	..	..	..
Gayndah	4,529,391	158,152	..	103,606	4,228,960	38,673	..	..	507	2	..	16,490	4,384	1,751	..	3,099,815	3,167,529	..	..	..
Gin Gin	637,432	96,923	..	57,151	479,128	4,230	..	..	249	..	..	2,803	1,503	178	..	..	40,734	..	..	..
Gympie	13,795,251	337,937	100	426,547	12,943,027	85,890	..	..	1,213	5	..	40,754	10,275	2,116	..	7,965,654	8,099,137	..	20	20
Kilkivan	939,968	32,094	..	26,337	881,537	..	..	..	94	..	..	3,640	1,245	232	..	133,483	15,891	..	..	..
Maryborough	1,075,216	128,658	850	70,416	703,212	172,080	..	..	384	1	..	5,284	2,267	530	..	1,063,088	1,121,505	..	360	360
Mount Perry	122,674	12,064	..	5,360	105,250	..	..	..	25	..	..	560	365	21	..	6,032	6,032	..	..	..
Nanango	9,940,225	285,846	..	187,593	9,432,715	34,071	..	..	890	2	..	28,285	7,532	874	..	6,982,063	7,122,718	..	..	..
Tiaro	2,221,047	104,138	5,400	64,895	2,046,594	20	..	..	271	..	..	9,603	2,585	99	..	50,515	50,515	..	5,400	5,400
Wienholt	11,348,377	256,226	..	269,712	10,803,604	18,835	..	..	1,022	1	..	31,758	8,545	1,083	..	3,528,939	3,657,111	..	..	..
<b>Total Wide Bay</b>	<b>54,071,543</b>	<b>1,846,383</b>	<b>6,350</b>	<b>1,572,410</b>	<b>49,725,056</b>	<b>655,359</b>	<b>..</b>	<b>265,985</b>	<b>6,007</b>	<b>13</b>	<b>2</b>	<b>164,898</b>	<b>47,337</b>	<b>8,678</b>	<b>24,886,049</b>	<b>842,913</b>	<b>25,728,962</b>	<b>240,516</b>	<b>5,780</b>	<b>246,296</b>
<i>Port Curtis.</i>																				
Banana	96,996	8,708	30	13,954	70,003	4,301	..	..	48	..	..	362	144	4	..	..	4,131	..	20	20
Gladstone	4,355,307	255,380	..	116,199	3,958,815	24,913	..	..	488	2	..	15,491	5,409	1,425	..	3,101,042	3,186,513	..	..	..
Mount Morgan	1,152,514	63,054	..	43,209	1,031,045	15,206	..	..	262	1	..	5,046	830	599	..	1,060,414	1,091,416	..	..	..
Rockhampton	3,831,136	268,269	..	156,765	2,978,142	426,960	..	..	580	3	..	13,052	6,512	1,245	..	1,763,993	1,864,632	..	..	..
St. Lawrence	31,710	15,455	..	16,255	..	..	..	..	51	..	..	189	131	3	..	..	3,092	..	..	..
<b>Total Port Curtis</b>	<b>9,467,663</b>	<b>610,866</b>	<b>30</b>	<b>346,382</b>	<b>8,039,005</b>	<b>471,380</b>	<b>..</b>	<b>..</b>	<b>1,429</b>	<b>6</b>	<b>..</b>	<b>34,140</b>	<b>13,026</b>	<b>3,276</b>	<b>5,925,449</b>	<b>224,335</b>	<b>6,149,784</b>	<b>..</b>	<b>20</b>	<b>20</b>



Table No. LXIV.—continued.  
RETURN SHOWING THE RESULTS OF THE DAIRYING INDUSTRY IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1929—continued.

Districts.	HOW UTILISED.						ESTABLISHMENTS.			DAIRY CATTLE.			AVERAGE per Cow.		BUTTER MADE.		CHEESE MADE.	
	Total Milk Obtained.	For Butter on Farms.	For Cheese on Farms.	For Domestic Purposes by Producer.	Separated for Sale.	Sold for Consumption as Milk.	Sold to Condensed Milk Factories.	Sold to Cheese Factories.	Dairying.	Butter Factories.	Cheese Factories.	In Milk.	Dry.	Heifers, &c.	Gall.	At Factories.	By Farmers.	Total.
<i>Rockingham.</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No.	No.	No.	No.	No.	No.		Lb.	Lb.	Lb.
Atherton	5,285,664	140,816	..	133,979	5,052,368	50,347	..	308,154	493	3	3	14,157	5,052	1,304	296	2,832,821	60,921	2,893,742
Cairns	171,457	7,362	..	62,998	5,333	95,764	..	..	228	..	..	641	476	31	153	..	..	297,764
Cardwell	21,515	..	..	390	21,125	..	..	..	3	..	..	82	32	..	189	..	..	..
Chillagoe	4,315	3,700	..	615	..	..	..	..	2	..	..	17	3	..	216	..	..	..
Herberton	361,510	6,850	..	15,473	336,427	2,760	..	..	60	..	..	1,259	505	40	205	163,145	2,587	165,732
Ingham	75,433	9,050	..	40,793	..	25,590	..	..	153	..	..	423	188	..	123	..	..	..
Innisfail	100,937	2,050	..	59,117	1,000	38,770	..	..	205	..	..	441	366	122	125	..	..	..
Total Rockingham	6,420,831	169,828	..	313,365	5,416,253	213,231	..	308,154	1,144	4	3	17,020	6,622	1,519	272	2,995,966	70,877	3,066,843
<i>Maranoa.</i>																		
Mitchell	12,404	300	..	460	11,644	..	..	..	2	..	..	43	18	9	203	..	..	..
Roma	1,324,939	75,415	..	72,891	1,144,688	31,945	..	..	262	..	..	4,611	1,977	184	201	563,864	29,013	592,877
Surat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yeulba	38,754	4,984	..	3,410	28,900	1,460	..	..	15	..	..	172	145	28	122	..	..	..
Total Maranoa	1,376,097	80,699	..	70,761	1,185,232	33,405	..	..	279	1	..	4,826	2,140	321	198	563,864	31,655	595,519
<i>Downs.</i>																		
Allora	1,701,158	7,006	..	99,992	1,322,160	..	..	472,000	276	1	..	4,104	701	34	354	1,008,374	2,623	1,010,997
Chinchilla	1,697,244	43,116	..	34,135	1,611,997	8,296	..	..	123	1	..	4,006	1,600	281	303	611,259	18,451	629,710
Clifton	3,202,459	139,664	..	123,087	1,934,745	8,659	..	996,304	452	1	..	6,381	1,192	170	426	896,618	62,855	959,473
Condamine	1,935,079	52,069	..	44,036	1,833,324	3,650	..	..	180	1	..	3,921	2,223	629	315	401,200	23,656	424,856
Dalby	5,759,099	122,344	300	101,997	4,389,106	87,865	..	105,387	441	1	6	12,226	3,910	1,308	357	2,020,884	52,367	2,073,251
Goombungee	1,823,186	38,280	..	33,143	1,174,028	365	..	577,370	147	1	..	3,680	963	95	393	1,312,265	18,721	1,330,986
Goondiwindi	292,372	10,944	..	12,120	1,147,100	11,240	..	110,968	59	1	..	542	292	4	351	11,406	5,472	16,878
Highfields	2,233,364	71,350	..	60,556	1,781,990	..	..	319,168	234	..	..	4,980	956	185	376	..	35,577	35,577
Inglewood	822,304	18,922	600	18,290	471,230	3,180	..	310,032	66	..	..	1,516	798	140	355	..	8,137	8,137
Jondaryan	1,106,632	30,989	..	35,625	755,221	..	..	284,797	86	..	..	2,319	449	15	400	..	14,167	14,167
Killarney	1,555,135	50,348	..	46,452	1,448,675	9,660	..	..	163	..	..	2,937	702	307	427	876,161	24,391	900,552
Oakey	817,734	101,658	..	134,714	4,196,416	7,620	..	3,743,946	558	1	14	16,054	3,558	980	417	2,732,832	47,558	2,780,390
Pittsworth	5,101,786	64,108	..	154,235	1,684,632	..	..	3,191,141	431	..	12	9,582	2,228	543	432	..	28,831	28,831
Stanthorpe	164,046	61,384	..	88,627	22,853	11,082	..	..	401	..	..	643	427	87	153	..	26,076	26,076
Texas	307,548	4,785	..	11,849	290,364	..	..	..	31	..	..	544	440	19	313	114,042	1,872	115,914
Toowoomba	2,751,211	100,231	..	112,115	1,263,161	241,761	..	1,033,943	370	1	..	5,657	1,191	243	402	3,432,926	41,427	3,474,353
Warwick	4,130,536	199,521	..	155,235	3,012,632	14,810	..	548,288	597	1	5	8,271	2,219	133	394	1,988,733	87,531	2,076,264
Total Downs	42,759,893	1,116,669	900	1,245,808	27,342,184	408,188	..	12,646,344	4,645	12	61	87,313	23,849	5,123	385	15,406,700	499,712	15,906,412
Other Districts	1,439,355	291,874	..	428,679	230,998	487,804	..	..	1,507	1	..	7,229	5,984	1,169	109	114,869	108,074	222,943
Grand Total { 1929 1928	183,573,558 180,129,877	6,072,336 5,910,741	7,280 1,672	5,908,523 5,888,863	149,351,992 144,830,348	7,415,018 7,125,329	1,576,866 1,548,515	13,241,543 14,824,409	22,763 22,457	52 48	67 71	507,100 492,405	142,477 144,562	31,000 33,838	283 283	74,790,973 71,162,096	2,692,872 2,656,196	13,223,160 15,046,702
Increase, 1929 Decrease, 1929	.. ..	161,595 ..	5,608 ..	19,660 ..	4,521,644 ..	289,689 ..	28,351 ..	1,582,866 ..	306 ..	4 ..	..	14,695 ..	2,085 ..	2,838 ..	..	3,628,877 ..	34,676 ..	1,823,542 ..

(a) 2,279,973 gallons of this were sent from the Moreton Division to New South Wales.  
(b) 1,150,452 gallons of this were sent from the Moreton Division to New South Wales.



Table No. LXV.

RETURN SHOWING THE TOTAL EXTENT OF LAND UNDER CULTIVATION, AND THE AREA UNDER EACH DESCRIPTION OF CROP, IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1929.

Divisions and Petty Sessions Districts.	Total Extent of Land under Permanent Pasture with Artificially Sown Grasses.		Total Extent of Land under Cultivation.		Land in Fallow, Lying Idle, &c.		Total Extent of Land under Crop.		GRAIN CROPS.					POTATOES.		Pumpkins and Melons.		COTTON.		COFFEE.		VINES.		Gardens and Orchards.	Other Crops.						
	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	BARLEY.		Maize.	Rye.	Rice.	English.	Sweet.	Ac.	Ac.	Bearing.	Not Bearing.	Bearing.	Not Bearing.	Ac.	Ac.			Ac.	Ac.				
									Wheat.	Oats.																		Malting.	Other.		
Moreton Division.																															
Brisbane (A)	1,384	7,397	1,144	6,253	..	..	..	..	..	..	113	1	..	151	84	363	..	10	..	..	..	98	1,940	336	20	789	438	41	630	1,239	
Brisbane (B)	34	1,692	248	1,444	..	..	..	..	..	..	4	..	..	16	4	25	..	..	..	..	13	794	1	..	..	6	225	14	138	204	
Beaudesert	12,834	10,504	1,717	8,787	..	..	..	..	..	..	3,474	..	..	151	12	356	..	..	..	..	939	3,766	..	..	..	30	1	27	8	21	
Caboolture	395	2,104	262	1,842	..	..	..	..	..	..	37	..	..	73	15	21	..	..	..	..	..	295	..	..	..	687	605	4	4	14	
Cleveland	25	3,024	385	2,639	..	..	..	..	..	..	2	..	..	22	5	22	..	..	..	..	..	177	4	1	..	148	631	45	414	1,164	
Cooyar	7,621	3,676	1,109	2,567	..	..	..	..	..	..	9	..	..	97	..	113	..	..	..	..	196	1,091	..	..	..	..	..	5	3	1	
Crow's Nest	7,731	16,471	2,998	13,473	231	90	17	1,050	..	..	6,126	..	..	231	2	474	..	..	..	..	884	5,356	..	..	..	..	..	22	23	1	
Dugandan	6,628	22,891	3,220	19,671	33	9	3	8,811	..	..	8,126	..	..	548	24	474	..	6	..	..	4,310	5,356	..	..	..	9	..	3	3	110	
Esk	3,290	3,841	1,063	2,778	..	..	..	..	..	..	1,006	..	..	58	22	153	..	15	..	..	378	912	..	..	..	122	..	79	7	9	
Gatton	2,656	24,032	5,609	18,423	47	7	..	..	..	..	6,864	6	..	666	381	1,985	..	..	..	..	4,714	3,334	..	..	..	..	..	87	17	288	
Goodna	8	312	81	281	..	..	..	..	..	..	47	..	..	5	1	8	..	..	..	..	59	153	..	..	..	..	..	4	4	13	
Harrisville	367	13,762	2,390	11,372	..	6	..	..	..	..	3,926	..	..	88	30	251	..	3	..	..	3,988	3,028	..	..	..	..	..	1	4	28	
Helidon	2,308	8,150	2,726	5,424	..	..	..	..	..	..	1,353	..	..	197	111	448	..	5	..	..	501	2,749	..	..	..	..	..	22	7	28	
Ipswich	51	3,774	857	2,917	..	..	..	..	..	..	833	..	..	107	6	49	..	..	..	..	479	1,350	..	..	..	..	..	17	15	11	
Kilcoy	2,008	2,782	431	2,351	..	..	..	..	..	..	744	..	..	88	11	49	..	..	..	..	53	762	..	..	..	578	..	..	6	43	
Laidley	63	18,422	2,422	16,994	..	..	..	..	..	..	8,082	..	..	431	161	900	..	36	..	..	4,133	2,004	..	..	..	..	..	..	6	215	
Logan	440	6,089	589	5,500	..	..	..	..	..	..	597	..	..	785	202	75	..	..	..	..	67	1,194	..	..	..	468	121	121	183	302	
Lowood	528	13,938	1,840	12,098	..	..	..	..	..	..	5,891	..	..	535	197	997	..	..	..	..	1,443	2,671	..	..	..	2	26	28	12	134	
Marburg	32	6,768	1,324	5,434	..	..	..	..	..	..	2,082	..	..	82	27	84	..	2	..	..	451	2,663	..	..	..	2,258	1,722	1,064	157	219	
Maroochy	45,189	12,847	1,095	11,752	..	..	..	..	..	..	469	..	..	79	21	14	..	..	..	..	69	917	..	..	..	2,258	1,722	1,064	157	219	
Redcliffe	12,203	4,158	695	3,463	..	..	..	..	..	..	322	..	..	147	42	54	..	..	..	..	1,071	4,135	..	..	..	1,076	36	35	38	101	
Rosewood	85	10,470	2,442	8,028	..	..	..	..	..	..	2,495	..	..	135	25	146	..	..	..	..	1,071	4,135	..	..	..	803	17	170	70	13	
Southport	31,147	2,958	2,293	2,665	..	..	..	..	..	..	559	..	..	207	16	15	..	25	..	..	4	494	..	..	..	2	..	8	8	24	
Toogoolawah	981	8,627	1,803	6,824	..	..	..	..	..	..	2,083	..	..	165	22	249	..	..	..	..	1,649	2,571	..	..	..	600	..	..	6	6	
Woodford	23,422	1,875	346	1,529	..	..	..	..	..	..	315	..	..	43	15	11	..	..	..	..	14	506	..	..	..	25	4	5	24	49	
Wynnum	20	626	175	451	..	..	..	..	..	..	3	..	..	10	5	15	..	..	..	..	2	198	..	..	..	9	79	..	56	..	
Total Moreton	161,450	211,180	37,220	173,960	352	112	20	57,288	7	..	..	5,117	1,441	7,308	170	182	..	11	1	25,526	49,955	396	26	7,606	3,946	1,875	1,819	4,269	..	..	4,269
Wide Bay Division.																															
Blighden	24,465	3,048	1,260	1,798	..	..	..	..	..	..	668	..	..	21	11	80	15	17	..	..	79	637	..	..	..	16	3	4	10	80	
Bundaberg	421	34,078	5,425	28,653	..	..	..	..	..	..	274	..	..	76	26	24	3	6	..	..	66	422	..	..	..	200	49	45	25	36	
Childers	1,025	17,474	2,148	15,326	..	..	..	..	..	..	56	..	..	26	70	63	466	1,012	..	..	15	66	..	..	..	1	2	2	9	1	
Eidsvold	6,568	4,215	1,006	3,209	..	..	..	..	..	..	257	..	..	35	25	246	362	784	..	..	98	1,209	..	..	..	..	..	8	14	4	
Gayndah	36,531	12,872	2,148	10,724	282	3	..	..	..	..	2,394	..	..	12	4	20	59	91	..	..	138	5,165	..	..	..	..	2	2	14	5	
Gin Gin	526	10,279	1,924	8,355	..	..	..	..	..	..	497	..	..	296	1	92	4	3	..	..	120	121	..	..	..	1	2	8	35	77	
Gympie	110,438	15,772	902	14,870	..	..	..	..	..	..	1,875	..	..	296	140	92	4	35	..	..	142	2,190	..	..	..	9,350	284	43	18	5	
Kilkivan	87	1,903	681	1,222	..	..	..	..	..	..	397	..	..	27	15	43	4	1	..	..	175	495	..	..	..	10	2	12	12	5	
Maryborough	825	8,294	1,010	7,284	..	..	..	..	..	..	104	..	..	163	7	34	..	..	..	..	388	279	..	..	..	221	141	494	39	30	
Mount Perry	81	47	34	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Nanango	52,310	49,235	10,651	38,584	..	..	..	..	..	..	18,694	..	..	99	75	703	22	20	..	..	1,975	13,489	..	..	..	3	..	..	..	30	30
Tiaro	10,012	4,311	737	3,574	..	..	..	..	..	..	418	..	..	48	2	36	23	22	..	..	105	354	..	..	..	10	2	12	12	5	
Wienholt	64,467	45,301	8,011	37,290	215	..	..	..	..	..	21,221	..	..	699																	



Table No. LXV.—continued.

Divisions and Petty Sessions Districts.	GRAIN CROPS.										POTATOES.		Pumpkins and Melons.	COTTON.		Sugar-cane.	Arrowroot.	Tobacco.	COFFEE.		Green Fodder.	VINES.		Bananas.	Pineapples.	Oranges.	Gardens and Orchards.	Other Crops.	
	Total Extent of Land under Permanent Pasture with Artificially Sown Grasses.	Total Extent of Land under Cultivation.	Land in Fallow, Lying Idle, &c.	Total Extent of Land under Crop.	Wheat.	Oats.	BARLEY.		Maize.	Rye.	Rice.	English.		Sweet.	Bearing.				Not Bearing.	Bearing.		Not Bearing.	Ac.						Ac.
							Malting.	Other.																					
Edgumbe Division.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	Ac.	
Ayr	..	45,252	9,635	35,617	..	..	..	..	..	..	..	18	5	6	..	35,517	..	..	..	4	11	..	32	2	6	14	2	..	
Bowen	..	3,796	1,232	2,564	..	..	..	..	..	..	..	101	4	301	..	139	..	..	..	..	113	..	29	209	96	63	1,468	..	
Cape River	..	65	7	58	..	..	..	..	..	..	..	10	3	17	..	..	..	..	..	..	..	..	..	..	8	3	..		
Charters Towers	..	161	45	116	..	..	..	..	..	..	..	3	1	1	..	..	..	..	..	..	..	..	..	..	6	10	..		
Collinsville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Mackay	..	88,121	23,419	64,702	..	..	..	..	..	..	..	10	1	..	..	64,261	..	..	..	..	162	..	195	10	39	16	8	..	
Proserpine	..	14,134	3,779	10,355	..	..	..	..	..	..	..	18	1	..	..	10,196	..	..	..	..	44	..	15	1	29	25	16	..	
Ravenswood	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Townsville	..	1,148	248	900	..	..	..	..	..	..	..	100	6	51	..	294	..	..	..	..	99	..	57	66	21	116	75	..	
Total Edgumbe..	37	152,681	38,365	114,316	..	..	..	..	56	..	1	260	21	380	..	100,407	..	5	..	4	441	20	329	288	267	248	1,582	..	
Rockingham Division.	50,680	21,338	1,012	20,326	..	..	..	..	19,261	..	..	108	52	72	7	35,392	1	10	..	38	544	..	44	11	25	72	81	..	
Atherton	293	39,953	3,937	36,016	..	..	..	..	132	..	..	57	6	..	..	9,565	..	..	..	..	21	..	172	97	84	34	21	..	
Cairns	45	10,018	61	9,957	..	..	..	..	8	..	..	2	10	..	..	..	..	..	..	..	..	207	9	136	..	20	..		
Cardwell	..	27	11	16	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	1	1	2	..	4	..		
Chillagoe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..		
Herberton	..	374	107	267	..	..	..	..	134	..	..	13	..	1	..	32,457	..	..	..	17	54	..	27	2	20	27	4	..	
Ingham	40	41,493	8,924	32,569	..	..	..	..	16	..	..	3	2	..	..	31,131	..	..	..	..	3	..	5	1	2	29	7	..	
Innisfail	..	35,701	4,548	31,153	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	12	..	..	..	..	..	4	..	
Total Rockingham	57,056	148,904	18,600	130,304	..	..	..	..	19,553	..	..	183	73	74	10	108,545	1	10	..	55	634	8	456	121	272	162	137	..	
York Peninsula Division.	..	37	10	27	..	..	..	..	5	..	..	..	10	2	..	..	..	..	..	..	..	..	..	..	..	6	2	..	
Cook	..	168	14	154	..	..	..	..	59	..	..	..	5	2	..	..	..	..	..	..	..	..	..	..	..	3	21	..	
Douglas	..	7,413	2,060	5,353	..	..	..	..	..	..	..	..	..	..	..	5,325	..	..	..	..	..	..	..	..	..	16	..	..	
Somerset	..	648	90	558	..	..	..	..	..	..	..	..	44	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	
Total York Peninsula	2,401	8,266	2,174	6,092	..	..	..	..	64	..	..	..	59	6	..	5,325	..	..	..	3	3	..	45	3	61	29	494	..	
Carpentaria Division.	..	11	..	11	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	8	1	..	
Parke	..	41	..	41	..	..	..	..	..	..	..	..	2	6	..	..	..	..	..	..	..	..	..	..	..	16	10	..	
Cloncurry	..	13	..	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	..	..	
Croydon	..	152	..	152	..	..	..	..	70	..	..	..	..	70	..	..	..	..	..	..	..	..	..	..	..	45	10	..	
Etheridge	..	72	10	62	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	4	4	..	
Hughenden	..	4	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	
Julia Creek	..	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	
Mount Isa	..	4	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	
Norman	..	4	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	
Richmond	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	
Total Carpentaria	..	301	10	291	..	..	..	..	70	..	..	4	3	80	..	..	..	..	..	..	..	1	..	..	13	95	25	..	
Central-Western Division.	..	6	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	
Boulia	..	5	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	
Cameroonal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Diamantina	..	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Isisford	..	5	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Jundah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Windorah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Winton	..	13	..	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Total Central-Western	..	29	3	26	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	16	6	..	



















Table No. LXVII.

SHOWING THE TOTAL EXTENT OF LAND UNDER CULTIVATION AND THE AREA UNDER EACH DESCRIPTION OF CROP IN QUEENSLAND—RETURN FOR TEN YEARS.

Year.	Total Extent of Land under Cultivation.	Land in Fallow Lying Idle, &c.	Total Extent of Land under Crop.	GRAIN CROPS.						POTATOES.		COTTON.		SUGAR-CANE.		Arrowroot.	Tobacco.	COFFEE.		Hay (all Kinds).	Lucerne and Green Forage.	VINES.		ORANGES.		MANGOES.		APPLS.		Other Crops.	Market Gardens.	Other Gardens and Orchards.							
				Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.	Pumpkins and Melons.	Bearing.	Total Area.			Crushed.	Total Area.			Acres.	Bearing.	Total Area.	Bearing.	Total Area.	Bearing.	Total Area.	Bearing.				Total Area.	Bearing.	Total Area.	Bearing.	Total Area.	Bearing.	Total Area.
						Malt-ing.	Other.																																
1920	1,018,444	238,947	779,497	177,320	4,690	12,012	3,896	115,805	72	1	8,770	1,271	4,398	166	166	89,142	162,619	639	228	18	29	94,212	142,554	1,110	1,256	9,981	3,909	2,943	4,216	258	291	107	2,046	3,340	20,941	2,018	2,216		
1921	1,045,342	240,835	804,507	164,670	2,274	5,558	2,172	135,034	5	8	9,563	1,958	10,199	1,944	2,802	122,956	184,513	968	198	19	19	98,155	147,135	1,042	1,281	9,873	3,956	2,828	4,153	250	296	162	2,203	3,586	8,756	1,665	5,258		
1922	1,080,816	237,061	863,755	145,492	1,216	4,634	658	149,048	4	9	7,649	1,604	6,543	8,716	37,411	140,880	202,303	398	179	16	21	78,050	188,636	1,032	1,242	10,797	4,195	2,543	4,173	244	283	115	2,193	3,747	8,073	1,838	5,437		
1923	1,198,166	326,198	871,968	51,149	216	589	76	120,092	9	...	6,127	1,157	4,735	408,217	174,524	138,742	219,965	274	276	15	19	46,309	306,693	959	1,269	11,698	3,925	2,499	3,893	223	254	160	2,161	3,908	7,224	1,719	5,150		
1924	1,275,039	205,202	1,069,837	189,145	4,010	6,268	2,530	229,190	65	...	9,493	1,719	13,020	501,861	82,174	167,649	253,519	431	166	14	17	95,007	134,109	1,137	1,579	13,491	3,709	2,609	3,871	245	279	158	2,331	4,359	14,869	1,619	5,028		
1925	1,241,118	207,353	1,033,765	165,999	1,293	5,496	1,505	154,252	28	3	10,478	1,564	8,232	400,621	53,363	189,675	269,509	568	96	10	12	68,828	247,482	1,166	1,656	+	+	2,585	3,756	260	296	111	2,550	4,360	11,564	1,017	5,538		
1926	1,288,618	346,735	941,883	57,084	210	250	1,119	137,542	3	9	8,642	1,252	5,993	187,431	31,460	189,312	266,519	831	125	17	19	40,141	342,580	1,208	1,682	+	+	2,734	3,899	211	240	86	2,759	4,203	11,612	1,096	5,462		
1927	1,295,992	239,380	1,066,612	215,073	2,272	2,360	854	234,013	23	...	10,035	1,615	15,760	149,300	28,830	203,748	274,838	883	135	9	24	55,412	156,941	1,285	1,762	***	+	2,646	3,874	190	221	110	3,212	4,158	20,060	1,083	5,195		
1928	1,268,475	223,843	1,044,632	218,089	916	5,188	2,466	192,173	70	3	8,154	1,841	8,746	203,161	26,122	215,674	283,476	638	138	7	11	55,498	180,524	1,627	1,787	***	+++	2,752	3,734	208	249	152	3,502	4,133	20,083	918	5,159		
1929	1,269,242	223,907	1,046,235	204,116	2,003	6,315	3,436	171,614	27	1	8,116	2,063	11,014	150,903	27,659	214,880	291,680	601	159	11	12	49,745	208,624	1,617	1,749	***	+++	2,874	3,872	182	204	182	3,475	4,012	18,502	862	5,180		

\* Bananas, bearing, 10,533 acres; total area, 14,766 acres.  
 † Bananas, bearing, 11,122 acres; total area, 16,489 acres.  
 \*\* Bananas, bearing, 10,985 acres; total area, 17,967 acres.  
 \*\*\* Bananas, bearing, 13,185 acres; total area, 19,750 acres.  
 \*\*\*\* Bananas, bearing, 12,874 acres; total area, 19,357 acres.

† Pineapples, bearing, 3,308 acres; total area, 3,995 acres.  
 § Pineapples, bearing, 3,274 acres; total area, 4,235 acres.  
 †† Pineapples, bearing, 3,089 acres; total area, 4,204 acres.  
 ††† Pineapples, bearing, 3,259 acres; total area, 4,734 acres.  
 †††† Pineapples, bearing, 3,393 acres; total area, 5,444 acres.

Table No. LXVIII.  
SHOWING THE GROSS PRODUCE OF PRINCIPAL CROPS RAISED IN QUEENSLAND—RETURN FOR TEN YEARS.

[illegible]



Table No. LXIX.  
SHOWING AVERAGE PRODUCE PER ACRE OF PRINCIPAL CROPS IN QUEENSLAND—RETURN FOR TEN YEARS.

Year.	GRAIN CROPS.							POTATOES.		SUGAR.		Hay (all Kinds).	Grapes.	Bananas.	Pineapples.	Oranges.	Mangoes.	Strawberries.	Apples.	Market Garden.	Gardens and Orchards.					
	Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.	Pumpkins & Melons.	Cotton Unginned.											Tons of Cane Crushed.	Tons of Sugar per Acre Crushed.			
			Maltins.	Other.																						
1920 ..	Bushels. 20·91	Bushels. 22·16	Bushels. 19·46	Bushels. 21·49	Bushels. 17·38	Bushels. 14·53	Bushels. 20·00	Tons. 2·17	Tons. 3·43	Tons. 2·32	Lb. 344	Tons. 15·03	Tons. 1·88	Tons. 11·43	Lb. 539	Lb. 673	Tons. 1·24	Lb. 2,312	Bunches. 133	Doz. 211	Bushels. 71	Bushels. 176	Quarts. 1,815	Bushels. 47	£ 37	£ 31
1921 ..	Bushels. 18·37	Bushels. 15·13	Bushels. 16·83	Bushels. 18·56	Bushels. 21·53	Bushels. 12·00	Bushels. 7·50	Tons. 1·76	Tons. 4·60	Tons. 3·30	Lb. 484	Tons. 18·60	Tons. 2·30	Tons. 15·10	Lb. 738	Lb. 791	Tons. 1·41	Lb. 2,245	Bunches. 177	Tons. 221	Bushels. 90	Bushels. 197	Quarts. 1,513	Bushels. 53	£ 37	£ 24
1922 ..	Bushels. 12·91	Bushels. 16·04	Bushels. 17·91	Bushels. 16·28	Bushels. 21·59	Bushels. 9·75	Bushels. 31·89	Tons. 1·37	Tons. 3·93	Tons. 2·87	Lb. 454	Tons. 15·39	Tons. 2·04	Tons. 9·43	Lb. 911	Lb. 586	Tons. 1·29	Lb. 2,188	Bunches. 200	Tons. 213	Bushels. 111	Bushels. 230	Quarts. 756	Bushels. 53	£ 42	£ 27
1923 ..	Bushels. 4·76	Bushels. 11·24	Bushels. 5·62	Bushels. 6·53	Bushels. 16·86	Bushels. 7·11	...	Tons. 1·45	Tons. 3·37	Tons. 1·99	Lb. 307	Tons. 14·75	Tons. 1·94	Tons. 7·46	Lb. 765	Lb. 708	Tons. 0·93	Lb. 3,108	Bunches. 167	Tons. 250	Bushels. 88	Bushels. 294	Quarts. 983	Bushels. 49	£ 44	£ 29
1924 ..	Bushels. 14·70	Bushels. 15·94	Bushels. 20·36	Bushels. 17·19	Bushels. 31·99	Bushels. 36·60	...	Tons. 2·14	Tons. 4·14	Tons. 3·75	Lb. 327	Tons. 18·92	Tons. 2·44	Tons. 11·46	Lb. 818	Lb. 440	Tons. 1·44	Lb. 2,343	Bunches. 183	Tons. 262	Bushels. 101	Bushels. 231	Quarts. 1,452	Bushels. 42	£ 41	£ 30
1925 ..	Bushels. 11·89	Bushels. 11·25	Bushels. 13·57	Bushels. 11·87	Bushels. 21·94	Bushels. 23·65	Bushels. 11·67	Tons. 1·47	Tons. 4·31	Tons. 2·80	Lb. 488	Tons. 19·36	Tons. 2·56	Tons. 13·81	Lb. 1,078	Lb. 519	Tons. 1·49	Lb. 2,486	Bunches. 245	Tons. 268	Bushels. 109	Bushels. 152	Quarts. 1,168	Bushels. 52	£ 41	£ 38
1926 ..	Bushels. 6·35	Bushels. 7·97	Bushels. 4·24	Bushels. 6·24	Bushels. 19·33	Bushels. 29·67	Bushels. 13·33	Tons. 1·13	Tons. 3·04	Tons. 2·04	Lb. 483	Tons. 15·45	Tons. 2·06	Tons. 11·11	Lb. 822	Lb. 518	Tons. 1·19	Lb. 2,848	Bunches. 248	Tons. 291	Bushels. 104	Bushels. 239	Quarts. 1,192	Bushels. 41	£ 42	£ 25
1927 ..	Bushels. 17·59	Bushels. 19·27	Bushels. 24·10	Bushels. 18·00	Bushels. 28·65	Bushels. 25·52	...	Tons. 1·88	Tons. 3·72	Tons. 3·25	Lb. 472	Tons. 17·45	Tons. 2·38	Tons. 11·46	Lb. 812	Lb. 731	Tons. 1·45	Lb. 2,561	Bunches. 261	Tons. 266	Bushels. 92	Bushels. 181	Quarts. 781	Bushels. 32	£ 40	£ 41
1928 ..	Bushels. 11·54	Bushels. 15·00	Bushels. 14·72	Bushels. 12·65	Bushels. 26·72	Bushels. 15·60	Bushels. 40·33	Tons. 1·19	Tons. 4·11	Tons. 2·39	Lb. 605	Tons. 17·32	Tons. 2·41	Tons. 11·04	Lb. 811	Lb. 300	Tons. 1·54	Lb. 2,426	Bunches. 248	Tons. 288	Bushels. 137	Bushels. 378	Quarts. 1,063	Bushels. 52	£ 48	£ 35
1929 ..	Bushels. 20·75	Bushels. 19·22	Bushels. 22·10	Bushels. 19·20	Bushels. 25·50	Bushels. 13·48	Bushels. 12·00	Tons. 1·63	Tons. 3·40	Tons. 2·51	Lb. 535	Tons. 16·67	Tons. 2·41	Tons. 8·10	Lb. 1,213	Lb. 748	Tons. 1·60	Lb. 2,616	Bunches. 228	Tons. 253	Bushels. 95	Bushels. 251	Quarts. 1,815	Bushels. 51	£ 50	£ 44
*	Bushels. 13·44	Bushels. 16·83	Bushels. 16·94	Bushels. 16·61	Bushels. 23·23	Bushels. 15·81	Bushels. 20·09	Tons. 1·73	Tons. 4·25	Tons. 2·95	Lb. 426	Tons. 17·21	Tons. 2·19	Tons. 11·25	Lb. 766	Lb. 653	Tons. 1·37	Lb. 2,408	Bunches. 186	Tons. 246	Bushels. 117	Bushels. 271	Quarts. 1,259	Bushels. 45	£ 32	£ 23

\* Average for twenty years.







Table No. LXXI.

RETURN SHOWING THE TOTAL EXTENT OF LAND CULTIVATED FOR HAY, TOGETHER WITH THE YIELD OF HAY, IN EACH OF THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE AND THE AVERAGE YIELD PER ACRE DURING THE YEAR 1929.

PETTY SESSIONS DISTRICTS.	HAY.									
	Wheat.		Oats.		Lucerne.		Other.		Total.	
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Allora .. ..	5	10	16	16	1,456	1,315	..	..	1,477	1,341
Beaudesert .. ..	..	..	37	52	818	2,978	84	150	939	3,180
Clifton .. ..	563	538	83	106	3,213	2,752	391	329	4,250	3,725
Crow's Nest .. ..	24	15	47	85	801	937	12	4	884	1,041
Dugandan .. ..	66	92	23	55	3,978	8,699	243	343	4,310	9,189
Esk .. ..	2	4	32	38	331	841	13	25	378	908
Gatton .. ..	620	723	573	774	3,305	6,329	216	384	4,714	8,210
Harrisville .. ..	93	119	613	903	2,721	5,088	561	876	3,988	6,986
Helidon .. ..	..	..	15	14	486	923	..	..	501	937
Ipswich .. ..	..	..	50	80	377	599	52	71	479	750
Killarney .. ..	..	..	37	50	1,412	1,679	..	..	1,449	1,720
Laidley .. ..	418	562	225	292	3,370	6,896	120	209	4,133	7,959
Lowood .. ..	17	21	63	76	1,313	2,316	50	77	1,443	2,490
Marburg .. ..	..	..	13	8	297	633	141	214	451	855
Maryborough .. ..	76	108	26	33	210	489	76	121	388	751
Nanango .. ..	2	2	114	59	1,770	2,844	89	129	1,975	3,034
Oakey .. ..	59	38	1	1	1,210	957	50	38	1,320	1,034
Pittsworth .. ..	616	324	12	4	797	459	103	173	1,528	960
Rockhampton .. ..	3	2	101	114	340	873	145	334	589	1,323
Rosewood .. ..	..	..	13	10	881	1,594	177	321	1,071	1,925
Toogoolawah .. ..	7	2	6	5	1,619	3,999	17	36	1,649	4,042
Toowoomba .. ..	89	148	102	115	1,216	1,353	42	22	1,449	1,638
Warwick .. ..	372	322	123	153	3,503	3,790	57	107	4,055	4,372
Wienholt .. ..	19	24	18	8	1,938	4,310	104	122	2,079	4,464
All Other Districts	760	559	265	338	2,651	4,863	570	989	4,246	6,749
Grand Total { 1929 .. ..	3,811	3,613	2,608	3,389	40,013	67,507	3,313	5,074	49,745	79,583
1928 .. ..	4,585	4,673	2,192	2,683	45,476	73,085	3,245	5,210	55,498	85,651
Increase, 1929 .. ..	..	..	416	706	..	..	68	..	..	..
Decrease, 1929 .. ..	774	1,060	..	..	5,463	5,578	..	136	5,753	6,068
Average Yield per Acre	0.94		1.30		1.69		1.53		1.60	

Table No. LXXII.

RETURN SHOWING THE TOTAL EXTENT OF LAND CULTIVATED FOR GREEN CROPS IN EACH OF THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEAR 1929.

PETTY SESSIONS DISTRICTS.	GREEN CROPS.				
	Wheat.	Oats.	Lucerne.	Other.	Total of all Kinds.
	Acres.	Acres.	Acres.	Acres.	Acres.
Allora .. ..	419	1,009	3,328	586	5,342
Beaudesert .. ..	160	1,151	1,202	1,253	3,766
Brisbane (A) .. ..	97	148	147	1,548	1,940
Clifton .. ..	1,107	957	4,280	5,484	11,828
Cooyar .. ..	81	549	114	347	1,091
Crow's Nest .. ..	308	2,886	601	1,561	5,356
Dalby .. ..	2,229	1,202	78	1,992	5,501
Dugandan .. ..	141	2,684	412	2,119	5,356
Eidsvold .. ..	289	254	25	641	1,209
Gatton .. ..	367	878	487	1,602	3,334
Gayndah .. ..	503	1,529	147	2,986	5,165
Goombungee .. ..	874	2,009	228	1,826	4,937
Gympie .. ..	68	1,135	60	927	2,190
Harrisville .. ..	314	1,383	352	979	3,028
Helidon .. ..	202	575	308	1,664	2,749
Highfields .. ..	446	2,453	1,417	1,869	6,185
Inglewood .. ..	566	140	169	824	1,699
Ipswich .. ..	42	466	159	683	1,350
Jondaryan .. ..	1,533	760	50	1,525	3,868
Killarney .. ..	216	399	462	220	1,297
Laidley .. ..	330	426	299	949	2,004
Logan .. ..	78	94	122	900	1,194
Lowood .. ..	155	806	220	1,490	2,671
Marburg .. ..	55	570	151	1,887	2,663
Nanango .. ..	589	7,036	958	4,906	13,489
Oakey .. ..	8,666	7,324	1,414	8,928	26,332
Pittsworth .. ..	15,601	1,335	1,755	7,720	26,411
Redcliffe .. ..	109	146	69	1,215	1,539
Roma .. ..	1,905	28	2	191	2,126
Rosewood .. ..	129	1,003	740	2,263	4,135
Toogoolawah .. ..	69	810	321	1,371	2,571
Toowoomba .. ..	2,357	2,489	2,894	1,808	9,548
Warwick .. ..	1,424	2,345	5,813	3,765	13,347
Wienholt .. ..	478	5,984	1,015	2,290	9,767
All Other Districts	1,803	2,933	1,179	7,721	13,636
Grand Total { 1929 .. ..	43,710	55,896	30,978	78,040	208,624
1928 .. ..	43,053	49,588	22,554	65,329	180,524
Increase, 1929 .. ..	657	6,308	8,424	12,711	28,100
Decrease, 1929 .. ..	..	..	..	..	..



Table No. LXXIII.  
RETURN SHOWING AVERAGE YIELD PER ACRE OF CROPS IN EACH DIVISION OF THE STATE FOR THE YEAR 192 .

Division.	GRAIN CROPS.							POTATOES.		Sugar-cane (to Acres Crushed)	Cotton.	Arrow-root (Tuber).	Tobacco (Dried Leaf).	Coffee.	Pumpkins and Melons.	Hay of all Kinds.	Grapes.	Bananas.	Pine-apples.	Oranges.
	Wheat.	Oats.	Barley, Maltng.	Barley, Other.	Maize.	Rye.	Rice.	English.	Sweet.											
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Tons.	Lb.	Lb.	Tons.	Tons.	Lb.	Bunches.	Dozen.	Bushels.
Moreton ..	15 32	20 02	26 95	11 83	26 46	9 14	..	1 63	3 43	15 28	499	8 11	..	748	2 50	1 95	2 448	229	279	92
Wide Bay ..	9 16	12 06	..	5 50	24 08	8 00	..	1 45	3 59	12 39	402	8 46	..	..	2 85	1 94	2 067	237	231	107
Port Curtis ..	12 17	..	..	..	20 51	..	..	1 84	3 17	14 12	553	3 00	..	..	2 55	2 00	1 915	198	155	103
Edgumbe ..	..	..	..	..	13 80	..	12 00	2 13	1 76	15 29	..	..	67	..	1 52	0 75	2 837	189	139	83
Rockingham ..	..	..	..	..	29 36	..	..	2 16	3 22	19 71	446	2 50	16	..	2 42	1 71	3 079	161	130	125
Fork Peninsula ..	..	..	..	..	21 44	..	..	..	2 37		..	..	..	..	1 67	3 00	..	59	247	54
Carpentaria ..	..	..	..	..	13 71	..	..	3 00	1 33	..	..	..	..	..	0 33	..	..	46	..	38
Central-western ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1 00	..	..	..	..	18
South-western ..	..	..	..	..	..	..	..	3 50	..	..	..	..	..	..	2 00	2 86	2 758	..	..	78
Central ..	..	..	..	..	7 84	..	..	1 67	1 33	..	253	..	..	..	1 33	0 50	..	..	..	86
Maranoa ..	4 38	..	..	..	5 34	..	..	..	..	..	234	..	..	..	3 76	0 67	1 676	..	..	8
Downs ..	22 11	19 70	22 08	19 50	24 47	18 00	..	1 46	1 00	..	286	..	1 336	..	2 40	0 97	3 274	..	..	64
TOTAL AVERAGE YIELD, 1929 ..	20 75	19 22	22 10	19 20	25 50	13 48	12 00	1 63	3 49	16 67	535	8 10	1 213	748	2 51	1 60	2 616	228	253	95
" " " 1928 ..	11 54	15 00	14 72	12 65	26 72	15 60	40 33	1 19	4 11	17 32	605	11 04	811	300	2 39	1 54	2 426	248	258	137
INCREASE, 1929 ..	9 21	4 22	7 38	6 55	..	..	..	0 44	..	..	..	..	402	448	0 12	0 06	190	..	..	..
DECREASE, 1929 ..	..	..	..	..	1 22	2 12	28 33	..	0 71	0 65	70	2 94	..	..	..	..	..	20	35	42



Table No. LXXIV.  
RETURN SHOWING THE AREA, YIELD, AND VALUE OF CROPS FOR THE YEAR 1929.

Description of Crop.							Area.	Yield.		Value.
							Acre.			£
Cereals	...	{	Barley	{	Malting	...	6,318	139,604	bushels	29,520
				{	Other	...	3,436	65,973	"	13,605
			Maize	...	...	...	171,614	4,376,412	"	1,016,604
			Oats	...	...	...	2,003	38,494	"	9,664
			Wheat	...	...	...	204,116	4,235,172	"	1,036,735
			Other Cereals—Rice	...	...	...	1	12	"	4
Grass Seed	...	"	"	Rye	...	27	364	"	146	
Green Forage	(all kinds)	...	...	...	...	1,100	22,686	"	22,686	
Hay	...	{	Lucerne	...	...	...	208,624	67,507	tons	834,496
			Oaten	...	...	...	40,013	3,389	"	344,567
			Wheaten	...	...	...	2,608	3,613	"	42,080
			Other	...	...	...	3,811	5,074	"	22,581
Straw	...	{	Oaten	...	...	...	3,313	51	"	38,056
			Wheaten	...	...	...	...	909	"	241
			Other	...	...	...	...	22	"	4,299
Pulse	...	{	Beans	...	...	...	9	485	bushels	104
			Peas	...	...	...	34	1,294	"	424
Root Crops	...	{	Arrowroot (Tubers)	...	...	...	601	4,870	tons	744
			Mangolds	...	...	...	120	605	"	9,740
			Onions	...	...	...	467	33,798	cwt.	2,420
			Potatoes	...	...	...	8,116	13,214	tons	23,940
			" Sweet	...	...	...	2,066	7,017	"	225,739
			Turnips (including Swede Turnips)	...	...	...	171	745	"	52,335
			Ginger	...	...	...	7	25	"	4,098
Grapes, Productive	{	For table use	...	...	...	1,617	4,230,703	lb.	81,241	
		For wine	...	...	...					
		For drying purposes	...	...	...					
" Unproductive	...	...	...	...	132					
Sugar-cane, Productive	...	...	...	...	214,880	3,581,265	tons	7,163,024		
" Unproductive	...	...	...	...	76,780					
Tobacco	...	...	...	...	159	192,943	lb.	12,670		
Market Gardens	...	...	...	...	862				42,709	
Orchards and Fruit Gardens	{	Almonds	...	...	...					
		Apples	...	...	...	3,475	177,062	bushels	95,355	
		Aprico's	...	...	...	106	5,530	"	5,530	
		Bananas	...	...	...	12,874	2,940,683	bunches	927,923	
		Cherries	...	...	...	3	294	bushels	368	
		Custard Apples	...	...	...	241	31,693	"	16,342	
		Figs	...	...	...	15	3,676	"	1,011	
		Gooseberries (Cape)	...	...	...					
		Lemons	...	...	...	130	16,423	"	10,435	
		Limes	...	...	...					
		Mangoes	...	...	...	182	45,623	"	18,971	
		Nectarines	...	...	...	82	5,449	"	3,201	
		Olives	...	...	...					
		Oranges	...	...	...	2,874	272,801	"	175,900	
		Passion Fruit	...	...	...	182	12,839	"	11,428	
		Pawpaws	...	...	...	417	87,494	dozen	17,957	
		Peaches	...	...	...	1,517	109,315	bushels	59,668	
		Pears	...	...	...	215	13,829	"	5,589	
		Plums	...	...	...	1,132	56,121	"	51,561	
		Pineapples	...	...	...	3,393	857,116	dozen	212,326	
		Persimmons	...	...	...	8	575	bushels	173	
		Quinces	...	...	...	14	523	"	124	
		Rosellas	...	...	...					
		Strawberries	...	...	...	182	330,287	quarts	33,143	
		Other (Gardens and Orchards)	...	...	...	333			8,897	
		Unproductive	...	...	...	10,576				
		Broom Millet	...	...	...	378	175,346	b. straw	4,814	
		Cabbages and Cauliflowers	...	...	...	1,464	317,691	dozen	127,076	
		Canary Seed	...	...	...	948	627,648	lb.	9,565	
		Cocoanuts	...	...	...	461	27,500	dozen	5,500	
		Coffee	...	...	...	11	8,227	lb.	309	
		" Unproductive	...	...	...	1				
		Cotton, Unginned	...	...	...	15,003	8,024,502	"	186,121	
		" Unproductive	...	...	...	12,656				
Other Crops	{	Cowpea	...	...	...	465	4,793	bushels	2,996	
		Cucumbers	...	...	...	363	222,186	dozen	32,099	
		Green Beans	...	...	...	1,188	102,568	bags	46,548	
		Green Peas	...	...	...	814	47,176	"	20,634	
		Lucerne Seed	...	...	...	94	7,524	lb.	862	
		Peanuts	...	...	...	5,582	8,070,433	"	145,277	
		Pumpkins and Melons	...	...	...	11,014	27,591	tons	255,217	
		Millet Seed	...	...	...	130	2,829	bushels	707	
		Tomatoes	...	...	...	4,165	458,325	"	272,884	
		Sunflower Seed	...	...	...					
		Panicum Seed	...	...	...	542	374,168	lb.	1,559	
Total under Crop							1,046,235			13,803,792
Land in fallow							85,990			
Area under permanent artificially sown grasses							639,871			
Previously cropped land lying idle during season							137,019			
New ground broken up during season							12,562			
Total area of arable land							1,921,675			

*Forster*  
Registrar-General.







# REPORT OF THE REGISTRAR-GENERAL ON LIVE STOCK FOR THE YEAR 1929

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# REPORT OF THE REGISTRAR-GENERAL ON LIVE STOCK FOR THE YEAR 1929.

Table No. I.

RETURN SHOWING THE NUMBER OF LIVE STOCK IN THE STATE FOR TWO YEARS, AND THE INCREASE OR DECREASE FOR THE YEAR 1929.

Year.						Horses.	Cattle.	Sheep.	Swine.
1928	...	...	...	...	...	522,490	5,128,341	18,509,201	215,764
1929	...	...	...	...	...	500,104	5,208,588	20,324,303	236,037
Numerical Increase in 1929						...	80,247	1,815,102	20,273
Numerical Decrease in 1929						22,386	...	...	...
Centesimal Increase in 1929						...	1.56	9.81	9.40
Centesimal Decrease in 1929						4.28	...	...	...

Table No. II.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE STATE.

Year.						Horses.	Cattle.	Sheep.	Swine.
1920	...	...	...	...	...	742,217	6,455,067	17,404,840	104,370
1921	...	...	...	...	...	747,543	7,047,370	18,402,399	145,083
1922	...	...	...	...	...	714,055	6,955,463	17,641,071	160,617
1923	...	...	...	...	...	661,593	6,396,514	16,756,101	132,243
1924	...	...	...	...	...	660,093	6,454,653	19,028,252	156,163
1925	...	...	...	...	...	638,372	6,436,645	20,663,323	199,598
1926	...	...	...	...	...	571,622	5,464,845	16,860,772	183,662
1927	...	...	...	...	...	548,333	5,225,804	16,642,385	191,947
1928	...	...	...	...	...	522,490	5,128,341	18,509,201	215,764
1929	...	...	...	...	...	500,104	5,208,588	20,324,303	236,037

Table No. III.

RETURN FOR TEN YEARS SHOWING THE CENTESIMAL INCREASE OR DECREASE IN LIVE STOCK.

Year.						Horses.	Cattle.	Sheep.	Swine.
1920	...	...	...	...	...	1.44	8.66	0.15	4.80
1921	...	...	...	...	...	0.72	9.18	5.73	39.01
1922	...	...	...	...	...	— 4.48	— 1.30	— 4.14	10.71
1923	...	...	...	...	...	— 7.35	— 8.04	— 5.02	— 17.67
1924	...	...	...	...	...	— 0.23	0.91	13.56	18.09
1925	...	...	...	...	...	— 3.29	— 0.28	8.59	27.81
1926	...	...	...	...	...	— 10.46	— 15.10	— 18.40	— 7.98
1927	...	...	...	...	...	— 4.07	— 4.37	— 1.30	4.51
1928	...	...	...	...	...	— 4.71	— 1.87	11.22	12.41
1929	...	...	...	...	...	— 4.28	1.56	9.81	9.40

— Decrease.



Table No. IV.

RETURN SHOWING THE DENSITY AND THE PROPORTION OF THE VARIOUS KINDS OF LIVE STOCK IN THE SEVERAL PASTORAL DISTRICTS AND THE NUMBER PER CAPITA IN THE STATE FOR THE YEAR 1929.

In Converting Horses and Cattle to Terms of Sheep, Ten Head of Sheep are Taken as Equal to One Horse or Head of Cattle.

Pastoral District.	Area in Acres.	Centesimal Ratio of Area of District to Area of State.	HORSES.			CATTLE.			SHEEP.			ALL KINDS IN TERMS OF SHEEP.		
			Acres per Head.	Number per Square Mile.	Per-centage to Total in State.	Acres per Head.	Number per Square Mile.	Per-centage to Total in State.	Acres per Head.	Number per Square Mile.	Per-centage to Total in State.	Acres per Head.	Number per Square Mile.	Per-centage to Total in State.
Burke ... ..	65,383,040	15·24	1,762	0·36	7·42	112	5·74	11·26	24	27·14	13·64	7·26	88·16	11·63
Burnett ... ..	7,972,480	1·86	219	2·92	7·28	16	40·66	9·72	977	0·66	0·04	1·47	436·43	7·02
Cook ... ..	63,601,920	14·82	1,697	0·38	7·49	135	4·75	9·06	25,380	0·03	0·01	12·48	51·30	6·58
Darling Downs ...	16,249,600	3·79	242	2·64	13·42	36	17·73	8·64	6	116·01	14·49	2·00	319·71	10·49
Gregory North ...	54,266,240	12·64	5,037	0·13	2·15	828	0·77	1·26	45	14·34	5·98	27·42	23·34	2·56
Gregory South ...	31,617,920	7·37	4,800	0·13	1·32	380	1·68	1·60	155	4·13	1·00	28·71	22·29	1·42
Leichhardt ... ..	30,946,560	7·21	830	0·77	7·46	52	12·31	11·43	25	25·90	6·16	4·08	156·74	9·79
Maranoa ... ..	25,110,400	5·85	1,030	0·62	4·87	142	4·50	3·39	7	90·28	17·43	4·52	141·53	7·17
Mitchell ... ..	35,431,680	8·26	1,398	0·46	5·07	523	1·22	1·30	7	96·40	26·26	5·65	113·22	8·10
Moreton ... ..	5,649,920	1·32	93	6·85	12·09	10	63·60	10·78	312	2·05	0·09	0·91	706·56	8·06
North Kennedy ..	21,832,960	5·09	403	1·59	10·84	48	13·31	8·72	3,250	0·20	0·03	4·29	149·23	6·58
Port Curtis ... ..	8,994,560	2·09	295	2·17	6·09	21	30·57	8·25	271	2·36	0·17	1·94	329·78	5·99
South Kennedy ...	19,523,960	4·55	674	0·95	5·80	58	10·97	6·43	79	8·06	1·21	5·03	127·27	5·02
Warrego ... ..	37,333,760	8·70	2,482	0·26	3·01	369	1·73	1·94	14	46·89	13·46	9·58	66·81	5·03
Wide Bay ... ..	5,200,000	1·21	183	3·50	5·69	16	39·87	6·22	943	0·68	0·03	1·47	434·41	4·56
STATE ... ..	429,120,000	100·00	858	0·75	100·00	82	7·77	100·00	21	30·31	100·00	5·54	115·45	100·00
Number per Capita Population ...			0·54			5·60			21·83			83·16		

Table No. V.

The following table shows, from the latest information available, the live stock density in various countries :—

								Live Stock in Terms of Sheep per Square Mile.
Queensland ... ..	...	...	...	...	...	...	...	115
New South Wales ...	...	...	...	...	...	...	...	272
Victoria ... ..	...	...	...	...	...	...	...	395
Argentina ... ..	...	...	...	...	...	...	...	435
Australia ... ..	...	...	...	...	...	...	...	80
Germany ... ..	...	...	...	...	...	...	...	1,235
Union of South Africa	...	...	...	...	...	...	...	329
United Kingdom ...	...	...	...	...	...	...	...	963
United States of America	...	...	...	...	...	...	...	246

Table No. VI.

RETURN SHOWING NUMBER AND PROPORTION OF HORSES, CATTLE, SHEEP, AND SWINE IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE FOR THE YEAR 1929.

Division.							Horses.		Cattle.		Sheep.		Swine.	
							No.	%	No.	%	No.	%	No.	%
Southern ... ..	...	...	...	...	...	...	244,604	48·91	2,332,195	44·78	9,520,339	46·84	204,291	86·55
Central ... ..	...	...	...	...	...	...	104,807	20·96	1,184,999	22·75	7,943,392	39·08	11,571	4·90
Northern ... ..	...	...	...	...	...	...	150,693	30·13	1,691,394	32·47	2,860,572	14·08	20,175	8·55
Total State ... ..	...	...	...	...	...	...	500,104	100·00	5,208,588	100·00	20,324,303	100·00	236,017	100·00

Table No. VII.

RETURN SHOWING NUMBER OF HORSES, CATTLE, AND SHEEP PER SQUARE MILE AND PER CAPITA OF POPULATION IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE FOR THE YEAR 1929.

Division.			Area in sq. miles.	Population.	HORSES.		CATTLE.		SHEEP.		ALL KINDS IN TERMS OF SHEEP.	
					Per Sq. Mile.	Per Capita of Popula-tion.	Per Sq. Mile.	Per Capita of Popu-lation.	Per Sq. Mile.	Per Capita of Popu-lation.	Per Sq. Mile.	Per Capita of Popu-lation.
Southern ... ..	...	...	209,980	662,069	1·16	0·37	11·11	3·52	45·34	14·38	168·06	53·30
Central ... ..	...	...	209,340	109,313	0·50	0·96	5·66	10·84	37·94	72·67	99·56	190·66
Northern ... ..	...	...	251,180	159,489	0·60	0·94	6·73	10·61	11·39	17·94	84·73	133·44

\* Estimated 31st December, 1929.



Table No. VIII.

RETURN SHOWING THE NUMBER OF HORSES IMPORTED AND EXPORTED INTO AND FROM THE STATE FOR THE YEAR 1929.

HORSES IMPORTED DURING 1929.					HORSES EXPORTED DURING 1929.				
Country.	Number.		Value.		Country.	Number.		Value.	
			£	£				£	£
					<i>Overseas—</i>				
					British Malaya ...	1		185	
					India ...	2,709		41,333	
					Papua ...	1		50	
					Netherlands, East Indies ...	195		2,940	
							2,906		44,508
<i>Interstate (by land)—</i>					<i>Interstate (by land)—</i>				
New South Wales...	25,725	...	133,513		New South Wales ...	12,777		66,185	
South Australia ...	2,740	...	8,590		South Australia ...	1,137		4,698	
		28,465		142,103			13,914		70,883
Totals ..		28,465		142,103	Totals ...		16,820		115,391

Table No. IX.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF ENTIRE AND OTHER HORSES.

Year.	Entire Horses.		Other Horses.		Total.
1920	...	6,402	735,815		742,217
1921	...	6,164	741,379		747,543
1922	...	4,930	709,125		714,055
1923	...	4,728	656,865		661,593
1924	...	3,717	656,376		660,093
1925	...	2,827	635,545		638,372
1926	...	2,221	569,401		571,622
1927	...	1,951	546,382		548,333
1928	...	1,750	520,740		522,490
1929	...	1,700	498,404		500,104

Table No. X.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF OWNERS AND THE SIZES OF HERDS UNDER VARIOUS GROUPINGS, ALSO THE INCREASE OR DECREASE FOR THE YEAR 1929.

For Details of Sizes of Herds of Cattle in Pastoral Districts, for the Year 1929, see Table No. XXXV.

Year.	1 to 100.		101 to 300.		301 to 500.		501 to 1,000.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
1920	39,203	1,107,774	4,431	741,056	1,682	888,702	*	*
1921	41,009	1,178,980	4,846	817,130	1,859	976,696	*	*
1922	41,040	1,177,859	4,663	786,218	1,010	395,291	777	552,765
1923	40,616	1,085,453	3,887	653,056	907	355,714	695	491,764
1924	39,921	1,093,972	3,902	653,778	897	348,761	742	526,408
1925	39,341	1,096,618	4,151	694,989	916	355,795	715	506,630
1926	38,922	1,048,964	3,781	635,735	819	321,806	657	467,437
1927	38,234	1,058,777	3,841	640,761	791	307,384	639	460,477
1928	37,501	1,086,823	4,017	662,848	787	309,195	637	451,767
1929	37,376	1,113,944	4,359	713,674	841	326,676	633	447,727

Year.	1,001 to 5,000.		5,001 to 10,000.		10,001 and Upwards.		Totals.		Average Size of Herds.
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	
1920	916	3,717,535	†	†	†	†	46,232	6,455,067	140
1921	1,005	4,074,564	†	†	†	†	48,719	7,047,370	145
1922	814	1,731,341	118	817,350	90	1,494,639	48,512	6,955,463	143
1923	743	1,581,675	120	846,622	80	1,382,230	47,048	6,396,514	136
1924	747	1,588,186	131	898,451	76	1,345,097	46,416	6,454,663	139
1925	751	1,563,877	136	921,985	73	1,296,751	46,083	6,436,645	140
1926	617	1,303,068	113	776,324	49	911,511	44,958	5,464,845	122
1927	609	1,278,875	106	731,917	40	747,613	44,260	5,225,804	118
1928	589	1,238,377	93	643,522	43	735,809	43,667	5,128,341	117
1929	601	1,256,436	106	729,907	37	620,224	43,953	5,208,588	119
Increase or Decrease —							0.65	1.56	1.71

\* Included in group 301 to 500.

† Included in group 1,001 to 5,000.



Table No. XI.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF OWNERS AND THE SIZES OF FLOCKS UNDER VARIOUS GROUPINGS,  
ALSO THE INCREASE OR DECREASE FOR THE YEAR 1929.

For Details of Sizes of Flocks of Sheep in Pastoral Districts for the Year 1929 see Table No. XXXVII.

Year.	1 to 500.		501 to 1,000.		1,001 to 2,000.		2,001 to 5,000.		5,001 to 10,000.	
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.
1920 ..	1,934	199,542	371	251,689	390	574,129	571	1,825,882	358	2,554,884
1921 ..	1,965	179,974	305	232,192	408	612,923	558	1,861,362	426	3,036,394
1922 ..	1,800	180,315	290	219,303	402	606,742	606	2,047,236	445	3,168,890
1923 ..	1,675	174,917	311	236,598	426	644,570	686	2,321,322	432	3,033,207
1924 ..	1,614	186,342	345	261,812	464	685,075	716	2,434,612	481	3,385,487
1925 ..	1,760	225,800	382	290,070	521	788,722	805	2,701,654	525	3,686,331
1926 ..	1,917	254,351	474	357,721	604	908,897	1,027	3,389,550	457	3,207,379
1927 ..	2,024	273,668	554	410,614	709	1,071,703	1,020	3,371,043	471	3,220,135
1928 ..	1,948	270,670	548	411,937	758	1,129,591	1,095	3,637,181	553	3,830,572
1929 ..	1,913	252,107	548	415,464	766	1,148,611	1,234	4,088,974	662	4,560,694

Year.	10,001 to 20,000.		20,001 to 50,000.		50,001 to 100,000.		100,001 and Upwards.		Totals.		Average Size of Flocks.
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	
1920 ..	198	2,841,774	159	4,884,224	46	3,215,847	9	1,056,869	4,036	17,404,840	4,312
1921 ..	211	2,984,081	157	4,770,684	47	3,192,221	13	1,532,568	4,090	18,402,399	4,499
1922 ..	210	2,968,342	149	4,414,776	41	2,826,021	10	1,209,446	3,953	17,641,071	4,463
1923 ..	228	3,166,296	117	3,617,743	43	2,974,156	5	587,292	3,923	16,756,101	4,271
1924 ..	227	3,145,912	162	4,995,505	42	2,943,945	8	989,562	4,059	19,028,252	4,688
1925 ..	286	3,931,942	151	4,707,128	48	3,304,523	9	1,027,153	4,487	20,663,323	4,605
1926 ..	235	3,240,198	120	3,726,023	23	1,423,600	3	353,053	4,860	16,860,772	3,469
1927 ..	234	3,280,459	109	3,364,725	22	1,362,817	2	287,221	5,145	16,642,385	3,235
1928 ..	279	3,899,803	113	3,399,575	24	1,570,488	3	359,384	5,321	18,509,201	3,479
1929 ..	286	4,021,226	127	3,791,241	25	1,570,079	4	475,907	5,565	20,324,303	3,652

Increase or Decrease —	..	..	..	..	..	..	..	..	4.59	8.93	4.97
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Table No. XII.

RETURN FOR TEN YEARS SHOWING THE RESULTS OF LAMBING, LOSSES, ETC., IN THE STATE.

For Details for the Year 1929 see Tables No. XLVI. and XLVII.

—	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
Total Sheep as per Stock Returns on 1st January	17,379,332	17,404,840	18,402,399	17,641,071	16,756,101	19,028,252	20,663,323	16,860,772	16,642,385	18,509,201
Ewes mated with Rams	7,405,279	7,762,276	7,574,309	7,225,507	8,481,332	8,772,276	6,557,034	6,980,529	7,820,137	8,114,502
Lambs Marked	3,729,026	4,711,185	3,420,409	3,052,893	4,833,145	4,638,376	2,245,998	2,481,955	3,995,065	4,257,250
Percentage of Lambing	50.35	60.69	45.16	42.25	56.99	52.88	34.25	35.56	51.09	52.46
Purchases	3,826,035	3,283,819	3,115,912	3,904,803	5,143,617	4,173,815	3,889,789	4,371,786	5,095,420	4,332,101
Sales	5,321,673	5,325,881	4,521,108	5,053,173	5,646,885	4,793,725	4,409,589	4,429,268	5,331,870	4,693,815
Total Losses	1,962,362	1,436,443	2,543,675	2,577,987	1,877,428	2,197,262	5,335,207	2,440,231	1,693,954	1,851,105
Killed for Food on Holding	245,518	235,151	232,866	211,506	180,298	186,133	193,542	193,629	197,845	229,329
Total Sheep as per Stock Returns on 31st December	17,404,840	18,402,399	17,641,071	16,756,101	19,028,252	20,663,323	16,860,772	16,642,385	18,509,201	20,324,303
Skins obtained during the Year	262,231	232,935	216,969	214,389	*182,755	†180,852	†201,169	†232,920	†205,797	†208,162

\* Estimated.

† Year ended 30th June.

Table No. XIII.

RETURN FOR TWO YEARS SHOWING THE NUMBER OF CATTLE, ETC., EXPORTED AND KILLED.

—	CATTLE AND CALVES.		SHEEP AND LAMBS.	
	1928.	1929.	1928.	1929.
Exported, less number imported alive Oversea	18	21	54	316
“ “ “ “ Overland	356,828	94,915	—81,960	—93,087
Preserved, frozen, and boiled down	371,870	342,151	100,535	132,817
Number killed for food for home consumption	353,584	330,550	744,945	884,966
Totals	1,082,300	767,637	763,574	925,012

N.B.—This Table does not include Interstate Traffic by Sea in live animals; this is unascertainable, but insignificant in number.



Table No. XIV.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CATTLE AND SHEEP IMPORTED INTO AND EXPORTED FROM THE STATE OVERLAND AND OVERSEA.

* Year.		CATTLE.		SHEEP.	
		Inwards.	Outwards.	Inwards.	Outwards.
		Number.	Number.	Number.	Number.
1920	Overland, Calendar year ...	51,202	351,475	280,406	1,493,206
	Overland, Financial year ...	38,694	152,469	328,604	684,723
	Oversea, Financial year ...	1	37	11	4
1921	Overland, Calendar year ...	57,111	300,862	74,459	1,566,245
	Overland, Financial year ...	50,761	429,507	96,079	1,927,428
	Oversea, Financial year ...	2	436	...	1,074
1922	Overland, Calendar year ...	30,939	158,966	273,518	922,246
	Overland, Financial year ...	67,497	230,409	196,234	1,325,195
	Oversea, Financial year ...	...	169	...	74
1923	Overland, Calendar year ...	31,090	215,790	332,480	725,144
	Overland, Financial year ...	26,042	133,134	339,532	565,756
	Oversea, Financial year ...	...	1,131	...	62
1924	Overland, Calendar year ...	67,681	195,943	222,489	642,055
	Overland, Financial year ...	61,747	256,093	231,325	912,849
	Oversea, Financial year ...	...	483	...	25
1925	Overland, Calendar year ...	23,353	243,322	283,795	606,237
	Overland, Financial year ...	29,431	194,608	242,674	461,161
	Oversea, Calendar year ...	4	53	...	13
1926	Overland, Calendar year ...	14,530	335,600	448,586	684,498
	Overland, Financial year ...	18,592	335,724	225,579	791,533
	Oversea, Calendar year ...	...	72	...	6
1927	Overland, Calendar year ...	108,192	168,730	1,150,437	457,897
	Overland, Financial year ...	71,772	265,384	937,030	630,207
	Oversea, Calendar Year ...	...	54	...	22
1928	Overland, Calendar year ...	9,274	366,102	751,254	669,294
	Overland, Financial year ...	42,107	339,010	989,327	593,639
	Oversea, Calendar year ...	...	18	...	54
1929	Overland, Calendar year ...	85,663	180,578	628,885	535,798
	Overland, Financial year ...	60,888	449,630	1,146,224	884,237
	Oversea, Calendar year ...	...	21	...	316
	Oversea, Financial year ...	...	18	...	126

\* Interstate Coastwise Traffic not available.

Table No. XV.

RETURN OF LIVE STOCK AND WOOL INWARDS AND OUTWARDS ACROSS THE BORDER DURING THE YEAR ENDED 31ST DECEMBER, 1929.

	HORSES.		CATTLE.		SHEEP.		WOOL.	
	Number.	Value.	Number.	Value.	Number.	Value.	Bales.	Value.
£								

\* Includes 30 Bales Scoured Wool.

Table No. XVI.

RETURN SHOWING THE NUMBER, &C., OF BACON-CURING AND MEAT-PRESERVING WORKS FOR THE YEAR ENDED 30TH JUNE, 1929, AND INCREASE OR DECREASE ON PREVIOUS YEAR.

Kind of Establishment.	Number.	Number of Hands Employed.	Value of Machinery and Plant.	Value of Land and Premises.	Value of Output.
Bacon Curing ...	8	555	£ 137,149	£ 190,883	£ 1,563,964
Meat Preserving ...	10	3,317	829,941	1,367,940	3,958,641
Totals, 1928-29 ...	18	3,872	967,090	1,558,823	5,522,605
Totals, 1927-28 ...	19	3,813	1,029,765	1,622,714	5,421,269
Increase, 1928-29 ...	...	59	...	...	101,336
Decrease, 1928-29 ...	1	...	62,675	63,891	...



Table No. XVII.

RETURN SHOWING NUMBER OF SWINE SLAUGHTERED AND THE PRODUCTS THEREOF, AT MEATWORKS AND ON FARMS, IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR 1929.

Petty Sessions District.	Swine Slaughtered.	Fresh Pork.	Salt and Preserved Pork.	Bacon and Ham.
	Number.	Lb.	Lb.	Lb.
Atherton ... ..	10,156	94,771	150	952,113
Bowen ... ..	34	1,528	...	186
Brisbane* ... ..	168,866	1,361,553	1,112,178	10,483,487
Bundaberg ... ..	115	3,883	1,200	8,667
Clifton ... ..	100	1,050	6,739	5,656
Crow's Nest ... ..	168	2,426	13,480	7,072
Dalby ... ..	60	1,062	1,610	4,511
Gatton ... ..	230	16,709	6,427	4,935
Gayndah ... ..	187	6,485	15,077	670
Gladstone ... ..	125	4,252	4,473	3,150
Gympie ... ..	200	8,623	7,809	1,007
Harrisville ... ..	110	1,851	7,505	5,810
Ipswich ... ..	20	1,752	1,542	...
Killarney ... ..	54	290	2,420	3,584
Laidley ... ..	124	10,849	4,624	5,590
Logan ... ..	223	4,523	17,152	10,980
Lowood ... ..	186	15,713	12,815	3,560
Mackay ... ..	73	4,664	1,180	110
Marburg ... ..	81	5,170	5,000	2,180
Maryborough ... ..	7,510	31,370	53,264	509,810
Nanango ... ..	316	4,067	8,753	19,573
Oakey ... ..	153	2,070	2,128	15,013
Pittsworth ... ..	166	1,154	2,359	13,924
Rockhampton ... ..	4,805	115,414	5,670	369,749
Roma ... ..	78	920	2,583	4,901
Stanthorpe ... ..	11	940	180	150
Toowoomba ... ..	74,119	595	1,205	5,412,866
Warwick ... ..	6,634	15,701	3,027	552,444
Wienholt ... ..	261	3,225	26,600	2,934
All other Districts ... ..	9,243	584,550	40,708	114,118
Totals, 1929 ... ..	† 284,408	2,307,160	1,367,858	18,518,750

\* Including South Brisbane.

† Includes 6,854 swine killed on farms, producing 463,141 lb. of pork and 271,136 lb. of bacon and ham.

N.B.—In addition to the particulars shown in this table, the returns received from slaughter-houses account for 76,672 swine killed, producing 4,715,538 lb. of fresh pork. Thus the total swine killed in the State was 361,080, pork produced 10,390,556 lb., and bacon and ham 18,518,750 lb.



Table No. XVIII.  
WOOL.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF SHEEP SHORN AND THE WOOL PRODUCED.  
For details for the year ended 30th June, 1929, see Table No. XLIII.

Production of Wool.	1919.	1920.	1921.	1922.	1923.
Number of sheep shorn ... ..	17,210,372	15,709,426	16,832,655	18,465,471	17,754,989
Result off Shears only, lb. net—					
Greasy wool ... ..	88,450,759	89,215,429	109,440,938	106,989,147	100,964,197
Scoured wool ... ..	12,476,486	10,648,967	9,031,961	11,030,559	8,112,704
*Above expressed as "Greasy" ... ..	113,403,731	110,513,363	127,504,860	129,050,265	117,189,605
Average weight, lb.—					
Per Greasy bale ... ..	356	368	361	344	348
Per Scoured bale ... ..	226	235	243	229	228
Per Fleece in the Grease ... ..	6.59	7.03	7.57	6.99	6.60
Total wool production (Greasy), including quantity fell-mongered, exported on skins, and utilised, lb.	118,035,461	114,809,963	132,579,733	134,971,150	121,913,075
†Estimated value of production ... ..	£8,606,752	£7,175,623	£7,733,818	£10,825,811	£12,191,308

Production of Wool.	1924-5.	1925-6.	1926-7.	1927-8.	1928-29.
Number of sheep shorn ... ..	18,518,682	20,552,992	17,600,510	16,961,698	18,438,680
Result off Shears only, lb. net—					
Greasy wool ... ..	123,078,294	129,361,017	104,308,040	110,611,493	121,219,173
Scoured wool ... ..	7,099,421	7,156,291	5,964,445	6,085,234	6,234,550
*Above expressed as "Greasy" ... ..	137,277,136	143,673,599	116,236,930	122,781,961	134,727,365
Average weight, lb.—					
Per Greasy bale ... ..	346	341	335	335	333
Per Scoured bale ... ..	238	229	221	217	217
Per Fleece in the Grease ... ..	7.41	6.99	6.60	7.24	7.31
Total wool production (Greasy), including quantity fell-mongered, exported on skins, and utilised, lb.	140,862,541	146,985,639	119,847,967	126,429,938	138,988,930
†Estimated value of production ... ..	£15,553,572	£10,993,305	£9,423,046	£10,635,919	£9,943,540

NOTE—In addition to the above, returns amounting to 36,523,190 lb. of greasy wool shorn were received for the first six months of 1924.

\* From 1st July, 1928, scoured wool has been converted into the estimated greasy equivalent on the assumption that 1 lb. scoured wool is produced from 2½ lb. greasy. In previous years a ratio of 1 to 2 was used.

† Based on Oversea Export value (Financial Year).

Table No. XIX.

RETURN FOR TEN YEARS SHOWING THE AVERAGE EXPORT PRICE OF WOOL. (OVERSEA ONLY.)

Year ended 30th June.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.
	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.
Greasy wool ...	15d.	14d.	19½d.	24d.	26½d.	17.95d.	18.87d.	20.19d.	17.17d.	11.59d.
Scoured wool ...	28½d.	24½d.	32½d.	42d.	46d.	30.86d.	31.40d.	34.48d.	31.44d.	22.34d.

Table No. XX.

RETURN FOR TEN YEARS SHOWING THE QUANTITY AND VALUE OF WOOL EXPORTED Oversea.

Exports of Wool, Oversea Only.	GREASY.		SCOURED.		WOOLLED SKINS.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Lb. gross.	£	Lb. gross.	£	Lb. gross.	£
1920-1921 ... ..	71,532,151	4,467,815	14,821,191	1,749,033	1,453,170	58,611
1921-1922 ... ..	140,302,968	8,284,688	25,427,103	2,576,715	1,846,591	41,768
1922-1923 ... ..	103,982,252	8,360,164	15,333,125	2,068,548	2,550,665	109,971
1923-1924 ... ..	82,555,619	8,266,711	10,847,962	1,892,303	1,866,000	116,265
1924-1925 ... ..	89,761,910	9,902,962	10,888,055	2,089,990	2,461,789	176,910
1925-1926 ... ..	155,529,490	11,636,937	10,166,018	1,307,051	3,804,570	202,368
1926-1927 ... ..	92,434,753	7,267,525	9,371,143	1,225,868	3,580,864	171,847
1927-1928 ... ..	98,572,221	8,290,737	10,645,113	1,529,291	3,330,919	179,349
1928-1929 ... ..	115,370,996	8,256,965	11,785,858	1,544,164	4,287,380	221,428
1929-1930 ... ..	122,023,953	5,898,865	10,911,832	1,015,954	5,720,343	177,406



Table No. XXI.

RETURN FOR TEN YEARS SHOWING THE AMOUNT OF SCOURED WOOL USED IN MANUFACTURE.

	1920.	1921.	1922.	1923.	1924-25.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.
Quantity of Scoured Wool used in manufacture ...	Lb. 268,787	Lb. 875,610	Lb. 659,133	Lb. 629,784	Lb. 544,269	Lb. 454,075	Lb. 625,342	Lb. 625,852	Lb. 477,008	Lb. 572,237

Table No. XXII.

RETURN FOR TWO YEARS SHOWING THE EXPORT Oversea OF HOME PRODUCE.

Value of—							1927-28.		1928-29.	
							HOME PRODUCE ONLY.		HOME PRODUCE ONLY.	
							Total Exports.	Percentage to Total Exports.	Total Exports.	Percentage to Total Exports.
							Overseas Only. £		Overseas Only. £	
Agricultural and Dairy Products ...	...	...	...	...	...	...	7,527,768	35.04	8,951,702	38.61
*Pastoral „ ...	...	...	...	...	...	...	13,324,671	62.01	13,882,815	59.88
Mineral „ ...	...	...	...	...	...	...	56,565	0.26	65,974	0.28
Other „ ...	...	...	...	...	...	...	577,365	2.69	284,878	1.23
Totals ...	...	...	...	...	...	...	£21,486,369	100.00	£23,185,369	100.00

\* Exclusive of Furred Skins:—1927-28, £351,948; 1928-29, £14,724.

Table No. XXIII.

RETURN FOR TWO YEARS SHOWING THE DETAILS OF PASTORAL PRODUCTS EXPORTED Oversea.

Value of—							1927-28.	1928-29.	Increase or —Decrease, 1928-29.
							HOME PRODUCE ONLY.		
							Exports Oversea.	Exports Oversea.	
							£	£	£
Pastoral Products—									
Wool	...	...	...	...	...	...	9,820,028	9,801,129	— 18,899
Live stock	...	...	...	...	...	...	44,862	38,434	— 6,428
*Meat (all kinds, including Extract)	...	...	...	...	...	...	2,309,226	2,848,437	539,211
Tallow	...	...	...	...	...	...	308,393	314,315	5,922
†Hides and skins	...	...	...	...	...	...	743,438	781,159	37,721
Leather	...	...	...	...	...	...	27,856	27,011	— 845
All other	...	...	...	...	...	...	70,868	72,330	1,462
Totals							13,324,671	13,882,815	558,144

\* Exclusive of Bacon, Ham, Pork and Poultry, these being treated as products of Agriculture:—1927-28, £66,666; 1928-29, £72,861.

† Exclusive of Furred Skins:—1927-28, £351,948; 1928-29, £14,724.

Table No. XXIV.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF COMMON GOATS IN THE STATE AND THE NUMBER KILLED FOR FOOD, &amp;c.

Year.	Number Depastured.	Number Killed.	Weight: Lb.	Average Weight: Lb.	Number of Skins Obtained.
1920 ...	122,993	30,863	801,474	25.97	18,994
1921 ...	134,177	25,080	689,587	27.49	11,630
1922 ...	127,784	24,468	638,323	26.09	9,759
1923 ...	119,832	23,134	596,621	25.79	10,200
1924 ...	131,148	21,204	571,619	26.96	8,256
1925 ...	126,752	25,141	717,087	28.52	11,305
1926 ...	86,012	14,252	395,028	27.72	9,409
1927 ...	95,227	16,657	470,378	28.24	10,447
1928 ...	85,622	14,888	417,305	28.03	9,261
1929 ...	82,360	14,983	434,380	28.99	*9,581

\* Value of Skins, £719.



Table No. XXV.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF ANGORA GOATS IN THE STATE AND THE NUMBER  
KILLED FOR FOOD, MOHAIR OBTAINED, &C.

Year.	Number of Animals.	Mohair Obtained.	Number Killed for Meat.	Weight : Lb.	Average Weight: Lb.	Skins Obtained.
		Lb.				
1920 ... ..	3,210	1,858	406	*	*	314
1921 ... ..	4,248	2,895	625	*	*	517
1922 ... ..	3,503	1,596	565	*	*	617
1923 ... ..	3,931	2,204	860	27·081	31·49	625
1924 ... ..	3,511	1,782	729	21·119	28·97	519
1925 ... ..	3,923	1,604	554	15·800	28·52	520
1926 ... ..	3,343	1,532	590	17·003	28·82	487
1927 ... ..	2,354	1,765	303	9·629	31·78	239
1928 ... ..	2,938	2,137	673	19·429	28·87	648
1929 ... ..	2,215	†1,425	467	14·127	30·25	‡360

\* Not available.

† Value of Mohair, £64.

‡ Value of Skins, £37.

Table No. XXVI.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CAMELS, OSTRICHES, AND MULES IN THE STATE,  
TOGETHER WITH THE INCREASE OR DECREASE.

Year.	Number of Camels.	Increase or Decrease.	Number of Ostriches.	Increase or Decrease.	Number of Mules.	Increase or Decrease.
1920 ... ..	740	95·25	2	— 60·00	1,175	— 14·79
1921 ... ..	936	26·49	...	— 100·00	1,257	6·98
1922 ... ..	463	— 50·53	...	...	985	— 21·64
1923 ... ..	399	— 13·82	...	..	1,142	15·94
1924 ... ..	362	— 9·27	...	...	1,031	— 9·72
1925 ... ..	480	32·60	...	...	936	— 9·21
1926 ... ..	313	— 34·79	...	...	932	— 0·43
1927 ... ..	440	40·58	...	...	921	— 1·18
1928 ... ..	466	5·91	...	...	1,005	9·12
1929 ... ..	354	— 24·03	...	...	*1,002	— 0·30

— Decrease.

\* Includes 30 Donkeys.

Table No. XXVII.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CALVES RETURNED AS BRANDED AND THE  
INCREASE OR DECREASE. For details for 1929 see Table XXIX.

Year.	Male.	Increase or Decrease.	Female.	Increase or Decrease.	Total.	Increase or Decrease.
1920 ... ..	674,523	14·71	690,876	15·43	1,365,399	15·07
1921 ... ..	742,811	10·12	777,013	12·47	1,519,824	11·31
1922 ... ..	586,171	— 21·09	631,170	— 18·77	1,217,341	— 19·90
1923 ... ..	497,112	— 15·19	539,883	— 14·46	1,036,995	— 14·81
1924 ... ..	508,342	2·26	554,145	2·64	1,062,487	2·46
1925 ... ..	612,606	20·51	660,784	19·24	1,273,390	19·85
1926 ... ..	409,702	— 33·12	450,373	— 31·84	860,075	— 32·46
1927 ... ..	374,849	— 8·51	420,822	— 6·56	795,671	— 7·49
1928 ... ..	468,581	25·01	520,986	23·80	989,567	24·37
1929 ... ..	468,006	— 0·12	528,548	1·45	996,554	0·71

— Decrease.



Table No. XXVIII.

RETURN SHOWING THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE VARIOUS PETTY SESSIONS DISTRICTS OF THE STATE, TOGETHER WITH THE INCREASE OR DECREASE OF CATTLE AND SHEEP ON THE 31ST DECEMBER, 1929.

Petty Sessions District.	HORSES.	CATTLE.					SHEEP.				SWINE.
		1928.	1929.	1929.		1928.	1929.	1929.			
				Increase.	Decrease.			Increase.	Decrease.		
	1929.									1929.	
Adavale ... ..	978	2,367	3,717	1,350	...	167,146	189,657	22,511	...	8	
Allora ... ..	3,912	9,438	10,712	1,274	...	9,525	10,608	1,083	...	2,262	
Alpha ... ..	4,319	49,230	60,941	11,711	...	235,950	190,236	...	45,714	130	
Aramac ... ..	1,667	2,925	2,196	...	729	278,549	271,016	...	7,533	...	
Atherton ... ..	5,733	46,734	45,237	...	1,497	2,936	2,337	...	599	10,770	
Augathella ... ..	2,757	28,657	30,984	2,327	...	371,280	384,825	13,545	...	33	
Ayr ... ..	8,731	30,155	33,293	3,138	...	626	243	...	383	991	
Banana ... ..	2,658	59,908	61,668	1,760	...	100	273	173	...	190	
Barcaldine ... ..	2,286	2,633	3,231	598	...	628,378	617,390	...	10,988	272	
Beaudesert ... ..	4,419	70,363	76,417	6,054	...	3,345	3,767	422	...	10,215	
Biggenden ... ..	3,102	40,901	43,354	2,453	...	478	989	511	...	3,066	
Blackall ... ..	3,483	4,771	4,643	...	128	852,376	917,035	64,659	...	178	
Bollon ... ..	3,378	38,521	28,221	...	10,300	810,887	737,555	...	73,332	12	
Boulia ... ..	1,712	8,700	8,252	...	448	52,749	87,031	34,282	...	...	
Bowen ... ..	4,419	27,525	24,338	...	3,187	...	1	1	...	357	
Brisbane ... ..	5,043	18,020	18,602	582	...	961	546	...	415	3,366	
Bundaberg ... ..	6,818	57,742	58,195	453	...	343	1,452	1,109	...	1,733	
Burke ... ..	3,564	98,185	101,042	2,857	...	45,298	39,403	...	5,895	46	
Caboolture ... ..	1,028	7,048	7,754	706	...	250	287	37	...	677	
Cairns ... ..	2,787	4,246	3,910	...	336	15	80	65	...	304	
Camooeal ... ..	3,310	58,048	45,388	...	12,660	5,729	4,630	...	1,099	41	
Cape River ... ..	5,856	85,667	94,242	8,575	...	573	516	...	57	280	
Cardwell ... ..	1,315	8,572	8,083	...	489	...	...	...	...	151	
Charleville ... ..	4,150	23,826	20,597	...	3,229	760,583	760,783	200	...	171	
Charters Towers ... ..	13,032	154,562	153,365	...	1,197	2,563	1,462	...	1,101	1,812	
Childers ... ..	2,110	12,475	13,073	598	...	...	...	...	...	401	
Chillagoe ... ..	4,148	35,985	36,398	413	...	...	...	...	...	168	
Chinchilla ... ..	2,622	26,464	32,552	6,088	...	17,330	22,854	5,524	...	1,160	
Clermont ... ..	8,978	127,741	130,402	2,661	...	647,765	724,257	76,492	...	320	
Cleveland ... ..	674	1,017	1,151	134	...	17	19	2	...	279	
Clifton ... ..	6,327	14,286	16,751	2,465	...	32,960	32,438	...	522	3,480	
Cloncurry ... ..	11,681	167,510	168,051	541	...	541,726	611,810	70,084	...	100	
Coen ... ..	2,889	22,346	21,011	...	1,335	...	...	...	...	...	
Collinsville ... ..	4,184	120,220	120,479	259	...	350	518	168	...	154	
Condamine ... ..	3,003	37,285	35,725	...	1,560	23,062	42,933	19,871	...	622	
Cook ... ..	4,567	83,456	81,948	...	1,508	...	...	...	...	54	
Cooyar ... ..	1,266	12,273	14,019	1,746	...	3,064	2,619	...	445	2,259	
Crow's Nest ... ..	2,974	24,838	27,097	2,259	...	146	285	139	...	8,506	
Croydon ... ..	1,936	37,210	26,395	...	10,815	...	...	...	...	...	
Cunnamulla ... ..	2,317	16,529	9,838	...	6,691	780,345	617,359	...	162,986	15	
Dalby ... ..	9,910	94,238	98,081	3,843	...	659,195	710,225	51,030	...	5,426	
Diamantina ... ..	1,360	24,795	23,352	...	1,443	10	10	...	...	...	
Douglas ... ..	1,025	2,779	2,862	83	...	...	...	...	...	112	
Dugandan ... ..	4,847	38,037	40,843	2,806	...	1,169	330	...	839	10,777	
Eidsvold ... ..	3,482	58,618	63,178	4,560	...	470	454	...	16	1,088	
Emerald ... ..	2,538	25,552	28,517	2,965	...	180,655	191,877	11,222	...	191	
Esk ... ..	1,907	...	33,008	...	...	...	1,800	...	...	1,679	
{ Esk ... ..	...	68,279	...	...	...	2,839	...	...	...	...	
{ Nanango ... ..	11,074	...	111,465	11,693	...	...	1,357	...	927	18,421	
{ Toogoolawah ... ..	3,843	...	51,453	...	...	2,100	855	...	...	3,146	
Etheridge ... ..	9,834	165,418	176,828	11,410	...	...	...	...	...	68	
Eulo ... ..	591	8,197	3,012	...	5,185	133,054	112,702	...	20,352	1	
Gatton ... ..	4,153	22,184	25,995	3,811	...	1,019	956	...	63	6,391	
Gayndah ... ..	7,029	118,719	124,370	5,651	...	1,758	1,859	101	...	6,078	
Gin Gin ... ..	3,979	55,195	55,802	607	...	479	470	...	9	509	
Gladstone ... ..	10,964	168,875	172,359	3,484	...	3,873	4,076	203	...	4,145	
Goodna ... ..	483	2,057	2,203	146	...	...	13	13	...	118	
Goombungee ... ..	1,315	7,677	8,377	700	...	3	10	7	...	3,352	
Goondiwindi ... ..	3,764	43,699	39,670	...	4,029	550,873	648,890	98,017	...	404	
Gympie ... ..	6,414	100,387	108,529	8,142	...	2,794	1,689	...	1,105	13,621	
Harrisville ... ..	3,012	19,742	21,703	1,961	...	447	848	401	...	4,379	
Helidon ... ..	2,075	13,991	14,900	909	...	13	14	1	...	2,338	
Herberton ... ..	5,137	63,459	61,563	...	1,896	795	673	...	122	756	
Highfields ... ..	1,294	8,838	9,402	564	...	548	481	...	67	2,765	
Hughenden ... ..	5,117	42,887	43,020	133	...	625,692	694,842	69,150	...	120	
Hungerford ... ..	439	7,625	2,618	...	5,007	108,338	73,903	...	34,435	7	
Ingham ... ..	8,358	31,914	29,727	...	2,137	102	101	...	1	687	
Inglewood ... ..	2,579	19,100	19,813	713	...	250,423	286,656	36,233	...	587	
Innisfail ... ..	3,575	3,655	4,069	414	...	91	89	...	2	283	
Ipswich ... ..	1,960	13,389	13,887	498	...	108	182	74	...	1,361	
Isisford ... ..	2,563	4,104	5,095	991	...	449,274	551,906	102,632	...	32	
Jondaryan ... ..	935	7,529	8,126	597	...	126,387	121,701	...	4,686	729	
Julia Creek ... ..	4,051	57,188	64,988	7,800	...	568,862	646,771	77,909	...	1	
Jundah ... ..	1,169	5,652	4,352	...	1,300	167,437	136,123	...	31,314	...	
Kilcoy ... ..	1,486	16,524	18,537	2,013	...	247	205	...	42	2,525	
Kilkivan ... ..	1,377	19,817	21,679	1,862	...	455	179	...	276	989	
Killarney ... ..	2,535	10,080	10,890	810	...	4,788	8,477	3,689	...	1,128	



Table No. XXVIII.—continued.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE VARIOUS PETTY SESSIONS DISTRICTS OF THE STATE, TOGETHER WITH THE INCREASE OR DECREASE OF CATTLE AND SHEEP ON THE 31ST DECEMBER, 1929.

Petty Sessions District.	HORSES.	CATTLE.				SHEEP.				SWINE.
		1928.	1929.	1929.		1928.	1929.	1929.		
				Increase.	Decrease.			Increase.	Decrease.	
	1929.									1929.
Laidley ... ..	3,535	18,067	20,224	2,157	...	353	557	204	...	4,300
Logan ... ..	2,127	14,360	15,275	915	...	355	633	278	...	1,530
Longreach ... ..	5,702	8,154	9,566	1,412	...	1,024,521	1,250,337	225,816	...	133
Lowood ... ..	2,013	17,030	18,528	1,498	...	80	135	55	...	3,883
Mackay ... ..	23,174	119,347	119,551	204	...	2,426	2,024	...	402	1,150
Marburg ... ..	1,535	8,276	8,868	592	...	75	93	18	...	3,991
Maroochy ... ..	3,266	34,012	36,691	2,679	...	691	776	85	...	5,074
Maryborough ... ..	4,212	21,241	22,078	837	...	687	645	...	42	1,263
Mitchell ... ..	6,753	67,243	71,624	4,381	...	517,274	608,905	91,631	...	148
Mount Isa ... ..	234	2,150	940	...	1,210	...	...	...	...	60
Mount Morgan ... ..	6,413	63,032	66,179	3,147	...	1,562	1,587	25	...	1,710
Mount Perry ... ..	1,823	35,873	39,032	3,159	...	32	38	6	...	128
Muttaburra ... ..	3,735	11,682	10,900	...	782	868,153	978,074	109,921	...	13
Norman ... ..	7,266	211,384	193,936	...	17,448	...	4,200	1,200	...	70
Oakey ... ..	5,644	37,265	40,342	3,077	...	57,189	65,942	8,753	...	10,078
Pittsworth ... ..	6,878	32,561	37,208	4,647	...	237,251	252,452	15,201	...	7,353
Proserpine ... ..	3,857	12,860	10,209	...	2,651	1,101	2,438	1,337	...	275
Quilpie ... ..	1,087	5,775	5,948	173	...	212,762	226,819	14,057	...	106
Ravenswood ... ..	1,568	13,848	13,505	...	343	...	...	...	...	112
Redcliffe ... ..	1,706	16,418	17,560	1,142	...	836	673	...	163	1,030
Richmond ... ..	6,897	64,803	70,024	5,221	...	956,405	1,207,915	251,510	...	76
Rockhampton ... ..	16,787	275,384	291,426	16,042	...	24,503	28,107	3,604	...	4,237
Roma ... ..	8,701	69,679	68,233	...	1,446	445,835	512,880	67,045	...	813
Rosewood ... ..	2,664	21,947	23,029	1,082	...	1,964	1,248	...	716	4,463
St. George ... ..	4,721	20,519	16,317	...	4,202	1,148,200	1,157,360	9,160	...	44
St. Lawrence ... ..	4,175	83,139	91,490	8,351	...	2,098	2,275	177	...	105
Somerset ... ..	190	797	820	23	...	...	...	...	...	20
Southport ... ..	2,197	32,511	33,537	1,026	...	1,022	832	...	190	4,398
Springsure ... ..	7,247	83,946	92,878	8,932	...	440,197	450,719	10,522	...	123
Stanthorpe ... ..	1,943	11,022	9,643	...	1,379	244,586	271,317	26,731	...	299
Surat ... ..	2,224	17,193	16,787	...	406	469,560	559,361	89,801	...	19
Tambo ... ..	2,787	14,094	17,840	3,746	...	557,951	570,566	12,615	...	...
Taroom ... ..	3,940	97,972	98,742	770	...	23,815	26,683	2,868	...	136
Texas ... ..	1,207	8,874	7,635	...	1,239	108,718	117,117	8,399	...	62
Thargomindah ... ..	4,165	94,590	63,311	...	31,279	133,325	110,438	...	22,887	16
Tiaro ... ..	3,675	48,918	51,385	2,467	...	788	759	...	29	1,908
Toowoomba ... ..	3,631	14,825	16,127	1,302	...	19,957	24,227	4,270	...	2,994
Townsville ... ..	3,804	23,169	22,822	...	347	1,259	1,664	405	...	1,379
Warwick ... ..	9,300	42,025	44,177	2,152	...	292,679	327,438	34,759	...	4,226
Wienholt ... ..	9,164	120,868	119,640	...	1,228	3,065	2,728	...	337	17,056
Windsorah ... ..	3,934	45,339	34,779	...	10,560	65,014	79,490	14,476	...	1
Winton ... ..	4,776	9,417	18,164	8,747	...	516,697	993,042	476,345	...	33
Woodford ... ..	1,530	20,848	21,782	934	...	989	764	...	225	2,166
Wynnum ... ..	483	1,243	1,423	180	...	312	104	...	208	119
Yeulba ... ..	1,127	10,108	10,868	760	...	3,211	3,003	...	208	140
Total in State, 1929 ... ..	500,104	...	5,208,588	...	...	...	20,324,303	...	...	236,037
Total in State, 1928 ... ..	522,490	...	5,128,341	...	...	...	18,509,201	...	...	215,764
Increase in 1929 ... ..	...	...	...	80,247	...	...	...	1,815,102	...	20,273
Decrease in 1929 ... ..	22,386	...	...	...	...	...	...	...	...	...
Centesimal Increase in 1929 ... ..	...	...	...	1.56	...	...	...	9.81	...	9.40
Centesimal Decrease in 1929 ... ..	4.28	...	...	...	...	...	...	...	...	...



Table No. XXIX.

RETURN SHOWING NUMBER OF CALVES RETURNED AS BRANDED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEARS 1928 AND 1929, THE INCREASE OR DECREASE, ALSO THE NUMBER OF CATTLE AND SHEEP KILLED FOR FARM OR STATION USE DURING THE LATTER YEAR.

Petty Sessions District.	Male.			Female.			Cattle Killed.	Sheep Killed.
	1928.	1929.	Increase Per cent.	1928.	1929.	Increase Per cent.	1929.	1929.
Adavale .. .. .	262	301	14.89	272	349	28.31	177	2,520
Allora .. .. .	538	788	46.47	587	845	43.95	9	263
Alpha .. .. .	5,328	6,009	12.78	5,211	5,840	12.07	353	1,329
Aramac .. .. .	386	426	10.36	373	414	10.99	73	2,902
Atherton .. .. .	946	831	12.16	3,348	3,280	2.03	67	13
Augathella .. .. .	3,045	3,912	28.47	3,127	4,017	28.46	393	3,874
Ayr .. .. .	2,776	2,536	8.65	2,772	2,510	9.45	56	..
Banana .. .. .	7,286	7,462	2.42	7,069	7,362	4.14	404	36
Barcaldine .. .. .	294	436	48.30	316	439	38.92	29	6,676
Beaudesert .. .. .	3,292	4,046	22.90	5,249	6,419	22.29	105	222
Biggenden .. .. .	2,429	2,674	10.09	4,235	4,463	5.38	66	21
Blackall .. .. .	559	664	18.78	565	636	12.57	183	11,711
Bollon .. .. .	1,291	1,314	1.78	1,297	1,318	1.62	377	10,901
Boulia .. .. .	84	327	289.29	77	342	344.16	210	845
Bowen .. .. .	3,223	2,092	35.09	3,235	2,196	32.12	124	..
Brisbane .. .. .	73	128	75.34	948	1,186	25.11	..	..
Bundaberg .. .. .	2,893	3,423	18.32	4,214	4,645	10.23	145	12
Burke .. .. .	11,577	12,983	12.14	11,531	12,909	11.95	629	260
Caboolture .. .. .	98	220	124.49	609	805	32.18	3	48
Cairns .. .. .	192	197	2.60	192	238	23.96	15	..
Camooowal .. .. .	6,710	6,198	7.63	6,532	6,394	2.11	650	50
Cape River .. .. .	11,296	10,016	11.33	11,124	10,040	9.74	382	30
Cardwell .. .. .	768	542	29.43	783	603	22.99	53	..
Charleville .. .. .	1,859	1,746	6.08	1,790	1,724	3.69	331	9,765
Charters Towers .. .. .	17,391	14,122	18.80	17,621	13,908	21.07	887	17
Childers .. .. .	940	1,154	22.77	1,044	1,208	15.71	23	..
Chillagoe .. .. .	4,729	2,904	38.59	4,832	2,984	38.25	148	..
Chinchilla .. .. .	2,739	3,308	20.77	2,771	3,431	23.82	80	246
Clermont .. .. .	14,642	16,604	13.40	14,429	16,433	13.89	924	8,062
Cleveland .. .. .	17	21	23.53	68	72	5.88	18	..
Clifton .. .. .	860	962	11.86	1,360	1,674	23.09	57	896
Cloncurry .. .. .	19,167	20,026	4.48	19,539	20,541	5.13	1,562	4,088
Coen .. .. .	2,970	2,270	23.57	3,011	2,258	25.01	174	..
Collinsville .. .. .	15,172	13,738	9.45	15,074	13,361	11.36	575	..
Condamine .. .. .	3,908	4,170	6.70	4,101	4,219	2.88	277	429
Cook .. .. .	9,685	9,594	0.94	8,663	9,415	8.68	335	..
Cooyar .. .. .	882	958	8.62	1,137	1,291	13.54	82	108
Crow's Nest .. .. .	1,621	1,633	0.74	2,258	2,312	2.39	65	..
Croydon .. .. .	4,747	3,035	36.06	4,830	3,033	37.20	197	..
Cunnamulla .. .. .	1,678	601	64.18	1,452	633	56.40	177	11,788
Dalby .. .. .	7,985	8,884	11.26	9,474	10,502	10.85	388	6,227
Diamantina .. .. .	881	872	1.02	1,017	887	12.78	326	..
Douglas .. .. .	109	86	21.10	225	212	5.78	4	..
Dugandan .. .. .	1,841	1,971	7.06	3,079	3,163	2.73	25	5
Eidsvold .. .. .	5,365	6,047	12.71	6,090	6,808	11.79	239	22
Emerald .. .. .	2,749	3,181	15.71	2,693	3,180	18.08	124	1,425
Esk .. .. .	3,173	2,059	..	4,020	2,280	..	124	124
Nanango .. .. .	8,066	7,380	851	11,213	10,501	7.15	339	61
Etheridge .. .. .	21,925	20,163	8.04	21,749	20,314	6.60	111	9
Eulo .. .. .	676	249	63.17	709	253	64.32	742	..
Gatton .. .. .	1,418	1,794	26.52	2,044	2,209	8.07	52	49
Gayndah .. .. .	8,674	9,003	3.79	11,086	11,429	3.09	307	50
Gin Gin .. .. .	4,693	4,868	3.73	4,819	5,157	7.01	271	33
Gladstone .. .. .	12,615	13,037	3.35	15,523	15,875	2.27	667	102
Goodna .. .. .	76	131	72.37	177	209	18.08	..	..
Goombungee .. .. .	285	346	21.40	822	928	12.90	12	..
Goondiwindi .. .. .	4,314	4,577	6.10	4,421	4,536	2.60	355	7,449
Gympie .. .. .	1,696	2,024	19.34	7,256	8,945	23.28	145	34
Harrisville .. .. .	1,093	1,326	21.32	1,708	1,876	9.84	10	..
Helidon .. .. .	722	812	12.47	1,036	1,230	18.73	10	..
Herberton .. .. .	7,440	5,436	26.94	7,449	5,319	28.59	178	41
Highfields .. .. .	442	485	9.73	999	935	6.41	4	10
Hughenden .. .. .	5,406	4,429	18.07	5,574	4,265	23.48	338	6,440
Hungerford .. .. .	621	..	100.00	548	..	100.00	6	2,245
Ingham .. .. .	3,680	2,766	24.84	3,643	2,815	22.73	130	..
Inglewood .. .. .	2,628	2,371	9.78	2,584	2,332	9.75	215	3,336
Innisfail .. .. .	197	209	6.09	187	205	9.63	5	..
Ipswich .. .. .	544	631	15.99	967	1,264	30.71	..	..
Isisford .. .. .	250	588	135.20	232	527	127.16	116	6,300
Jondaryan .. .. .	582	682	17.18	701	841	19.97	88	1,216
Julia Creek .. .. .	4,950	5,915	19.49	5,173	6,072	17.38	422	4,896
Jundah .. .. .	324	286	11.73	328	266	18.90	171	1,837



Table No. XXIX.—continued.

RETURN SHOWING NUMBER OF CALVES RETURNED AS BRANDED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE DURING THE YEARS 1928 AND 1929, THE INCREASE OR DECREASE, ALSO THE NUMBER OF CATTLE AND SHEEP KILLED FOR FARM OR STATION USE DURING THE LATTER YEAR.

Petty Sessions District.	Male.			Female.			Cattle Killed.	Sheep Killed.
	1928.	1929.	Increase Per cent.	1928.	1929.	Increase Per cent.	1929.	1929.
Kilcoy .. .. .	590	732	24.07	1,160	1,700	46.55	57	..
Kilkivan .. .. .	1,403	1,643	17.11	1,964	2,007	2.19	31	26
Killarney .. .. .	823	756	— 8.14	1,064	1,015	— 4.61	10	133
Laidley .. .. .	894	1,242	38.93	1,259	1,619	28.59	19	2
Logan .. .. .	157	203	29.30	821	1,019	24.12	2	..
Longreach .. .. .	612	1,032	68.63	679	1,161	70.99	256	13,252
Lowood .. .. .	581	1,102	89.67	805	1,384	71.93	33	5
Mackay .. .. .	10,906	9,600	— 11.98	11,112	9,791	— 11.89	358	51
Marburg .. .. .	184	166	— 9.78	504	420	— 16.67	3	..
Maroochy .. .. .	382	446	16.75	2,259	2,972	31.56	11	7
Maryborough .. .. .	973	1,134	16.55	1,663	1,938	16.54	40	..
Mitchell .. .. .	7,130	7,417	4.03	7,112	7,425	4.40	585	6,030
Mount Isa .. .. .	171	114	— 33.33	165	126	— 23.64	6	..
Mount Morgan .. .. .	4,464	5,214	16.80	5,048	6,308	24.96	226	38
Mount Perry .. .. .	3,446	3,620	5.05	3,279	3,512	7.11	104	..
Muttaborra .. .. .	1,291	1,173	— 9.14	1,296	1,139	— 12.11	143	10,394
Norman .. .. .	23,365	25,027	7.11	23,367	25,388	8.65	1,110	..
Oakey .. .. .	1,569	1,726	10.01	3,559	3,506	— 1.49	124	1,144
Pittsworth .. .. .	2,254	2,453	8.83	3,389	3,476	2.57	59	3,261
Proserpine .. .. .	1,545	986	— 36.18	1,538	1,067	— 30.62	42	..
Quilpie .. .. .	309	447	44.66	299	436	45.82	96	3,423
Ravenswood .. .. .	1,647	1,633	— 0.85	1,662	1,657	— 0.30	71	..
Redcliffe .. .. .	153	233	52.29	1,047	1,304	24.55	3	86
Richmond .. .. .	6,965	10,192	46.33	7,117	12,114	70.21	529	9,894
Rockhampton .. .. .	29,309	31,373	7.04	30,644	32,973	7.60	1,352	414
Roma .. .. .	7,391	8,054	8.97	7,529	7,868	4.50	529	5,427
Rosewood .. .. .	745	882	18.39	1,378	1,640	19.01	24	66
St. George .. .. .	1,889	1,656	— 12.33	1,811	1,595	— 11.93	326	18,607
St. Lawrence .. .. .	10,154	9,201	— 9.39	10,065	9,193	— 8.66	438	65
Somerset .. .. .	58	75	29.31	60	65	8.33	94	..
Southport .. .. .	556	766	37.77	2,346	2,940	25.32	33	29
Springsure .. .. .	9,768	10,265	5.09	9,728	9,971	2.50	825	2,938
Stanthorpe .. .. .	770	698	— 9.35	734	724	— 1.36	76	2,504
Surat .. .. .	1,624	2,173	33.81	1,573	2,073	31.79	352	7,294
Tambo .. .. .	2,070	2,056	— 0.68	1,939	1,991	2.68	225	7,029
Taroom .. .. .	12,064	13,022	7.94	11,761	13,384	13.80	805	326
Texas .. .. .	951	842	— 11.46	1,027	839	— 18.31	64	1,156
Thargomindah .. .. .	11,907	4,172	— 64.96	12,093	4,037	— 66.62	1,150	1,148
Tiaro .. .. .	3,464	3,880	12.01	4,329	4,965	14.69	134	11
Toowoomba .. .. .	598	825	37.96	1,385	1,487	7.36	26	143
Townsville .. .. .	2,580	2,124	— 17.67	2,555	2,184	— 14.52	90	1
Warwick .. .. .	3,780	4,206	11.27	4,252	4,533	6.61	133	3,342
Wienholt .. .. .	7,325	7,476	2.06	11,398	11,842	3.90	228	2
Windsor .. .. .	3,439	3,445	0.17	3,372	3,163	— 6.20	564	1,104
Winton .. .. .	636	769	20.91	698	774	10.89	278	8,637
Woodford .. .. .	686	775	12.97	1,729	1,935	11.91	29	47
Wynnum .. .. .	3	3	..	59	49	— 16.95	..	..
Yeulba .. .. .	1,227	1,242	1.22	1,161	1,216	4.74	97	61
Totals .. .. .	468,581	468,006	— 0.12	520,986	528,548	1.45	28,194	229,329

— Decrease.

Table No. XXX.

RETURN FOR TEN YEARS SHOWING THE NUMBER OF CATTLE AND SHEEP KILLED IN THE STATE FOR FARM OR STATION USE, ALSO THE CENTESIMAL INCREASE OR DECREASE. For details for 1929, see Table XXIX.

Year.	Cattle.	Increase or Decrease.	Sheep.	Increase or Decrease.
1920 .. .. .	..	..	245,518	— 7.99
1921 .. .. .	..	..	235,151	— 4.22
1922 .. .. .	..	..	232,866	— 0.97
1923 .. .. .	..	..	211,506	— 9.17
1924 .. .. .	..	..	180,298	— 4.76
1925 .. .. .	*44,721	..	186,133	3.24
1926 .. .. .	38,617	— 13.65	193,542	3.98
1927 .. .. .	35,885	— 7.07	193,629	0.04
1928 .. .. .	32,068	— 10.64	197,845	2.18
1929 .. .. .	28,194	— 12.08	229,329	15.91

\* First year collected.

— Decrease.



Table No. XXXI.  
RETURN FOR TEN YEARS SHOWING THE NUMBER OF CALVES RETURNED AS BRANDED IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE.

Year.	BURKE.		BURNETT.		COOK.		DARLING DOWNS.		GREGORY NORTH.		GREGORY SOUTH.		LEIGHARDT.		MARANO.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1920	114,359	109,866	36,930	45,517	54,728	53,511	46,612	52,144	39,635	36,461	23,279	21,807	93,029	89,068	31,068	29,593
1921	125,937	123,564	40,669	51,191	60,268	60,182	51,330	58,645	43,648	41,007	25,636	24,526	102,448	100,173	34,213	33,283
1922	99,380	100,372	32,093	41,583	47,559	48,886	40,506	47,638	34,444	33,310	20,230	19,922	80,844	81,371	26,998	27,035
1923	84,281	85,855	27,217	35,569	40,333	41,816	34,352	40,748	29,211	28,492	17,156	17,041	68,561	69,602	22,897	23,125
1924	86,185	88,123	27,832	36,508	41,245	42,920	35,128	41,824	29,870	29,245	17,544	17,491	70,110	71,441	23,414	23,736
1925	103,862	105,081	33,540	43,534	49,704	51,180	42,333	49,873	35,997	34,873	21,142	20,857	84,490	85,189	28,216	28,304
1926	53,868	54,364	27,965	36,879	42,088	43,275	31,968	37,972	16,771	17,460	15,812	16,332	53,921	53,611	22,966	22,900
1927	57,957	58,682	31,635	40,062	40,746	42,888	28,374	34,813	8,684	9,299	10,816	11,022	42,804	43,503	18,010	17,843
1928	67,279	67,954	35,508	47,385	54,459	55,892	35,612	43,770	1,535	1,552	12,676	12,870	66,044	65,327	16,660	16,514
1929	73,733	76,538	37,483	49,664	49,074	51,864	38,616	46,373	2,826	2,828	6,183	5,819	67,980	67,752	18,052	17,758

Year.	MITCHELL.		MORETON.		NORTH KENNEDY.		PORT CURTIS.		SOUTH KENNEDY.		WARREGO.		WIDE BAY.		TOTAL.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1920	22,216	21,120	22,433	37,497	61,682	58,167	37,220	39,853	49,555	46,712	25,707	25,080	16,070	24,530	674,523	690,876
1921	24,465	23,753	24,704	42,172	67,927	65,419	40,988	44,822	54,572	52,536	28,309	28,151	17,697	27,589	742,811	777,013
1922	19,306	19,295	19,495	34,257	53,603	53,140	32,344	36,409	43,064	42,675	22,340	22,867	13,965	22,410	586,171	631,170
1923	16,373	16,504	16,533	29,302	45,459	45,454	27,430	31,143	36,521	36,503	18,945	19,560	11,843	19,169	97,112	539,883
1924	16,743	16,940	16,906	30,076	46,485	46,655	28,050	31,966	37,346	37,467	19,373	20,077	12,111	19,676	508,342	554,145
1925	20,177	20,200	20,374	35,864	56,020	55,633	33,803	38,117	45,006	44,677	23,347	23,940	14,595	23,462	612,606	660,784
1926	5,777	5,585	15,882	29,238	40,764	40,754	24,059	27,737	26,388	26,163	18,207	17,681	13,266	20,422	409,702	450,373
1927	5,380	5,548	15,406	29,274	40,249	40,221	22,629	26,418	27,388	28,626	11,162	10,745	13,609	21,878	374,849	420,822
1928	7,301	7,424	20,938	37,035	53,152	53,313	32,670	37,791	36,995	36,653	12,402	12,160	15,350	25,346	468,581	520,986
1929	7,770	7,623	25,466	44,262	42,155	42,180	34,860	40,399	37,650	37,355	8,997	9,147	17,161	28,986	468,006	528,548



TABLE No. XXXII.  
RETURN FOR TEN YEARS SHOWING THE NUMBER OF CATTLE AND SHEEP IN THE VARIOUS PASTORAL DISTRICTS OF THE STATE.

Year.	BURKE.		BURNETT.		COOK.		DARLING DOWNS.		GREGORY NORTH.		GREGORY SOUTH.		LEICHHARDT.		MARANOA.	
	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.
1920	830,771	2,226,075	484,293	5,784	431,926	76	550,372	1,134,721	350,132	1,818,733	158,616	345,454	661,124	880,171	339,378	1,957,707
1921	883,705	2,479,894	525,058	5,223	465,654	399	597,643	1,117,956	382,828	2,061,699	168,565	319,702	759,999	917,444	373,699	2,023,562
1922	894,325	2,606,955	508,140	10,774	507,010	177	571,610	1,229,783	343,719	1,776,878	167,395	286,419	730,726	843,496	374,653	2,075,934
1923	811,024	2,385,859	469,649	4,219	518,685	210	421,869	1,066,076	322,762	1,689,221	188,440	253,166	738,237	1,117,746	300,785	2,075,053
1924	844,987	2,654,350	467,061	5,296	502,716	695	430,626	1,478,163	330,000	1,885,035	201,684	292,280	761,949	947,043	311,141	2,416,934
1925	825,822	2,928,780	467,036	5,263	527,624	270	468,389	1,862,217	297,335	1,964,021	176,275	286,189	761,676	979,070	273,224	2,785,128
1926	685,267	1,978,074	440,562	7,487	520,708	12,580	414,433	2,045,745	212,735	1,086,545	135,915	344,859	568,449	840,487	235,658	3,366,810
1927	640,707	2,523,372	463,258	9,815	495,975	3,355	414,658	2,495,527	135,913	1,054,398	152,891	292,261	533,485	1,050,723	213,221	2,951,182
1928	582,748	2,313,118	483,320	7,702	489,935	3,042	429,716	2,637,366	58,147	702,502	112,514	221,216	562,465	1,172,793	188,546	3,366,073
1929	586,242	2,772,704	506,443	8,161	472,041	2,506	450,071	2,945,532	65,545	1,215,608	83,170	203,830	595,395	1,252,201	176,690	3,542,002

Year.	MITCHELL.		MORETON.		NORTH KENNEDY.		PORT CURTIS.		SOUTH KENNEDY.		WARREGO.		WIDE BAY.		TOTAL.	
	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.	Cattle.	Sheep.
1920	218,761	6,425,183	564,219	12,749	477,557	6,070	453,797	20,792	398,189	194,292	209,736	2,372,391	326,196	4,642	6,455,067	17,404,840
1921	251,918	6,854,732	587,182	12,083	520,917	5,028	485,307	25,861	440,171	162,146	259,443	2,412,383	345,281	4,287	7,047,370	18,402,399
1922	257,517	6,427,205	548,837	10,736	534,914	4,365	473,963	24,132	470,575	163,250	223,941	2,176,291	348,138	5,176	6,955,463	17,641,071
1923	220,175	5,514,654	460,539	10,849	487,222	5,999	448,096	23,788	447,363	199,051	230,701	2,401,746	330,967	8,464	6,396,514	16,756,101
1924	202,130	6,384,802	473,197	18,047	491,309	4,069	439,046	24,671	435,105	143,657	237,541	2,765,960	326,761	7,250	6,454,653	19,028,262
1925	196,115	6,696,458	502,658	25,257	503,296	4,528	449,203	27,462	432,297	154,642	236,587	2,938,281	319,108	5,757	6,436,645	20,663,323
1926	114,015	4,135,681	476,828	22,022	454,412	22,214	383,711	28,040	328,545	165,182	191,168	2,799,535	302,439	5,511	5,464,845	16,860,772
1927	90,554	3,715,045	496,342	22,133	442,700	9,923	387,349	29,320	304,895	176,627	152,877	2,303,993	301,979	4,706	5,225,804	16,642,385
1928	68,569	4,893,564	520,775	20,190	461,951	6,589	415,192	29,830	317,997	213,677	128,118	2,915,641	308,348	5,838	5,128,341	18,509,201
1929	67,762	5,337,072	561,468	18,097	454,220	6,718	429,675	33,206	334,775	245,928	101,148	2,735,225	323,943	5,513	5,208,588	20,324,303



Table No. XXXIII.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE VARIOUS PASTORAL DISTRICTS OF THE STATE FOR THE YEARS 1928 AND 1929, TOGETHER WITH THE NUMERICAL AND CENTESIMAL INCREASE OR DECREASE IN THE LATTER YEAR.

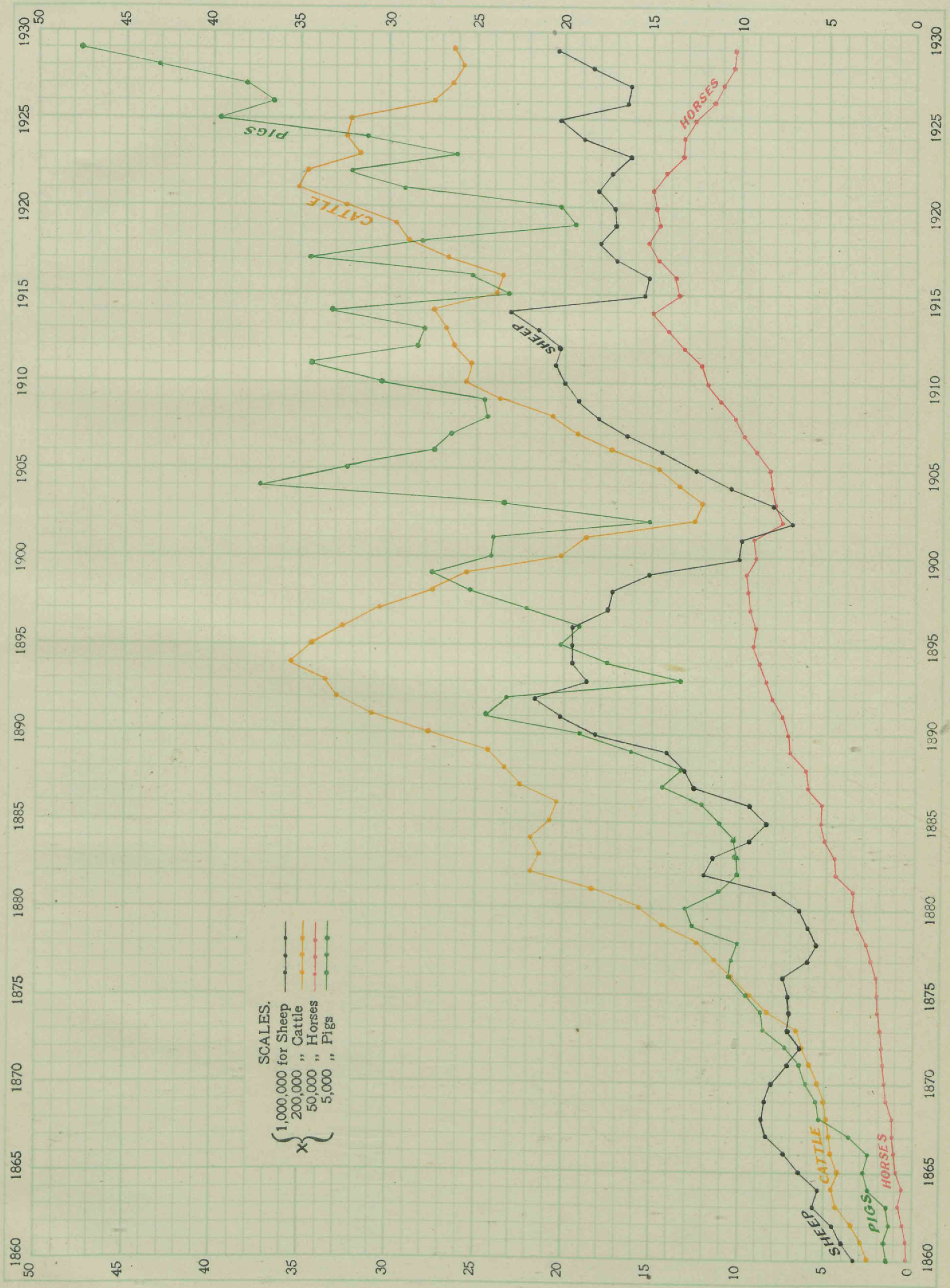
Pastoral District.	Year.	Horses.	Cattle.	Sheep.	Swine.	Numerical Increase or Decrease —				Centesimal Increase or Decrease —			
						Horses.	Cattle.	Sheep.	Swine.	Horses.	Cattle.	Sheep.	Swine.
Burke ...	1928	38,519	582,748	2,313,118	469	— 1,416	3,494	459,586	8	— 3·68	0·60	19·87	1·71
	1929	37,103	586,242	2,772,704	477								
Burnett ...	1928	38,142	483,320	7,762	42,870	— 1,742	23,123	399	2,108	— 4·57	4·78	5·14	4·92
	1929	36,400	506,443	8,161	44,978								
Cook ...	1928	40,883	489,935	3,042	9,753	— 3,408	— 17,894	536	2,041	— 8·34	— 3·55	— 17·62	20·93
	1929	37,475	472,041	2,506	11,794								
Darling Downs	1928	67,675	429,716	2,637,366	42,189	— 557	20,355	308,166	4,802	— 0·82	4·74	11·68	11·38
	1929	67,118	450,071	2,945,532	46,991								
Gregory North	1928	11,284	58,147	702,502	55	— 510	7,398	513,106	2	— 4·52	12·72	73·04	3·64
	1929	10,774	65,545	1,215,608	57								
Gregory South	1928	8,310	112,514	221,216	...	— 1,723	— 29,344	17,386	1	— 20·73	— 26·08	— 7·86	100·00
	1929	6,587	83,170	203,830	1								
Leichhardt ...	1928	38,311	562,465	1,172,793	1,801	— 1,021	32,930	79,408	134	— 2·67	5·85	6·77	— 7·44
	1929	37,290	595,395	1,252,201	1,667								
Maranoa ...	1928	25,721	188,546	3,366,073	1,231	— 1,337	— 11,856	175,929	183	— 5·20	— 6·29	5·23	— 14·87
	1929	24,384	176,690	3,542,002	1,048								
Mitchell ...	1928	27,519	68,569	4,893,564	608	— 2,181	807	443,508	36	— 7·93	— 1·18	9·06	5·92
	1929	25,338	67,762	5,337,072	644								
Moreton ...	1928	60,790	520,775	20,190	79,585	— 318	40,693	2,093	8,770	— 0·52	7·81	— 10·37	11·02
	1929	60,472	561,468	18,097	88,355								
North Kennedy	1928	56,938	461,951	6,589	5,828	— 2,744	7,731	129	968	— 4·82	— 1·67	1·96	16·61
	1929	54,194	454,220	6,718	6,796								
Port Curtis ...	1928	31,741	415,192	29,830	8,530	— 1,262	14,483	3,376	725	— 3·98	3·49	11·32	8·50
	1929	30,479	429,675	33,206	9,255								
South Kennedy	1928	30,374	317,997	213,677	1,491	— 1,386	16,778	32,251	235	— 4·56	5·28	15·09	— 15·76
	1929	28,988	334,775	245,928	1,256								
Warrego ...	1928	17,264	128,118	2,915,641	517	— 2,225	— 26,970	180,416	160	— 12·89	— 21·05	— 6·19	— 30·95
	1929	15,039	101,148	2,735,225	357								
Wide Bay ...	1928	29,019	308,348	5,838	20,837	— 556	15,595	325	1,524	— 1·92	5·06	— 5·57	7·31
	1929	28,463	323,943	5,513	22,361								

Pastoral and Petty Sessions Districts.

Pastoral District.	Petty Sessions District.	Pastoral District.	Petty Sessions District.	Pastoral District.	Petty Sessions District.	Pastoral District.	Petty Sessions District.
Burke ...	Burke	Darling Downs	Oakey	Mitchell	Blackall	North Kennedy	Ingham
	Camooweal		Pittsworth		Longreach		Proserpine
Burnett	Mt. Isa	Gregory North	Stanthorpe	—contd.	Alpha, part of	—contd.	Ravenswood
	Richmond		Texas		Hughenden, part of		Townsville
Cook	Cloneuray, part of	Gregory South	Warwick	Moreton	Isisford, part of	Port Curtis	Cape River, part of
	Croydon, part of		Crow's Nest, part of		Jundah, part of		Collinsville, part of
Darling Downs	Hughenden, part of	Leichhardt	Highfields, part of	North Kennedy	Muttaburra, part of	South Kennedy	Herberton, part of
	Julia Creek, part of		Toowoomba, part of		Tambo, part of		Bundaberg, part of
Gregory North	Norman, part of	Maranoa	Yeulba, part of	Wide Bay	Beaudesert	Warrego	Gladstone, part of
	Eidsvold		Boulia		Brisbane		Mackay, part of
Gregory South	Gayndah	Mitchell	Winton	Barcardine	Caboolture	—contd.	Mount Morgan, part of
	Mount Perry		Cloneuray, part of		Cleveland		Rockhampton, part of
Leichhardt	Wienholt	North Kennedy	Diamantina, part of	—contd.	Cooyar	—contd.	St. Lawrence, part of
	Biggenden, part of		Julia Creek, part of		Dugandan		Alpha, part of
Maranoa	Gin Gin, part of	—contd.	Windorah, part of	—contd.	Esk	—contd.	Cape River, part of
	Gladstone, part of		Adavale, part of		Gatton		Clermont, part of
Mitchell	Nanango, part of	—contd.	Diamantina, part of	—contd.	Goodna	—contd.	Collinsville, part of
	Atherton		Isisford, part of		Harrisville	—contd.	Mackay, part of
North Kennedy	Cairns	—contd.	Jundah, part of	—contd.	Helidon		Muttaburra, part of
	Chillagoe	—contd.	Quilpie, part of	—contd.	Ipswich	—contd.	Augathella
Port Curtis	Coen	—contd.	Thargomindah, part of	—contd.	Kilcoy	—contd.	Charleville
	Cook	—contd.	Windorah, part of	—contd.	Laidley	—contd.	Cunnamulla
South Kennedy	Douglas	—contd.	Banana	—contd.	Logan	—contd.	Eulo
	Etheridge	—contd.	Emerald	—contd.	Lowood	—contd.	Hungerford
Warrego	Innisfail	—contd.	Springsure	—contd.	Marburg	—contd.	Adavale, part of
	Somerset	—contd.	Taroom	—contd.	Redcliffe	—contd.	Quilpie, part of
Wide Bay	Croydon, part of	—contd.	Clermont, part of	—contd.	Rosewood	—contd.	Tambo, part of
	Herberton, part of	—contd.	Mackay, part of	—contd.	Southport	—contd.	Thargomindah, part of
—contd.	Norman, part of	—contd.	Mount Morgan, part of	—contd.	Toogoolawah	—contd.	Childers
	Allora	—contd.	Rockhampton, part of	—contd.	Wynnum	—contd.	Gympie
—contd.	Chinchilla	—contd.	Roma, part of	—contd.	Crow's Nest, part of	—contd.	Kilkivan
	Clifton	—contd.	St. Lawrence, part of	—contd.	Highfields, part of	—contd.	Maryborough
—contd.	Condamine	—contd.	Bolln	—contd.	Maroochy, part of	—contd.	Tiaro
	Dalby	—contd.	Mitchell	—contd.	Nanango, part of	—contd.	Biggenden, part of
—contd.	Goombungee	—contd.	St. George	—contd.	Toowoomba, part of	—contd.	Bundaberg, part of
	Goondiwindi	—contd.	Surat	—contd.	Woodford, part of	—contd.	Gin Gin, part of
—contd.	Inglewood	—contd.	Roma, part of	—contd.	Ayr	—contd.	Maroochy, part of
	Jondaryan	—contd.	Yeulba, part of	—contd.	Bowen	—contd.	Woodford, part of
—contd.	Killarney	—contd.	Aramac	—contd.	Cardwell	—contd.	—
	—	—contd.	Barcardine	—contd.	Charters Towers	—contd.	—



GRAPH SHOWING LIVE STOCK IN QUEENSLAND from 1860 to 1929.



EXPLANATION OF GRAPH.—The base of each small square represents an interval of one year, and the vertical height of each square denotes in the case of sheep 1,000,000; in the case of cattle 200,000; in the case of horses 50,000; and in the case of pigs 5,000.



Table No. XXXIV.

RETURN FOR TEN YEARS SHOWING THE DENSITY OF LIVE STOCK IN THE STATE.  
(In Converting Horses and Cattle to terms of Sheep, Ten Head of Sheep are taken as Equal to One Horse or Head of Cattle.)

Year.	HORSES.			CATTLE.			SHEEP.			ALL KINDS IN TERMS OF SHEEP.		
	Acres per Head.	Number per Square Mile.	Number per Capita Population.	Acres per Head.	Number per Square Mile.	Number per Capita Population.	Acres per Head.	Number per Square Mile.	Number per Capita Population.	Acres per Head.	Number per Square Mile.	Number per Capita Population.
1920...	578	1.11	1.01	66	9.63	8.74	25	25.96	23.57	4.80	133.30	121.04
1921...	574	1.11	0.97	61	0.51	9.15	23	27.45	23.90	4.45	143.70	125.13
1922	601	1.06	0.90	62	10.37	8.80	24	26.31	22.32	4.55	140.70	119.38
1923...	649	0.99	0.82	67	19.54	7.89	26	24.99	20.66	4.91	130.26	107.67
1924...	650	0.98	0.79	66	9.63	7.73	23	28.38	22.79	4.76	134.49	108.01
1925...	672	0.95	0.74	67	9.60	7.47	21	30.82	23.99	4.69	136.34	106.15
1926 ..	751	0.85	0.65	79	8.15	6.19	25	25.15	19.11	5.56	115.18	87.54
1927...	783	0.82	0.61	82	7.79	5.81	26	24.82	18.51	5.77	110.94	82.72
1928 ..	821	0.78	0.57	84	7.65	5.59	23	27.61	20.19	5.72	111.88	81.84
1929...	858	0.75	0.54	82	7.77	5.60	21	30.31	21.83	5.54	115.45	83.16

Table No. XXXV

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF HERDS OF CATTLE UNDER VARIOUS GROUPINGS IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE DURING THE YEAR 1929.

Pastoral Districts.	1 to 100.		101 to 300.		301 to 500.		501 to 1,000.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Burke .. ..	369	9,998	72	13,297	31	12,100	32	23,934
Burnett .. ..	3,814	159,479	713	115,142	114	43,443	100	67,834
Cook .. ..	1,563	43,234	134	22,080	25	9,278	21	14,649
Darling Downs ..	7,052	211,554	708	113,078	93	35,929	53	37,986
Gregory North ..	162	3,208	22	4,847	10	3,839	9	7,524
Gregory South ..	62	2,184	21	4,349	10	4,464	10	7,064
Leichhardt .. ..	1,315	33,631	266	49,626	112	43,894	113	80,052
Maranoa .. ..	1,296	34,255	157	27,469	41	16,408	39	27,783
Mitchell .. ..	617	14,178	70	12,710	20	7,584	15	11,088
Moreton .. ..	10,020	311,912	920	143,846	103	39,414	48	31,856
North Kennedy ..	2,040	36,201	153	26,225	63	25,875	43	31,901
Port Curtis .. ..	2,543	80,022	390	63,533	98	37,533	69	48,964
South Kennedy ..	1,199	22,201	93	16,907	41	16,027	34	25,176
Warrego .. ..	460	13,508	76	13,480	20	7,738	10	7,128
Wide Bay .. ..	4,864	138,379	564	87,085	60	23,150	37	24,788
Totals .. ..	37,376	1,113,944	4,359	713,674	841	326,676	633	447,727

Pastoral Districts.	1,001 to 5,000.		5,001 to 10,000.		10,001 and upwards.		Totals.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Burke .. ..	45	108,784	20	152,051	17	266,078	586	586,242
Burnett .. ..	52	95,629	3	24,916	..	..	4,796	506,443
Cook .. ..	46	109,454	9	67,534	11	205,812	1,809	472,041
Darling Downs ..	27	45,171	1	6,353	..	..	7,934	450,071
Gregory North ..	16	35,547	2	10,580	..	..	221	65,545
Gregory South ..	10	25,612	6	39,497	..	..	119	83,170
Leichhardt .. ..	120	252,403	18	124,459	1	11,330	1,945	595,395
Maranoa .. ..	18	34,291	6	36,484	..	..	1,557	176,690
Mitchell .. ..	12	22,202	..	..	..	..	734	67,762
Moreton .. ..	23	34,440	..	..	..	..	11,114	561,468
North Kennedy ..	67	157,451	13	86,733	5	89,834	2,384	454,220
Port Curtis .. ..	70	139,948	10	59,675	..	..	3,180	429,675
South Kennedy ..	55	117,761	15	101,627	2	35,076	1,439	334,775
Warrego .. ..	14	27,202	3	19,998	1	12,094	584	101,148
Wide Bay .. ..	26	50,541	..	..	..	..	5,551	323,943
Totals .. ..	601	1,256,436	106	729,907	37	620,224	43,953	5,208,588



Table No. XXXVI.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF HERDS OF CATTLE UNDER VARIOUS GROUPINGS IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE FOR THE YEAR 1929.

Division.	1-100.		101-300.		301-500.		501-1,000.		1,001-5,000.		5,001-10,000.		10,001 and Upwards.		Totals.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Southern ..	27,887	882,448	3,254	521,305	478	184,715	316	217,836	192	362,315	22	151,482	1	12,094	32,150	2,332,195
Central ..	4,447	123,171	680	119,376	224	86,777	207	148,701	223	462,304	37	233,340	1	11,330	5,819	1,184,999
Northern ..	5,042	108,325	425	72,993	139	55,184	110	81,190	186	431,817	47	345,085	35	596,800	5,984	1,691,394
Totals	37,376	1,113,944	4,359	713,674	841	326,676	633	447,727	601	1,256,436	106	729,907	37	620,224	43,953	5,208,588

Table No. XXXVII.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF FLOCKS OF SHEEP UNDER VARIOUS GROUPINGS IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE FOR THE YEAR 1929.

Pastoral Districts	1 to 500.		501 to 1,000.		1,001 to 2,000.		2,001 to 5,000.		5,001 to 10,000.		10,001 to 20,000.		20,001 to 50,000.		50,001 to 100,000.		100,001 and Upwards.		Totals.	
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.
Burke ..	26	3,046	6	4,523	25	32,108	106	389,716	128	885,142	46	695,584	20	570,196	3	186,359	...	...	360	2,772,704
Burnett ..	96	4,501	2	1,660	1	2,000	...	...	...	...	...	...	...	...	...	...	...	...	99	8,161
Cook ..	17	1,856	1	650	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18	2,506
Darling Downs ..	782	138,889	329	245,229	293	428,490	269	832,840	88	598,466	26	352,533	10	288,524	...	60,561	...	...	1,798	2,945,532
Gregory North ..	18	1,533	8	6,227	9	12,370	69	246,436	34	229,132	18	240,523	12	415,616	1	63,771	...	...	169	1,215,608
Gregory South ..	6	505	3	2,564	13	19,239	18	63,037	6	41,564	3	45,495	1	31,426	...	...	...	...	50	203,830
Leichhardt ..	135	22,753	39	28,540	72	109,837	87	268,603	31	219,317	12	171,978	6	196,858	...	234,315	...	...	386	1,252,201
Maranoa ..	171	32,749	97	76,419	210	312,865	280	909,387	122	835,879	48	646,249	20	577,440	1	50,338	...	...	950	3,542,002
Mitchell ..	57	8,955	25	19,842	63	99,936	211	754,693	157	1,079,093	88	1,246,251	38	1,137,669	10	615,402	...	...	652	5,337,072
Moreton ..	268	10,979	3	1,857	2	2,704	1	2,557	...	...	...	...	...	...	...	...	...	...	274	18,097
North Kennedy ..	51	4,218	...	...	2	2,500	...	...	...	...	...	...	...	...	...	...	...	...	53	6,718
Port Curtis ..	103	7,137	5	3,585	3	4,669	3	8,015	1	9,800	...	...	...	...	...	...	...	...	115	33,206
South Kennedy ..	29	4,554	7	5,199	5	6,856	13	40,713	8	54,557	2	23,772	...	45,518	...	64,759	...	...	67	245,928
Warrego ..	35	5,904	22	18,154	68	109,037	177	572,977	87	607,744	43	598,841	18	527,994	4	294,574	...	...	454	2,735,225
Wide Bay ..	119	4,528	1	985	...	...	...	...	...	...	...	...	...	...	...	...	...	...	120	5,513
Totals	1,913	252,107	548	415,464	766	1,148,611	1,234	4,088,974	662	4,560,694	286	4,021,226	127	3,791,241	25	1,570,079	4	475,907	5,565	20,324,303



Table No. XXXVIII.

RETURN SHOWING THE NUMBER OF OWNERS AND THE SIZES OF FLOCKS OF SHEEP UNDER VARIOUS GROUPINGS IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE FOR THE YEAR 1929.

Division.	1-500.		501-1,000.		1,001-2,000.		2,001-5,000.		5,001-10,000.		10,001-20,000.		20,001-50,000.		50,001-100,000.		100,001 and Upwards.		TOTALS.
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	
Southern	1,525	206,198	467	353,742	598	891,600	756	2,410,495	303	2,083,653	120	1,643,118	49	1,425,384	6	405,473	1	100,676	3,825 9,520,339
Central	278	34,711	72	54,587	136	209,557	368	1,271,448	228	1,571,911	118	1,652,039	58	1,795,661	16	978,247	3	375,231	1,277 7,943,392
Northern	110	11,198	9	7,135	32	47,454	110	407,031	131	905,130	48	726,069	20	570,196	3	186,359	..	..	463 2,860,572
Totals	1,913	252,107	548	415,464	766	1,148,611	1,234	4,088,974	662	4,560,694	286	4,021,226	127	3,791,241	25	1,570,079	4	475,907	5,565 20,324,303

Table No. XXXIX.

RETURN FOR TEN YEARS SHOWING THE ESTIMATED NUMBER OF CATTLE, SHEEP, ETC., SLAUGHTERED FOR CONSUMPTION AS FOOD IN THE STATE, TOGETHER WITH THE AVERAGE DEAD WEIGHT OF EACH ANIMAL AND THE ESTIMATED QUANTITY CONSUMED PER CAPITA (EXCLUSIVE OF MEATWORKS ENGAGED IN SLAUGHTERING FOR PRESERVATION).

Years.	Mean Population for the Year.	NUMBER SLAUGHTERED.					AVERAGE DRESSED WEIGHT.					CONSUMPTION PER CAPITA.					
		Cattle.	Sheep.	Calves.	Lambs.	Swine.	Cattle.	Sheep.	Calves.	Lambs.	Swine.	Beef.	Mutton.	Veal.	Lamb.	Pork.	Total.
1920	...	229,839	417,423	18,144	22,184	25,635	lb. 471	lb. 43	lb. 56	lb. 34	lb. 91	lb. 147.56	lb. 24.49	lb. 1.39	lb. 1.03	lb. 3.19	lb. 177.66
1921	...	214,547	624,758	33,342	23,948	27,273	583	41	49	30	86	163.64	33.79	2.12	0.93	3.06	203.54
1922	...	251,562	668,673	36,404	25,471	54,620	567	41	51	30	86	182.21	34.93	2.38	0.97	6.00	226.49
1923	...	281,760	538,770	38,916	24,298	63,019	525	40	77	30	85	184.13	26.89	3.73	0.91	6.66	222.32
1924	...	282,516	421,874	42,330	23,843	57,402	547	43	51	30	88	187.19	22.18	2.62	0.87	6.10	218.96
1925*	...	333,095	580,566	49,691	19,969	66,398	543	42	50	30	82	212.28	28.98	2.90	0.71	6.43	251.30
1926*	...	321,795	656,458	51,170	19,866	72,145	550	44	79	31	83	202.07	33.06	4.59	0.69	6.84	247.25
1927*	...	316,661	641,636	43,122	24,329	68,580	572	42	83	30	83	203.23	30.49	4.01	0.82	6.36	244.91
1928*	...	307,791	725,375	45,793	19,570	73,917	540	42	76	30	83	182.77	33.54	3.84	0.65	6.78	227.58
1929*†	...	287,023	858,563	43,527	26,403	83,526	539	43	47	31	89	167.19	39.52	2.21	0.89	8.06	217.87

† Total value of By-Products lb

\* Figures based on actual collection.

er-houses for 1929 is 483,885.

+ Includes 23,194 Cattle, 229,329 Sheep, and 6,854 Swine killed on Farms.



Table No. XL.  
RETURN FOR TEN YEARS OF LIVE STOCK SLAUGHTERED AT MEATWORKS AND BACON FACTORIES FOR PRESERVATION AS FOOD, OR FREEZING, OR FOR TALLOW, IN THE STATE,  
WITH THE QUANTITY AND VALUE OF MEAT, TALLOW, LARD, ETC., PRODUCED

Year.	NUMBER SLAUGHTERED.					MEAT PRESERVED OR FROZEN.					Quantity of Tallow Produced.	Quantity of Lard Produced.	Total Value of all Products shown here.							
	Cattle.		Sheep.		Lambs. Swine.	Beef.		Mutton.		Lamb.				Extract and Essence of Meat Produced.						
	For Freezing.	For Preserving.	For Boiling Down.	For Freezing.		For Preserving.	Frozen.	Fresh.	Frozen.						Fresh.					
Average Number of Hands Employed.	No.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Tons.	Lb.	£					
1919 ..	21	197,632	45,033	2,782	215,419	48,022	1,168	4,860	166,575	120,675,330	26,603,970	12,632	1,410,136	141,641	2,136	12,155,489	721,072	6,115	656,547	*4,503,806
1920 ..	19	186,655	13,109	1,356	18,848	2,631	...	363	132,049	137,343,094	7,341,758	2,433,083	1,157,64	11,979	...	11,337,050	668,445	4,197	474,426	+3,646,033
1921 ..	18	243,059	8,010	1,034	89,287	13,633	13	17,721	160,205	147,710,372	8,829,273	2,193,258	701,774	536,685	...	12,386,417	1,506,982	5,981	800,280	+3,721,211
1922 ..	17	169,667	14,527	2,234	60,588	327	13	7,468	181,108	115,383,280	12,077,237	23,764	14,514	268,342	...	16,130,545	901,894	6,020	781,650	2,190,512
1923 ..	17	225,297	16,807	3,672	54,002	476	263	318	200,234	126,584,907	10,721,227	7,410	18,846	11,130	...	16,219,969	541,923	4,825	833,159	2,494,136
1924-25	19	539,135	25,144	4,044	452	78	...	...	206,454	295,294,239	23,042,674	77,600	7,877	...	...	15,334,549	603,553	10,931	766,360	4,921,665
1925-26	19	363,011	29,480	2,513	34,702	35	...	63	243,505	201,983,990	15,570,166	32,800	1,451	2,205	...	18,013,086	891,026	7,767	895,925	4,107,662
1926-27	20	354,179	694	938	2,942	...	...	...	208,016	100,744,934	9,859,202	27,662	...	...	...	17,971,692	874,137	3,042	767,376	2,320,059
1927-28	19	381,364	860	433	3,777	...	...	...	241,871	215,856,923	9,053,287	70,263	...	...	...	17,986,523	649,078	5,302	839,959	3,847,224
1928-29	18	316,077	14,322	1,213	68,936	...	64	1,516	307,371	194,444,901	9,293,369	345,125	...	...	46,859	21,710,900	1,289,112	6,455	1,112,954	4,179,275

\* In addition meat valued at £506,874 (approximately) was supplied to the State Butchers' Shops.

† In addition meat valued at £405,358 was supplied to the State Butchers' Shops.

‡ In addition, meat valued at £90,212 was supplied to the State Butchers' Shops.  
N.B.—6,289 swine killed by farmers and 756,209 lb. of pork and bacon made therefrom during 1928 are not included in this table.

Table No. XLII.

RETURN FOR TEN YEARS SHOWING THE QUANTITY AND VALUE OF OTHER PRODUCTS OF MEAT PRESERVING, ETC., ESTABLISHMENTS IN THE STATE.

Year.	No.	Hides.		Skins.		Edible Fats.		Bones.		Hoofs and Horns.		Hair.		Oils, &c.		Manure.		All Other Products.	Total Value.
		Number.	£	Number.	£	Lb.	£	Tons.	£	£	Lb.	£	Gallons.	£	Tons.	£			
1919	21	291,384	802,167	184,353	57,698	8,295,790	253,336	541	7,979	8,729	118,200	3,469	3,469	33,433	9,406	4,710	43,355	467,444	1,658,583
1920	19	247,210	575,999	23,213	7,777	5,605,730	220,412	439	4,867	8,328	90,384	2,950	2,950	20,880	7,789	3,613	43,225	366,979	1,238,326
1921	18	263,196	276,405	72,232	5,546	7,684,850	158,044	471	5,526	7,961	120,214	3,849	3,849	19,278	5,539	3,885	45,126	300,661	808,657
1922	17	215,397	280,921	68,396	16,603	5,481,586	84,076	288	3,630	7,945	156,889	3,009	3,009	12,590	3,163	4,071	44,610	314,876	758,833
1923	17	245,843	313,978	55,059	27,291	5,379,914	137,750	385	7,692	11,861	169,874	10,088	10,088	17,894	4,933	4,718	50,657	340,600	904,980
1924-25	19	568,134	678,377	559	337	4,465,038	290,525	845	12,801	27,956	188,801	16,452	16,452	45,700	10,363	9,191	80,224	536,070	1,643,105
1925-26	19	394,110	471,505	34,800	26,061	10,753,803	213,596	670	5,867	20,144	173,899	5,218	5,218	34,134	7,633	5,970	50,198	453,734	1,253,976
1926-27	20	194,641	260,470	2,942	1,189	5,926,129	113,821	223	2,122	7,929	129,149	2,927	2,927	14,797	3,424	4,761	43,963	424,203	860,048
1927-28	19	369,927	718,253	4,048	1,849	9,070,227	197,418	348	3,379	9,397	159,603	4,602	4,602	19,899	4,735	5,626	54,959	579,453	1,574,046
1928-29	18	329,162	463,693	63,146	22,857	10,574,003	231,239	306	3,324	11,211	101,132	4,033	4,033	18,594	5,242	4,831	49,046	552,685	1,343,330

NOTE.—The Total Value of Production of the Cattle Industry for 1928-29 has been estimated at, approximately, £8,210,000.



Table No. XLII.  
RETURN SHOWING THE PURE BREEDS OF CATTLE AS RETURNED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR ENDED 31ST DECEMBER, 1929.

Petty Sessions District.	Aberdeen Angus.	Ayrshire.	Devon.	Friesian.	Guernsey.	Hereford.	Jersey.	Milking Shorthorn and Aust. Illawarra Shorthorn.	Red Polled.	Shorthorn.	Crossed and Unspecified.	Total.
Adavale	..	..	..	.. 25	..	.. 60	.. 37	.. 131	..	895	2,822	3,717
Allora	..	..	..	..	..	..	3	.. 1	..	87	10,067	10,712
Alpha	..	..	..	..	..	..	..	..	..	31,838	29,086	60,941
Aramac	..	..	..	.. 54	.. 1	..	..	3,172	..	412	1,783	2,196
Atherton	..	..	..	.. 28	..	..	1,426	..	..	861	39,723	45,237
Augathella	..	..	..	.. 48	..	..	..	.. 505	..	9,865	21,091	30,984
Ayr	..	.. 15	..	..	..	..	76	..	234	16,649	15,766	33,293
Banana	..	..	..	.. 36	..	17,224	39	2	..	1,271	43,096	61,668
Barcaldine	..	..	..	.. 314	..	3	..	12	54	756	2,406	3,231
Beauesert	..	.. 14	..	.. 11	..	449	651	2,245	..	1,955	70,786	76,417
Biggenden	..	.. 30	..	.. 20	.. 19	35	640	1,325	..	159	41,135	43,354
Blackall	..	.. 17	..	..	..	25	7	.. 5	..	1,233	3,361	4,643
Bollon	..	..	..	..	..	450	6	..	..	9,543	18,197	28,221
Boulia	..	..	..	..	..	..	..	.. 7	..	4,435	3,817	8,252
Bowen	..	.. 19	..	.. 36	..	40	..	136	10	2,294	21,948	24,338
Brisbane	..	.. 42	..	.. 9	.. 1	..	566	169	..	31	17,790	18,602
Bundaberg	..	.. 69	..	..	..	1,448	425	..	..	199	55,873	58,195
Burke	..	..	..	..	..	..	..	..	25	96	100,921	101,042
Caboolture	..	..	..	..	..	..	239	44	..	2	7,396	7,754
Cairns	..	.. 44	..	.. 1	..	..	67	3	..	74	3,759	3,910
Camooweal	..	.. 6	..	..	..	..	..	..	..	24,096	21,292	45,388
Cape River	..	.. 2	..	..	..	1,533	44	..	..	24,162	68,501	94,242
Cardwell	..	..	..	.. 1	..	..	..	..	..	..	8,081	8,083
Charleville	..	.. 56	..	..	..	417	22	19	..	4,792	15,290	20,597
Charters Towers	..	.. 61	877	..	..	2,950	217	82	6	28,126	121,019	153,365
Childers	..	..	..	..	..	655	92	47	..	357	11,922	13,073
Chillagoe	..	.. 1	14	..	..	..	..	..	..	38	36,346	36,398
Chinchilla	..	..	..	.. 12	..	1,175	1	1,001	11	3,672	26,678	32,552
Clermont	..	..	..	..	..	*38	39	4	..	76,960	53,361	130,402
Cleveland	..	..	..	..	..	..	..	1	..	..	1,149	1,151
Clyton	..	.. 1	..	.. 4	..	..	4	134	..	5,484	11,122	16,751
Cloncurry	..	..	..	..	..	..	..	..	1	82,378	85,672	168,051
Coen	..	..	..	..	..	..	..	..	..	..	21,011	21,011
Collinsville	..	..	..	..	..	1,959	..	..	11	19,980	100,488	120,479
Condamine	..	..	..	.. 160	..	..	1	323	..	1,393	31,889	35,725
Cook	..	..	..	..	..	..	..	..	..	7,343	74,605	81,948
Cooyar	..	..	..	.. 14	..	516	105	134	295	207	12,743	14,019
Crow's Nest	..	.. 20	..	.. 17	..	10	391	293	..	88	26,278	27,097
Croydon	..	..	155	..	..	..	..	..	..	2,221	24,019	26,395
Cunnamulla	..	..	..	.. 1	..	331	42	..	..	5,243	4,219	9,838
Dalby	..	.. 139	..	72	85	6,012	549	336	52	19,841	80,764	98,081
Diamantina	..	..	..	..	..	..	..	..	..	2,229	21,123	23,352
Douglas	..	..	..	..	..	..	7	18	..	7	2,830	2,862
Dugandan	..	.. 1	..	.. 83	1	125	305	562	1	80	39,683	40,843
Eidsvold	..	..	..	20	..	11,212	86	465	6	700	50,688	63,178
Emerald	..	.. 8	..	..	..	918	10	5	1	2,932	24,639	28,517
Esk	..	..	..	185	..	1,031	82	567	..	745	30,398	33,008



Table No. XLII.—continued.

RETURN SHOWING THE PURE BREEDS OF CATTLE AS RETURNED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR ENDED 31ST DECEMBER, 1929.—continued.

Petty Sessions District.	Aberdeen Angus.	Ayrshire.	Devon.	Friesian.	Guernsey.	Hereford.	Jersey.	Milking Shorthorn and Aust. Illawarra Shorthorn.	Red Polled.	Shorthorn.	Crossed and Unspecified.	Total.
Etheridge	..	..	252	..	..	16,803	1	.. 11	..	36,901	122,871	176,828
Eulo	..	..	..	..	..	..	..	..	..	607	2,394	3,012
Gatton	..	11	..	24	..	235	285	283	52	164	24,941	25,995
Gayndah	..	274	..	49	1	25,132	749	2,830	279	3,335	91,706	124,370
Gin Gin	..	1	..	..	..	94	98	34	..	163	55,411	55,802
Gladstone	..	74	..	250	..	+34,555	897	3,082	234	3,232	129,019	172,359
Goodna	..	..	..	..	..	..	28	12	..	1	2,162	2,203
Goombungee	..	113	..	8	..	..	182	122	..	34	7,918	8,377
Goondiwindi	..	1	..	..	..	4,524	71	103	..	5,542	29,312	39,670
Gympie	..	258	..	94	28	2,865	1,598	5,255	40	412	97,879	108,529
Harrisville	..	..	..	..	5	330	84	92	..	431	20,761	21,703
Helidon	..	1	..	..	1	1	270	368	1	207	14,051	14,900
Eierberton	..	..	7	..	1	..	133	10	..	996	60,416	61,563
Highfields	..	..	..	..	..	..	155	369	..	248	8,630	9,402
Hughenden	..	..	..	1	..	9,973	101	..	150	8,151	24,644	43,020
Hungerford	..	..	..	..	..	..	..	..	..	2,229	389	2,618
Ingham	..	..	..	5	..	..	5	2	..	..	29,715	29,727
Inglewood	..	26	..	3	..	538	51	1,022	..	\$2,565	15,561	19,813
Innisfail	..	8	3	2	..	..	13	43	..	38	3,962	4,069
Ipswich	..	..	..	1	..	..	496	72	..	19	13,299	13,887
Isisford	..	..	..	..	..	53	46	..	..	2,602	2,394	5,095
Jondaryan	..	..	..	14	..	37	2	265	..	283	7,275	8,126
Julia Creek	..	..	..	..	..	..	2	..	141	39,068	25,777	64,988
Jundah	..	..	..	..	..	..	..	..	..	648	3,704	4,352
Kilcoy	..	..	..	5	..	..	66	170	..	..	18,296	18,537
Kilkivan	..	2	2	..	..	539	175	346	..	77	20,536	21,679
Killarney	..	..	322	2	..	2	194	292	31	50	9,997	10,890
Laidley	..	1	..	18	..	5	216	403	..	45	19,536	20,224
Logan	..	152	..	4	..	..	89	317	..	20	14,693	15,275
Longreach	..	..	..	..	..	..	43	61	..	6,647	2,777	9,566
Lowood	..	..	..	1	..	1,028	20	108	..	2	17,368	18,528
Mackay	..	110	..	36	..	4	289	502	..	15,569	103,040	119,551
Marburg	..	..	..	1	..	..	24	108	..	1	8,734	8,868
Maroochy	..	125	..	3	112	1	1,393	2,913	..	138	32,006	36,691
Maryborough	..	201	..	23	..	810	249	369	1	580	19,738	22,078
Mitchell	..	..	..	11	..	1,486	11	6	..	10,809	59,301	71,624
Mount Isa	..	..	..	..	..	..	..	..	..	..	940	940
Mount Morgan	..	27	..	38	..	7,559	263	173	750	293	57,076	66,179
Mount Perry	..	..	..	..	..	181	3	1	..	602	38,245	39,032
Muttaburra	..	..	..	64	..	2	5	47	24	5,803	4,919	10,900
Nanango	..	137	..	129	23	5,878	707	3,852	768	3,725	95,630	111,465
Norman	..	..	..	..	..	4	5	..	..	103,754	90,173	193,936



Table No. XLII.—continued.  
 RETURN SHOWING THE PURE BREEDS OF CATTLE AS RETURNED IN THE SEVERAL PETTY SESSIONS DISTRICTS OF THE STATE FOR THE YEAR ENDED 31ST DECEMBER, 1929—continued.

Petty Sessions District.	Aberdeen- Angus.	Ayrshire.	Devon.	Friesian.	Guernsey.	Hereford.	Jersey.	Milking Shorthorn and Aust. Illawarra Shorthorn.	Red Polled.	Shorthorn.	Crossed and Unspecified.	Total.
Oakey	..	26	..	36	..	87	175	661	..	293	39,064	40,342
Pittsworth	..	285	..	23	..	160	14	473	8	780	35,465	37,208
Proserpine	..	3	..	20	..	..	17	10	..	204	9,955	10,209
Quilpie	..	..	..	..	..	1,000	..	..	..	4,390	558	5,948
Ravenswood	..	..	..	..	..	..	3	..	..	1,642	11,860	13,505
Redcliffe	..	85	..	..	1	..	35	124	..	..	17,315	17,560
Richmond	..	..	..	..	..	80	85	6	322	20,453	49,078	70,024
Rockhampton	540	67	66	11	..	¶67,476	560	1,855	352	9,492	211,007	291,426
Roma	..	3	..	..	..	**1,583	240	487	5	22,641	43,274	68,233
Rosewood	11	52	..	..	8	130	196	163	..	85	22,384	23,029
St. George	101	..	..	..	..	6	29	20	..	5,101	11,060	16,317
St. Lawrence	389	..	..	..	..	17,633	..	70	40	3,860	69,498	91,490
Somerset	..	..	..	..	..	..	..	..	..	..	820	820
Southport	..	6	..	90	2	..	604	1,129	..	646	31,058	33,537
Springure	32	..	..	..	..	10,462	8	..	3	19,058	63,315	92,878
Stanthorpe	476	..	1	..	1	436	103	..	..	107	8,519	9,643
Surat	..	..	..	..	..	3	24	..	..	8,197	8,563	16,787
Tambo	..	..	..	..	..	..	9	..	..	4,978	12,853	17,840
Taroom	..	..	..	..	..	22,357	..	..	..	20,958	55,427	98,742
Texas	80	..	..	..	..	190	2	210	..	277	6,876	7,635
Thargomindah	..	..	..	..	..	..	..	..	..	17,304	46,007	63,311
Tiaro	..	110	††4	1	..	805	292	2,020	2	32	48,119	51,385
Toogoolawah	15	1	..	389	4	6,180	120	1,182	..	868	42,694	51,453
Toowoomba	..	85	..	3	10	140	161	182	..	790	14,756	16,127
Townsville	..	8	..	61	..	..	71	208	..	1,163	21,311	22,822
Warwick	694	140	50	158	19	267	467	781	28	3,607	37,966	44,177
Wienholt	332	16	..	210	1	14,381	947	4,227	1,674	1,683	96,169	119,640
Windorah	..	..	..	..	..	..	..	..	..	23,270	11,509	34,779
Winton	..	..	..	..	..	..	86	2	..	11,316	6,760	18,164
Woodford	..	4	..	195	66	..	233	475	..	89	20,720	21,782
Wynnum	..	1	..	..	..	..	20	16	..	..	1,386	1,423
Yeulba	..	..	..	..	..	521	..	45	..	1,186	9,116	10,868
Totals	5,666	2,960	1,753	3,134	391	305,154	19,700	49,737	5,612	826,190	3,988,291	5,208,588

\* Including 37 Polled Hereford. † Including 36 Polled Durham. ‡ Including 128 Polled Hereford. § Including 1,301 Polled Durham. || Including 18 Polled Hereford.  
 ¶ Including 574 Polled Hereford. \*\* Including 2 Polled Hereford. †† South Devon.



Table No. XLIII.

RETURN SHOWING NUMBER AND CLASSIFICATION OF SHEEP SHORN AND QUANTITY OF WOOL PRODUCED, TOGETHER WITH THE VALUE OF MACHINERY ON HOLDINGS IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE FOR THE YEAR ENDED 30TH JUNE, 1929.

Pastoral District.	CLASSIFICATION OF SHEEP SHORN AND UNSHORN AT TIME OF SHEARING.										RESULT OF CLIP.					Total Production of Wool expressed as Greasy. *	AVERAGE PER FLEECE IN THE GREASE.				Value of Machinery on Sheep Holdings.			
	Ewes.	Wethers.	Weaners and Hoggats.	Lambs.	Rams.	Total.	Lambs Unshorn.	Grown Sheep Unshorn.	Grand Total.	Greasy.		Average per Bale.	Scoured.		Average per Bale.		1927. 1928. 1929.			Increase or Decrease 1929 over 1928.				
										Bales.	Lb.		Bales.	Lb.			Lb.	Lb.	Lb.			Lb.		
Burke ...	1,198,218	676,679	232,253	274,740	34,434	2,416,324	18,543	93,535	2,528,402	32,731	11,314,995	346	2,091,026	211	15,845,552	5.48	6.76	6.56	-0.20	251,736				
Burnett ...	3,420	980	1,117	601	64	6,132	511	637	7,330	121	32,873	272	...	...	32,873	6.07	5.04	5.32	0.28	895				
Cook ...	2,159	309	370	240	36	3,114	120	10	3,244	51	13,099	257	...	...	13,099	4.15	4.76	4.21	-0.55	415				
Darling Downs	884,788	1,297,610	191,580	159,644	18,744	2,552,366	38,534	120,661	2,711,561	60,921	18,917,368	311	3,018	178	18,923,907	7.08	7.39	7.41	0.02	379,827				
Gregory North	625,677	157,950	97,013	48,395	18,207	947,242	25,216	36,974	1,009,332	12,114	4,244,928	350	927,380	200	6,254,251	5.72	7.05	6.60	-0.45	382,171				
Gregory South	167,269	63,780	16,427	7,565	4,522	259,563	3,390	1,310	264,263	4,681	1,718,480	367	117,880	221	1,973,587	7.83	7.07	7.60	0.53	85,692				
Leichhardt ...	387,555	575,023	112,128	124,471	9,911	1,209,088	8,285	39,454	1,256,827	24,710	7,870,671	319	...	...	7,870,671	5.39	6.65	6.51	-0.14	203,242				
Maranoa ...	1,593,496	994,014	337,428	304,224	36,984	3,266,146	55,422	148,274	3,469,842	75,800	24,391,624	322	238,682	259	24,908,768	7.96	7.57	7.63	0.06	315,430				
Mitchell ...	2,645,057	835,219	681,554	420,154	77,553	4,659,537	123,640	93,358	4,876,535	86,522	30,219,440	349	2,384,533	225	33,385,928	5.88	7.38	7.59	0.21	766,038				
Moreton ...	5,399	5,911	730	385	133	12,553	455	528	13,541	278	80,665	290	...	...	80,665	6.55	5.88	6.42	0.54	1,918				
North Kennedy	2,109	3,245	116	441	51	5,962	150	16	6,128	83	24,507	295	4,091	195	33,371	5.88	6.15	5.60	-0.55	961				
Port Curtis ...	14,515	8,215	4,088	3,021	323	30,162	147	210	30,519	547	158,240	289	...	...	158,240	5.63	5.16	5.25	0.09	6,106				
South Kennedy	58,473	95,616	16,502	23,290	1,841	195,722	72	1,050	196,844	3,888	1,307,502	326	829	166	1,309,298	5.77	7.20	6.69	-0.51	56,591				
Warrego ...	1,466,468	643,534	387,492	334,540	39,868	2,871,902	46,341	87,338	3,005,581	61,232	20,910,075	341	467,111	223	21,922,149	7.51	7.32	7.63	0.31	286,987				
Wide Bay	1,690	493	275	276	28	2,762	283	210	3,255	58	14,703	254	...	...	14,706	5.28	5.13	5.32	0.19	47				
Totals	9,056,293	5,358,578	2,079,073	1,701,987	422,699	18,438,630	321,109	623,465	19,383,204	363,737	121,219,173	333	6,234,550	217	134,727,365	6.60	7.24	7.31	0.07	2,738,056				
Quantity of wool returned greasy but subsequently scoured																28,706	6,234,550	217	134,727,365	6.60	7.24	7.31	0.07	2,738,056
Total remaining in Grease																+ 14,126	+ 3,067,935	...	...	...	...	...	...	...
Total Scoured																42,832	9,302,485	...	...	...	...	...	...	...
Quantity of wool felledmongered...																1,311	294,649	...	...	...	...	...	...	...
Grand Total Scoured and Felledmongered																44,143	9,587,124	...	...	...	...	...	...	...
Estimated quantity of wool on skins other than felledmongered																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...	...	...	...
Total of all Wool Produced expressed as Greasy																...	...	...	...	...	...			

\* "Scoured" wool has been converted into its "Greasy" equivalent on the basis of  $2\frac{1}{4}$  lb. greasy being required to produce 1 lb. scoured wool.

† Based on Oversea Export Value.



Table No. XLIV.

RETURN SHOWING THE TOTAL NUMBER OF SHEEP SHORN AND THE RESULT OF THE CLIP IN EACH OF THE THREE DIVISIONS OF THE STATE FOR THE TWELVE MONTHS ENDED 30TH JUNE, 1929.

Division.	Total Number of Sheep Shorn.	RESULT OF THE CLIP.				Total Clip Expressed as Greasy Wool.  Lb.	Average Weight per Fleece in the Grease.  Lb.	
		Greasy.		Scoured.			1928-29.	1927-28.
		Bales.	Lb.	Bales.	Lb.			
Southern .. ..	9,018,689	204,191	66,377,389	3,564	826,691	68,168,553	7.56	7.41
Central .. ..	6,923,583	125,243	42,998,205	15,202	3,307,104	50,163,597	7.25	7.19
Northern .. ..	2,496,358	34,303	11,843,579	9,940	2,100,755	16,395,215	6.57	6.77
Totals .. ..	18,438,630	363,737	121,219,173	28,706	6,234,550	134,727,365	7.31	7.24

Table No. XLV.

RETURN SHOWING THE BREEDS OF SHEEP IN QUEENSLAND ON 31ST DECEMBER, 1929; ALSO THE NUMBER OF SHEEP UNDER ONE YEAR, AND ONE YEAR AND OVER, ON THAT DATE.

Pastoral District.	BREEDS.				Total Sheep on 31st Dec., 1929.	AGES.		
	Merino.	Pure Breeds other than Merino.	Merino Comeback.	Crossbreeds and *Unspecified.		Under One Year.	One Year and Over.	Unspecified. *
Burke .. ..	2,772,704	..	..	..	2,772,704	501,616	2,260,776	10,312
Burnett .. ..	3,395	a 126	816	3,824	8,161	1,183	5,055	1,923
Cook .. ..	1,330	..	..	1,176	2,506	546	1,646	314
Darling Downs .. ..	2,770,339	b 2,104	105,855	67,234	2,945,532	473,222	2,451,295	21,015
Gregory North .. ..	1,204,975	c 10,633	..	..	1,215,608	253,455	960,673	1,480
Gregory South .. ..	203,830	..	..	..	203,830	32,116	171,614	100
Leichhardt .. ..	1,244,717	d 2	3,280	4,202	1,252,201	176,537	1,075,664	..
Maranoa .. ..	3,521,524	e 2	15,116	5,360	3,542,002	677,956	2,861,250	2,796
Mitchell .. ..	5,331,996	..	1,390	3,686	5,337,072	1,253,669	4,078,846	4,557
Moreton .. ..	9,121	f 640	2,239	6,097	18,097	2,098	13,475	2,524
North Kennedy .. ..	2,977	g 11	900	2,830	6,718	977	4,453	1,288
Port Curtis .. ..	12,820	h 8	4,106	16,272	33,206	5,203	27,216	787
South Kennedy .. ..	243,497	..	200	2,231	245,928	28,134	213,237	4,557
Warrego .. ..	2,732,559	..	2,666	..	2,735,225	537,683	2,184,011	13,531
Wide Bay .. ..	2,248	j 75	1,162	2,028	5,513	682	2,072	2,759
Totals .. ..	20,058,032	13,601	137,730	114,940	20,324,303	3,945,077	16,311,283	67,943
Percentage to total sheep .. ..	98.69	0.07	0.68	0.56	100.00	19.41	80.26	0.33

\* Mainly butchers' and ration sheep.

a Corriedale 121, Romney Marsh 5; b Corriedale 1863, Border Leicester 200, Dorset Horn 1, Romney Marsh 40; c Polwarth; d Border Leicester; e Corriedale; f Corriedale 482, Romney Marsh 158; g Romney Marsh; h Corriedale 7, Border Leicester 1; j Corriedale.

Table No. XLVI.

RETURN SHOWING THE RESULTS OF LAMBING, LOSSES, SHEEP KILLED FOR FOOD ON HOLDINGS, ETC., IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE DURING THE YEAR 1929.

Pastoral District.	Total Sheep as per Stock Returns on 1st Jan., 1929.	Ewes Mated with Rams.	Lambs Marked.	Per-centage of Lambing.	Purchases and Transfers.	Sales and Transfers.	Total Losses.	Killed for Food on Holding.	Total Sheep as per Stock Returns on 31st Dec., 1929.	Skins Obtained. †
Burke .. ..	2,313,118	1,203,899	522,810	43.43	508,967	319,267	231,079	21,845	2,772,704	20,390
Burnett .. ..	7,762	2,056	1,197	58.22	3,214	2,514	1,369	129	8,161	222
Cook .. ..	3,042	1,306	541	41.42	446	717	793	13	2,506	69
Darling Downs .. ..	2,637,366	770,886	478,907	62.12	864,863	780,387	223,416	31,801	2,945,532	33,607
Gregory North .. ..	702,502	550,484	253,796	46.10	432,443	84,696	77,862	10,575	1,215,608	10,685
Gregory South .. ..	221,216	92,723	38,217	41.22	33,947	45,404	41,526	2,620	203,830	2,619
Leichhardt .. ..	1,172,793	362,218	191,563	52.89	321,130	278,997	142,751	11,537	1,252,201	8,608
Maranoa .. ..	3,366,073	1,325,574	721,671	54.44	874,861	1,063,382	309,370	47,851	3,542,002	38,986
Mitchell .. ..	4,893,564	2,558,670	1,392,903	54.44	834,583	1,304,360	420,531	59,087	5,337,072	50,352
Moreton .. ..	20,190	4,273	2,358	55.18	7,809	9,312	2,116	832	18,097	867
North Kennedy .. ..	6,589	2,044	980	47.95	1,339	427	1,704	59	6,718	87
Port Curtis .. ..	29,830	10,288	6,052	58.83	31,889	29,254	4,730	581	33,206	489
South Kennedy .. ..	213,677	54,929	28,512	51.91	68,181	40,153	22,069	2,220	245,928	1,063
Warrego .. ..	2,915,641	1,173,860	616,937	52.56	344,187	730,310	371,161	40,069	2,735,225	40,009
Wide Bay .. ..	5,838	1,292	806	62.38	4,242	4,635	628	110	5,513	109
Totals .. ..	18,509,201	8,114,502	4,257,250	52.46	4,332,101	4,693,815	1,851,105	229,329	20,324,303	208,162

\* Losses of unmarked lambs are not taken into consideration; For details, see Table No. XLVII.

† Year ended 30th June, 1929.



Table No. XLVII.  
RETURN SHOWING DETAILS OF LOSSES IN SHEEP DURING THE YEAR 1929.

Pastoral District.		* LOSSES AND THE CAUSES AS RETURNED BY OWNERS AND THE PERCENTAGE OF EACH CAUSE TO TOTAL LOSSES.																TOTAL LOSSES AND PERCENTAGE TO TOTAL SHEEP ON 31ST DECEMBER.					
		Cancer (Senile Necrosis)		Dingoos.		Drought.		Flood.		Fly.		Lambing.		Old Age.		Shearing.		†Other.		1929.		1928.	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
..	..	11,971	5.18	8,310	3.60	106,767	46.20	3,477	1.50	9,567	4.14	20,420	8.84	48,569	21.02	7,171	3.10	a	14,827	231,079	8.33	280,293	12.12
Burke	..	7	0.51	133	9.72	66	4.82	..	..	27	1.97	52	3.80	125	9.13	24	1.75	b	935	1,369	16.77	1,454	18.73
Burnett	..	10	1.26	270	34.05	50	6.31	10	1.26	22	2.77	56	7.06	120	15.13	4	0.51	c	251	793	31.64	706	23.21
Cook	..	3,271	1.46	10,100	4.52	64,376	28.82	692	0.31	25,675	11.49	20,536	9.19	31,609	14.15	15,901	7.12	d	51,256	223,416	7.58	198,143	7.51
Darling Downs	..	3,658	4.70	1,789	2.30	28,826	37.02	2,013	2.59	3,297	4.23	10,447	13.42	21,134	27.14	3,482	4.47	e	3,216	77,862	6.41	176,121	25.07
Gregory North	..	301	0.72	1,357	3.27	33,717	81.19	430	1.04	2,320	5.59	728	1.75	2,067	4.98	441	1.06	f	165	41,526	20.37	70,674	31.95
Gregory South	..	2,578	1.81	17,743	12.43	40,955	28.69	394	0.28	24,646	17.26	11,866	8.31	26,146	18.32	5,403	3.78	g	13,020	142,751	11.40	113,598	9.69
Leichhardt	..	1,693	0.55	7,939	2.57	203,464	65.77	2,873	0.93	19,661	6.35	26,054	8.42	29,758	9.62	8,010	2.59	h	9,918	309,370	8.73	237,103	7.04
Maranoa	..	12,062	2.87	14,229	3.38	213,220	50.70	2,298	0.55	51,490	12.25	36,408	8.66	70,662	16.80	7,402	1.76	j	12,760	420,531	7.88	376,330	7.69
Mitchell	..	42	1.99	547	25.85	86	4.06	..	..	27	1.28	177	8.36	442	20.89	26	1.23	k	769	2,116	11.69	2,206	10.93
Moreton	..	16	0.94	389	22.83	949	55.69	..	..	44	2.58	62	3.64	79	4.64	30	1.76	l	135	1,704	25.36	3,000	45.53
North Kennedy	..	68	1.44	355	7.50	1,204	25.45	120	2.54	1,100	23.26	358	7.57	597	12.62	46	0.97	m	882	4,730	14.24	6,259	20.98
Port Curtis	..	457	2.07	2,794	12.66	1,173	5.32	..	..	3,202	14.51	2,219	10.05	5,504	24.94	1,598	7.24	n	5,122	22,069	8.97	21,773	10.19
South Kennedy	..	2,876	0.78	11,575	3.12	275,928	74.34	456	0.12	12,190	3.29	20,278	5.46	32,887	8.86	11,950	3.22	o	3,021	371,161	13.57	205,720	7.06
Warrego	..	..	..	236	37.58	1	0.16	4	0.64	..	..	12	1.91	58	9.23	2	0.32	p	315	628	11.39	574	9.83
Wide Bay	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	..	39,010	2.11	77,766	4.20	970,782	52.44	12,767	0.69	153,268	8.28	149,673	8.09	269,757	14.57	61,490	3.32		116,592	1,851,105	9.11	1,693,954	9.15

\* Losses of unmarked lambs are not taken into consideration.

† Causes included in "Other"—

- a. Blight, bogged, domestic dogs, droving, eagle hawks, grass seed, marking, poison, poison weed, rain, travelling.
- b. Crows, eagles, grass seed, poison weed, scrub ticks, worms.
- c. Domestic dogs, poison, scrub tick, worms.
- d. Blight, blout, blood poisoning, bogging, crows, dipping, domestic dogs, drenching, droving, foxes, hawks, heavy rain, marking, poison, poison weed, prickly-pear, pigs, tetanus, travelling, trucking, worms.
- e. Blight, blindness, bogging, burst, droving, eagle hawks, pink eye, poison, poison weed, travelling.
- f. Poison, travelling.
- g. Bogged, cold after rain, eagle hawks, foxes, grass seed, poison, poison weed, spear-grass, staggers, tetanus, worms.
- h. Bogged, crows, dipping, domestic dogs, eagle hawks, foxes, grass seed, marking, pink eye, poison, poison weed, prickly-pear, travelling, worms.
- i. Bogged, crows, domestic dogs, droving, grass seed, hawks, marking, poison, poison weed, wild pigs.
- k. Burst on lucerne, domestic dogs, drenching, poison weed, scrub ticks, worms.
- l. Domestic dogs, grass seed, rain, scrub ticks.
- m. Bloat, droving, grass seed, spear-grass, worms.
- n. Crows, eagle hawks, grass seed, poison, worms.
- o. Bogged, eagle hawks, foxes, grass seed, marking, pink eye, poison, poison weed, worms.
- p. Poison, worms.



Registrar-General.

Registrar-General's Office,  
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