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QUEENSLAND.

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE
AND STOCK

FOR

THE YEAR 1919-1920.

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY COMMAND.

BRISBANE :

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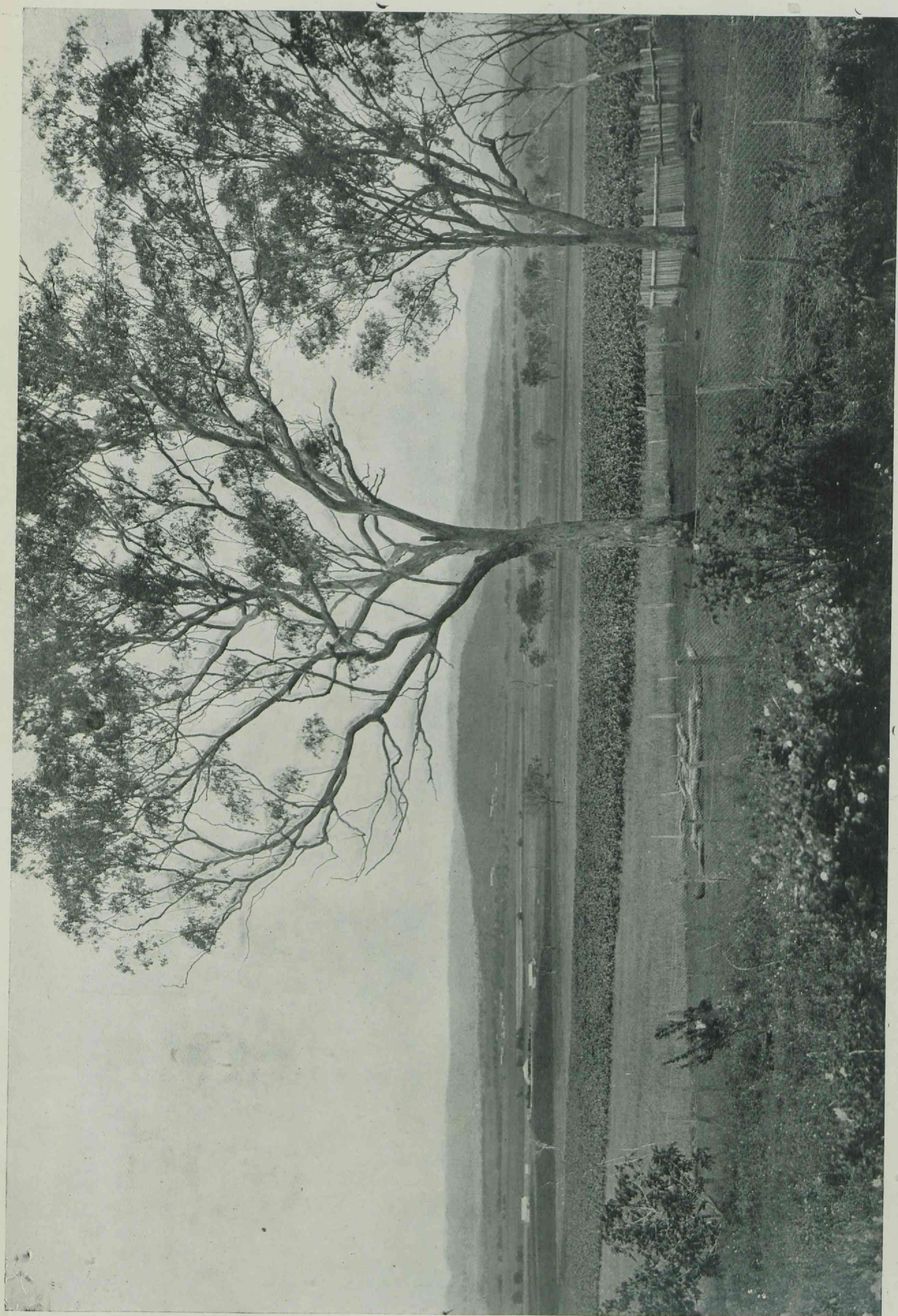
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INDEX.

| | Page. | | Page. |
|--|----------|--|--------|
| Acts— | | Hermitage State Farm | 56 |
| Commerce | 5 | Horse-breeding | 16 |
| Dingoes and Marsupial Destruction | 4-19 | Imports of Fruit, Vegetables, and Plants into Queensland for the Year ending 30th June, 1920 | 53 |
| Fruit Cases | 4 | Instruction to Returned Soldiers | 73 |
| Native Animals' Protection | 21 | Irrigation | 10 |
| Native Birds' Protection | 22 | Juvenile Corn-growers' Competition, 1919-1920 | 14 |
| Pure Seeds | 5, 22 | Kairi State Farm | 56 |
| Pure Seeds and Stock Foods | 22 | Land under Cultivation | 123 |
| Stock Foods | 5 | Maize | 113 |
| Agriculture | 10 | Marsupial Destruction, Particulars of | 20 |
| Agricultural Holdings | 10 | Native Birds' Protection Act | 22 |
| Agricultural Seeds tested under the Pure Seeds Act | 24 | Need for Silos | 3 |
| Analyses of Dairy Products | 32 | Number of Horses, Cattle, Sheep, and Swine in the State | 96 |
| Analyses of Dipping Fluids | 32 | Numbers Engaged in Dairying | 10 |
| Analyses of Fertilisers | 33 | Numbers Engaged in Farming | 2, 10 |
| Analyses of Queensland Soils | 40 | Operations under the Brands Act | 3 |
| Analyses of State Farm Soils | 34 | Payments under the Dingo and Marsupials Destruction Act | 4 |
| Analyses of Stock Foods | 33, 46 | Pineapple Industry | 6 |
| Analyses of Waters | 32 | Pleuropneumonia | 66 |
| Angora Goats | 95 | Poultry | 9 |
| Areas under Certain Crops | 11 | Pure Seeds Act | 5, 22 |
| Area, Yield, and Value of Crops during 1919 | 139 | Queensland Agricultural College | 5 |
| Arrowroot | 118 | Reports— | |
| Average Production per acre of Pineapple Crops | 135 | Chief Dairy Expert | 58 |
| Average Yield of Crops in the State for 1919 | 138 | The Agricultural Chemist | 31 |
| Average Yield of Wheat per acre in each State over 10 years | 110 | The Chief Inspector of Stock | 63 |
| Bacon-curing and Meat-preserving Establishments | 91 | The Curator of the Botanic Gardens | 89 |
| Banana Industry | 6, 121 | The Director of Agriculture | 54 |
| Barley and Malt | 112 | The Director of Fruit Culture | 6, 47 |
| Botanical Museum | 78 | The Government Bacteriologist | 73 |
| Brands Act, Operations under the | 3 | The Government Botanist | 77 |
| Cattle and Sheep | 89 | The Government Statistician | 87-139 |
| Cattle, Sheep, and Lambs Exported | 90 | The Government Veterinary Surgeon, Townsville | 71 |
| Cleansing Areas | 65 | The Principal of the Queensland Agricultural College | 26 |
| Coffee and Cotton | 11, 118 | Seeds Tested | 24 |
| Commerce Act | 5 | Sheep | 69 |
| Conservation of Fodder | 11 | Silos | 54 |
| Co-operative Agricultural Production Act | 18 | State Farms— | |
| Corn-growing Competitions, 1919-1920 | 14 | Hermitage | 56 |
| Cotton in the British Market | 11, 12 | Gindie | 56 |
| Cultivation of Tea and Coffee | 3 | Kairi | 56 |
| Dairy Industry Returns | 126 | Roma | 56 |
| Details of Crops for Each Division | 115 | Warren | 56 |
| Details of Stock in the Principal Districts | 106 | Stock and Meat | 9 |
| Distribution of Seed Wheat, 1915-1920 | 1 | Stock Experiment Stations | 5 |
| Dips | 66 | Stock Movements | 65, 71 |
| Ensilage | 125 | Stock Statistics | 63 |
| Examination of Stallions | 63 | Sugar | 13 |
| Experiment Farm at Home Hill | 56 | Sugar Yield in Queensland for 1919 | 13 |
| Experiment Plots in the Farming Districts | 3 | Tick Board | 64 |
| Export of Fruit and Vegetables for Year ending June, 1920 | 53 | Tobacco | 14 |
| Exports Oversea | 94 | Total Export of Fruit, Vegetables, and Plants under the Quarantine Act | 53 |
| Export Oversea of Certain Articles from Queensland during 1919-1920 | 25 | Total Imports of Fruit, Vegetables, and Plants into Queensland for the Year ending 30th June, 1920 | 53 |
| Export of Fruit, &c., 1919-1920 | 53 | Totals of Stock Slaughtered and Condemned at Slaughter Houses and Bacon Factories for the Year ending 30th June, 1920 | 70 |
| Extent of Land under Cultivation | 128, 134 | Tuberculosis | 67 |
| Extent of Land under Green Crops | 137 | Yield of Sugar for 1919 | 13 |
| Farm at Home Hill | 56 | | |
| Farming Districts, Experiment Plots in | 3 | | |
| Fruit Cases Act | 4 | | |
| Green Crops, 1919 | 137 | | |
| Gross Produce of Principal Crops, 1919 | 131 | | |



MAIZE AT GLENGALLAN.

REPORT OF THE DEPARTMENT OF AGRICULTURE AND STOCK FOR THE YEAR 1919-20.

TO THE HONOURABLE THE SECRETARY FOR AGRICULTURE AND STOCK.

SIR,—I have the honour to submit my Report on this Department for the year ending 30th June, 1920.

The year has been very severe upon rural industries throughout the State, and following as it did preceding years of drought, the effects have been greater as regards losses than perhaps the climatic conditions would have caused. In actual rainfall the year was slightly better than its forerunner, and the indications would seem to favour a change very much for the better for 1921-22. In certain quarters, losses have been very heavy, and it has been necessary for the Government to again come to the help of the farmers on the Downs with fodder and seed wheat, thus making two consecutive years during which the Government has supplied seed wheat and fodder. In December last, in consequence of the representations of the Downs branches of the Queensland Farmers' Union through the Central Executive at Toowoomba, the manager of the State Produce Agency went South and purchased a large quantity of fodder, but when it reached here the Queensland Farmers' Union at Toowoomba did not fulfil their undertaking, probably owing to the rains that fell in January, and the fodder was left upon the hands of the Government and had to be sold in the open market. The distributions by the Department, mainly on account of the situation, have been upon the Downs, and consisted of seed wheat in 1914-15, 1915-16, seed wheat and barley 1918-19, and seed wheat through the State Produce Agency in 1919-20. The distributions of seed wheat since 1915 have been—

| | Seed Wheat Purchased. | Distributed to Farmers. | Surplus Sound Wheat Sold. | Grading and Inferior Wheat Sold. |
|---------|-----------------------|-------------------------|---------------------------|----------------------------------|
| | Bushels. | Bushels. | Bushels. | Bushels. |
| 1915 .. | 55,012 | 45,781 | 430 | 8,801 |
| 1916 .. | 99,161 | 87,750 | 6,334 | 5,077 |
| 1919 .. | 36,614 | 14,043 | 21,258 | 1,313 |
| 1920 .. | 12,684 | 8,966 | 3,362 | 356 |

Fodder was distributed in 1915-16, and has been distributed this year in addition to the purchase in December above referred to. Excepting in isolated cases, the coast country has managed to pull through, notwithstanding the many losses in individual cases, and there has been no general demand for the financial help of the Government from that quarter. Neither has there been any demand from the Northern sugarcane-growing areas, excepting

from a small area where the dry weather has been severely felt. The change in the climatic conditions during the month of June has given great hopes that, for a period at least, a stop has been put to the losses among our stock; but there is not yet a sufficient activity indicated among the farming community in the direction of the preservation of fodder for future periods of shortage. Silos have, it is true, been erected or are in the course of erection, but more interest is necessary, and more use should be made of the opportunities offered under the Co-operative Agricultural Production Act, which, among other things, provides for help towards the erection of silos.

The opening of Harvey's Fruit Fly Lure for use by the general public, an event that is looked upon as of great importance to fruit-growers, has not yet been consummated. The departmental officers one and all have been quite ready to carry out the exhaustive experiments necessary to determine the value of the lure, and are only awaiting the co-operation of Mr. Harvey in that respect. Notwithstanding that the issues in connection with this matter are so important, it is impossible to do so until the Minister is fully convinced that it can be recommended to the public.

The agricultural and pastoral section of the Queensland exhibit sent to the Australian Natives' Association exhibitions in Melbourne and Adelaide were not, owing to the drought and the consequent difficulties arising therefrom, quite up to the usual standard; but nevertheless, judging from the comments of the Southern Press, it was quite equal to, if it did not eclipse, the exhibits from the other States, and was looked upon as a capital advertisement of the possibilities of this State. The conditions under which it was decided that starving stock would be carried upon the railways, to and from agistment country, and which have been in force since 1st June last, have, probably owing to the change in the weather which provided herbage, not been availed of to the extent which was expected when the concession was granted. So far as the public interested were concerned, the conditions were—

That starving stock could be travelled to and from relief country at half rates during the four months ending 30th September, 1920.

If the owner sold the stock before returning them to the place they originally came from, he would have to pay full rates to and fro.

The difference between full and the concession rate, &c., is to be paid by this Department to the Railway Department from a special fund created for that purpose.

The continuation of the tables indicating the proportion of the population engaged in agricultural and pastoral occupations to the total population should now be of some use to those who are interested in the settlement of

people upon the land and the progress thereof, in comparison with the urban population. It may be mentioned that anyone considering these figures should remember that they cover periods of war and drought, but it is clear that the towns are still increasing at the expense of the rural industries.

| | Number of Owners Engaged in Cultivation. | Proportion to Population. |
|--------------|--|---------------------------|
| 1914 | 22,048 | 3·258 |
| 1915 | 22,095 | 3·255 |
| 1916 | 23,077 | 3·447 |
| 1917 | 23,053 | 3·32 |
| 1918 | 22,098 | 3·18 |
| 1919 | 22,126 | 3·00 |

CATTLE.

| Year. | Number of Persons Owning up to 300 Head. | Proportion to Population. | Number of Persons Owning 301 to 1,000 Head. | Proportion to Population. | Number of Persons Owning over 1,000 Head. | Proportion to Population. |
|--------------|--|---------------------------|---|---------------------------|---|---------------------------|
| 1914 | 37,955 | 5·608 | 983 | ·145 | 778 | ·114 |
| 1915 | 38,437 | 5·663 | 943 | ·139 | 671 | ·098 |
| 1916 | 38,015 | 5·679 | 1,010 | ·150 | 702 | ·104 |
| 1917 | 38,720 | 5·59 | 1,145 | ·16 | 799 | ·11 |
| 1918 | 40,560 | 5·84 | 1,356 | ·195 | 819 | ·117 |
| 1919 | 41,315 | 5·65 | 1,411 | ·191 | 850 | ·115 |

SHEEP.

| Year. | Number of Owners up to 1,000. | Proportion to Population. | Number of Owners from 1,001 to 5,000. | Proportion to Population. | Number of Owners from 5,001 to 10,000. | Proportion to Population. | Number of Owners Owning over 10,000. | Proportion to Population. |
|-------|-------------------------------|---------------------------|---------------------------------------|---------------------------|--|---------------------------|--------------------------------------|---------------------------|
| 1914 | 1,873 | ·276 | 940 | ·138 | 349 | ·0515 | 557 | ·082 |
| 1915 | 2,447 | ·360 | 934 | ·137 | 339 | ·0499 | 371 | ·054 |
| 1916 | 2,428 | ·362 | 888 | ·132 | 301 | ·044 | 369 | ·055 |
| 1917 | 2,393 | ·345 | 898 | ·129 | 317 | ·045 | 400 | ·057 |
| 1918 | 2,320 | ·334 | 938 | ·135 | 327 | ·047 | 445 | ·064 |
| 1919 | 2,408 | ·327 | 965 | ·131 | 341 | ·046 | 416 | ·056 |

An attempt has been made to ascertain, as shown in the following table, the value of the primary rural industries with which this Department is connected upon an average valuation for the year 1919. The figures, which, it must be remembered, are for a drought year, do not include anything that has been manufactured, such as butter, first values only having been sought; and if the values of other primary resources, such as timber, mining, fisheries industries, and so on, be added, an interesting result would be obtained. The value of the products of stock in the form of meat, fats, oils, lard, tallow, &c., have not been included, because in a degree they are manufactured:—

| | £ |
|---|--------------------|
| Stock (horses, cattle, sheep, pigs, mules, camels, goats) | 43,651,667 |
| Milk | 3,143,701 |
| Wool, etc. | 8,606,747 |
| Crops | 6,297,079 |
| Poultry and eggs | 354,665 |
| Bee products | 24,775 |
| Hides and skins, bones, hoofs, horns, hair, &c. | 880,042 |
| Total | £62,958,676 |

It may be interesting here to record the commencement of Australian rural wealth. It was about 1789 that a beginning was made by Captain Phillip, in New South Wales, with about 7 horses, 6 head of cattle, 29 sheep, 12 pigs, and a few goats. The first sowing of economic plants was also carried out by Captain Phillip with the planting of 8 acres of wheat in 1788. Now there are in Australia, say, 2,498,940 horses, 11,956,024 head of cattle, 84,965,012 sheep, 1,168,989 pigs, a quarter of a million of goats, and about 14,298,982 acres under crop.

The export overseas trade for last year, compared to the whole, fell from 16·82 per cent. in 1918 to 6·78 per cent. in 1919, but this may be attributed to want of shipping to a great extent. The pastoral products exports, on the other hand, rose from 80·36 per cent. to 89·66 per cent., and adding these figures together it will be seen that the agricultural and pastoral products together comprised 96·44 per cent. of the whole. The export value of the agricultural products was £842,623, and the pastoral £11,142,243.

The growth of instruction work and the encouragement by experiment plots of additional crops in the farming districts have caused an expansion of the Instructional Staff by the appointment of three Assistant Instructors, one for each division of the State.

In the South, there were plots in twenty-one places, the number being 56 and covering 272 acres with maize, sorghums, broom millet, cotton, potatoes, wheat, &c., the resulting seed from which is for sale to farmers, who are thus assured of obtaining first quality seed. Had the seasons been anything near normal, the plot would have covered a much larger area, but 1919 was not a year in which any risk could be taken. General agricultural instruction, other than personal, was given in many places, and, where circumstances would permit, demonstrations in the conservation of fodder were also undertaken.

The Central district was, with regard to climate, an equal, if not a greater, sufferer than the Southern district; but, when possible, a similar course of instruction and demonstration was carried on. The system is now being developed, but the method followed by the Department, of bringing instruction right to the settler's door, was, in its initiation, received with some reluctance by the farmers, in relation to co-operation and assistance. That phase has now been passed, and these important elements to success are freely offered. A feature of the work in the Central district was demonstration work in crops suitable for pig-raising, and the experiments being made upon areas of 1 acre each in six different localities. The crops were different varieties of mangels, swedes, beet, rape, and Belgian carrot, and, considering the season, were very successful, and further plots have been arranged for this season. Mr. Brooks has also undertaken the classification of the different sweet potatoes grown here, concerning the qualities of which much attention has not yet been paid. The information gathered by him will be of considerable interest and value, and will be published later.

The erection of permanent silos in this district has not yet received much attention, but as the Central district is within the dry belt the need for silos is of great importance. The Northern district has not had the benefits of an Instructor sufficiently long to allow him to properly organise his work, and it being a district of long distances and inconvenient communication, his work was much hindered by disturbances in shipping during the year. Nevertheless, much instruction was given, the help of the Press being utilised, and, when possible, visits were made to different localities for instructional and demonstration work. The tableland

at Atherton being the most advanced farming area in this district, experiment work was more concentrated there, and covered a somewhat large range, such as Sudan grass, potatoes, tobacco, peanuts, green feed, wheat, sorghums, pig feed, millets, maize, rice, cowpea, taro, manurial experiments, &c., but this work was greatly hampered by the very dry conditions of the year.

Nothing has yet been done in this State towards the cultivation of tea for home consumption. Of course, it is out of the question to imagine that there can be competition from a commercial point of view with the imports so long as tea retains its favoured position in the tariff. But with the heavy cost of living and the high price of materials and implements, it would seem to be wise to reduce the cost of living wherever possible, and in the cultivation of tea there is an opportunity for every farmer in the State to provide this commodity for his own domestic consumption. It is a plant that is easy to cultivate, and it will thrive in almost any part of Queensland; the preparation of it for consumption is simple, and though perhaps a result equal in appearance to the commercial article might not be achieved, yet the value would be there.

Australia is the largest tea-drinking country in the world, and the consumption for each individual, in which all children are included, is equal to 9 lb. a year, nearly three-quarters of the quantity consumed coming from India, and the balance from China. There is no duty on the importation of tea into Australia, consequently there is no hope so long as that position remains of attempting to grow tea commercially, but for consumption in the home it is very possible in districts where it can be grown.

In a somewhat similar manner the same may be said of coffee, which will also thrive in many parts of Queensland. My last Annual Report disclosed the opinion of connoisseurs in Great Britain upon the quality of the coffee grown upon our coast lands, and though the cost of harvesting the berries commercially is at present a handicap, that reason does not apply to harvesting the quantity needed for family consumption. Certainly the preparation of coffee for consumption is not so simple as the preparation of tea for a like purpose, but the difficulties could easily be overcome for small quantities that are not intended for sale in the market.

The operations under the Brands Act show an increase of nearly 100 per cent. upon the preceding year in the registration of 3-piece brands, and apparently the new series introduced during the year, which permits the use of designs such as designs of hearts, diamonds,

clubs, spades, in conjunction with numerals, has given considerable satisfaction to owners. The cancellation of brands and the registration of symbol brands did not come up to the usual number in a year, but on the other hand there was a comparative increase in the number of horse, cattle, and sheep brands transferred.

There are still many irregularities in branding, some, perhaps, but not many, through ignorance, notwithstanding that the rules of branding are printed on the registration form, and prosecutions have been initiated. Correct branding is an important essential as a safeguard against cattle stealing, and this practice is unfortunately rife in some parts of the State. An interesting feature of the operations of last year has been the many applications, notably from the north-west, for brands that with little ingenuity can be altered, or, to use a common expression, faked, to the brand of a neighbour, and the frequency of requests for the return of the fee when the application has been refused owing to the possibility of confusion with an existing brand.

Under the Dingo and Marsupial Destruction Act, the total bonuses paid by Boards amounted to £43,781 18s. 4d. during 1919, upon which a subsidy of £5,000 was paid. The nearest approach to this sum was in 1898-9, when £44,392 was paid over, the Government subsidy in that year being £13,030. In 1918 the bonus paid by Boards was £17,264. The total number of wallabies, bandicoots, paddamelons, kangaroo rats, dingoes, and foxes, on the scalps of which bonus was paid was 204,420 animals, the number for the preceding year having been 238,799 animals. Since 1877, bonus amounting to £803,627 has been paid for the destruction of these animals, and the Government subsidy during that time has totalled £304,382.

The destruction of stock by dingoes and foxes is becoming such a serious matter to owners that more restrictive measures are necessary. Were the cattle-owners to view the danger from these pests in the same light as the sheep-owners, there would be no complaints, as there are relative to the administration or want of administration by Dingo Boards in some parts of the country. There is no getting away from the fact that the portion of the community who are directly and financially interested in the destruction of the dingoes and foxes do not accomplish what they could do in that direction, and the time seems to be nearing when the abolition of the endowment should be considered and compulsory destruction enforced.

The Fruit Cases Act has created a revolution in the fruit trade with regard to the methods for placing fruit upon the market and to the

uniformity of the fruit contained in a case; but there is yet much to be done to achieve a like improvement in the farm produce sent to market. Honesty in trade is a good principle, but this cannot be applied to goods offered for sale with an excessive weight of timber for straps, to maize with too much moisture, or to clods of earth in a bale, to give extra weight; yet these and other tricks are not unknown to produce dealers and merchants. It is an axiom of business that the buyer purchases what he needs, yet here some people seem to think that the buyer should take what the seller pleases, and in any form of get-up, but a little inquiry must convince the producer that such practices are not profitable in the long run.

There is in good seasons a considerable trade with the Southern States with cereals, such as maize, but there is no machinery to maintain the reputation of this State with regard to quality. Maize with too much moisture or inferior in quality (and the same can be said of other goods) can be sent South without restriction, and such a condition of affairs does not reflect credit upon the State, nor is it good business. In the wheat-producing States, a f.a.q. standard for wheat is annually set up, and buying and selling is done upon that basis, and similar standards of weight and quality should also operate with regard to maize, of which, according to Knibbs, this State produces but little short of half of the total Commonwealth production. The total for 1917-18, the last figures available, was 8,843,260 bushels, of which Queensland was responsible for 4,188,586 bushels.

Under the Pure Seeds Act, Mr. Coleman, who is in charge, tested 2,021 samples as against 467 samples in 1915, when the Act came into operation. The benefits of the Act are now better understood, and the demand has caused the need for an increase in the plant and Staff, and were every farmer to remember that, provided he complies with the conditions which are easily obtainable, he can have seeds tested that he intends to sow (not sell) free of charge, there would be many less disappointments at the germination of seeds. There were five prosecutions during the year for selling seeds containing a larger proportion of foreign ingredients than is allowed, and it should be well understood by seedsmen that it is necessary to sell a clean article. Objection was raised to the term "low grade" for inferior seed, and the Regulations have been altered to permit the change of the name of inferior seed to "Grade B." The schedule at the end of the details of work under the Pure Seeds Act in another part of this Report shows particulars of analyses that have been made.

The Stock Foods Act can hardly be said to be in full operation yet, because it was necessary to give time to the merchants for the better understanding of the Act, and a reasonable time for the adjustment of stocks in hand at the time of passing the Act. Mr. Coleman has, however, visited the principal towns, explained the provisions of the Act, and made the necessary arrangements in each centre for carrying it out.

The drought was undoubtedly the reason for the reduction in the analyses carried out by the Agricultural Chemist, the number being 3,275, as against 6,574 in 1918-19.

The soils of the Queensland Agricultural College and of the State Farms were again analysed by the Agricultural Chemist, some of them after a lapse of twenty years, and his report upon this subject is interesting reading, from a comparative point of view, and by the application of the findings to other farms that have been under cultivation for many years. Liming experiments directed by the Agricultural Chemist under the control of the Principal are being carried out, and the results will be published later.

The position with regard to the composition of the dipping fluids submitted by owners of dips is still disappointing, and shows that only a percentage of the fluids can be considered effective. This finding of the Agricultural Chemist is illuminating in the light of the objection of some owners to the need for the periodical testing of the dip mixtures used by them, on the ground that they are quite competent to decide upon the effectiveness of a dip mixture. The effect of the drought was illustrated in the number of samples of water submitted for analysis, but, unfortunately, this year in the majority of cases the water was found, on account of high salinity, to be unfit for stock or for irrigation.

The work of analysing the dairy produce samples under the Commerce Act, which had been removed from this Department by the Customs Department, was resumed during the year, and much interesting and valuable information for use in the system of dairy education is again at the service of this Department.

At the Stock Experiment Station, 140 stud animals of different breeds were inoculated against tick fever, and in addition 1,472 animals, many of which were pure breds, were directly treated by officers of the Station. In addition, 24 animals, after being properly prepared, were sold to the stockowners for use as breeders. The Government Bacteriologist describes an improvement in the methods of testing bleeders which is reliable and facilitates the preparedness of bleeders when urgently required. The interest

in the use of the blackleg vaccine manufactured at the Station continues, and sufficient was supplied during the year to treat 15,758 calves.

The investigations of the year covered feeding experiments with plants suspected of possessing poisonous properties, such as the elderberry, the Russian thistle, groundsel tree, Dutchman's pipe, tie bush, clematis, &c., but negative results, published in the *Agricultural Journal*, were obtained. An important investigation was also made with regard to the development of mould fungi on butter paper; bacterial flora in ensilage also had attention, as did many samples of milk and water submitted by manufacturing companies for bacterial examination by the Government Bacteriologist. There were many blood specimens examined, and other subjects, details of which are given in the Report by Mr. Pound.

The Government Bacteriologist again draws attention to the need for further land, so as to permit the proper isolation of the station from contamination by animals running on the roads, &c. That this additional room is essential is emphasised by the necessity for spraying animals unloaded at the siding before being placed in the stalls—animals that are known to have been clean when leaving their homes.

The Principal of the Queensland Agricultural College writes that the dominating trouble of the year, not only at the College but in the Lockyer district generally, was the drought and the effects of it. Notwithstanding this affliction upon the farmers, from 200 to 300 found time to visit the College during the year, and it may be safely said that many of them took heed to the advice given them, particularly upon fodder conservation, and that many head of cattle were saved thereby. At Toowoomba and Ipswich Shows, demonstrations were made by the College upon silage-making, and lectures, which were well attended, were successful, and remembering that the rainfall in the Lockyer district for the last four years has been far below normal in summer and in winter, these efforts to educate farmers in the need for preparing against bad times should have good results.

Since the establishment of the College in 1897, fourteen hundred and sixty-nine people have received instruction, of whom 139 were returned soldiers, and 159 sons of farmers attended the Winter Schools, which have now become annual. This year there were 30 in attendance.

The area of the College is just under 1,700 acres, of which there are 632 acres under cultivation, and though the Staff has been able to handle this area during the dry years, it will be insufficient when seasons again become normal.

The system of helping the farmers in the immediate neighbourhood, who are unable to send their cream to a factory, has been continued satisfactorily, in so far that there has been no loss, but as the education of the students and the necessary employment of the students in the factory is so mixed up in the business, it is somewhat difficult to work the accounts upon an ordinary commercial basis.

The Principal, in his Report, supplies details of the receipts and expenditure in the different branches of the College activities.

The Director of Fruit Culture draws attention to the need of conserving water in connection with fruit culture, as a result of 28 years of experience in different parts of the Commonwealth, and that until we do so there will not be the satisfaction and returns to be derived from a dependence upon regular results to be brought about by such means. He further points out that dependence upon the natural rainfall, as we now do, is apt to bring about a carelessness in our cultivation that diminishes our returns even under those circumstances.

The favourable season following on the abnormal dry weather has brought about a very early development of fruit trees and vegetables generally, to the detriment in quality of the product in comparison with normal crops.

The banana industry is now practically confined to Southern Queensland, and the demand for suitable land is now very high; indeed, at the present rate it will soon be hard to find suitable land for the purpose, notwithstanding the very high price people are willing to pay. Every help is being given to further the industry, and the experiment plots have been continued, especially those having for their object the treatment of plants prior to planting to make them resistant to eelworms, nematodes, and other enemies, and an explanation of the process is given by Mr. Benson in his report. The beetle-borer pest has obtained a strong hold in the plantations, details of which are given by the Director, and the position is so important at the present that the question of a quarantine station, whence sound plants can be distributed, has become a necessity. The disease locally known as "cabbage top" or "bunchy top" is also prevalent, and investigations made in New South Wales into the disease have not produced results that are satisfactory. Upon this disease and upon the beetle-borer, the Entomologist has somewhat to say in his report.

The area of pineapple-planting has considerably increased during the year, and the market for this fruit is favourable. An export trade in canned pines has been established, and it is for the packers to retain their market by scrupulously attending to the wants of their buyers, and by presenting their wares in the best possible form.

Unfortunately, the reports from London indicate that all packers are not commercially honest in their dealings, and canned goods have reached the London market from Queensland that are not up to standard or even to invoice.

The Director of Fruit Culture deals in an interesting manner with the principal fruit, and his work under the Acts of Parliament with which he is associated—the Fruit Cases Act and the Diseases in Plants Act—and refers to the organisation of fruitgrowers for the advantage of trade, and to the work performed by this Department for the Commonwealth under the Quarantine and Commerce Acts.

Figures are also shown giving the imports and exports of fruit and vegetables.

The Director of Agriculture has found that there has been progress in the conservation of fodder, but what has been done is not nearly enough. In 1918, the Government Statistician ascertained that there were 3,541 tons of ensilage; but last year, from the investigations of the Dairy Inspectors, included in the report of the Director, about 19,300 tons were prepared, of which 12,479 tons were in the form of stack silage. As a corollary to the question of fodder conservation is the storage, grading, and drying of maize. This is an essential to a proper value being obtained, especially in the North, where so much moisture helps towards deterioration. There are many uses to which maize is put, and Northern as well as Southern growers suffer in value because they have to take a lesser price for manufacturing purposes when sent South than if manufactured here. The first step, however, is to secure provision for storing maize, and afterwards the manufacture of products might be undertaken. The unfavourable weather of last year brought the wheat crops very low, but the present promising season, coupled with the decision of the Government to guarantee 8s. a bushel for sound milling wheat for the 1920 harvest, has placed a very different aspect upon affairs in the wheat growing districts, but it will be many years before Queensland supplies herself. The Director, in his report, traverses in full this and other crops in which interest is now being taken, and describes the operations at the new undertaking at Home Hill, where an irrigation farm is in course of preparation. He also reports upon the operations at the several existing State Farms.

The Chief Dairy Expert, though acknowledging an expansion of interest in the conservation of fodder, deplors the smallness of the volume of it in a State where dairying is of so much importance, and especially so during last year, when the indigenous and natural grasses were famished for lack of moisture. Mr. Graham illustrates in his report the insecurity of the dairy farmer and the industry generally, because

of the neglect to provide reserves of fodder for the dairy herds, and points out the want of foresight in having to pay in a dry time up to, say, £20 a ton for fodder introduced from other States as against ensilage which under normal conditions could be raised on a farm and stored at, say, £1 5s. a ton. In other dairying countries the interest in the preparation of ensilage has been aroused, and crops are annually raised for that purpose, but here such systematic methods have not been generally adopted. It has been said that the seasonal conditions are frequently unsuitable for the cultivation of suitable crops, but Mr. Graham answers this objection by pointing out that during the dry period just ended the actual increase in the aggregate tonnage of prepared ensilage was the greatest on record. Although the production of milk was seriously diminished, the market price of all dairy produce was higher last season, and thus the monetary returns from dairy produce prevented losses that the reduction in production might reasonably be taken to indicate.

The manufacture of butter still claims the prior place in the dairying industry, but the manufacture of cheese has made great advances. Several additional butter factories were erected, and one was destroyed by fire. Mr. Graham finds an improvement in the quality of the manufactured product, and that the neutralisation and pasteurisation of cream supplies has been more generally adopted, to the advantage of the keeping qualities, though the inspection has shown that in the case of some factories more care and improvement are necessary. The surplus butter has throughout the year been exported overseas or to fill shortage in the other States, and as the opportunities of war contracts are coming and have come to an end, circumstances will alter for the trade. The unseasonable weather last year throughout Australia was responsible for local values going up to 228s. 4d. a cwt., but even at this price there is a great disparity, which is not covered by charges, freight, &c., between values in Great Britain and here.

The cheese factories, perhaps, suffered more than the butter factories from the dry season, and several of the smaller factories had to discontinue operations. All surplus cheese above local and interstate requirements went to Europe, but there were difficulties with regard to shipping, and despatch was delayed. Mr. Graham has a high opinion upon the possibilities of the manufacture of cheese in Queensland, and his remarks thereon will be of interest to those who favour this industry. There are about 100 cheese factories in this State now in operation, and they rank among the principal contributors to the export trade from Australia.

The number of dairy cows does not increase; indeed, the reverse is the case. The total number of dairy cows returned to the Government Statistician, whether dry or in milk, was 373,146, as against 381,505 in 1918, the greatest number held during the last ten years being 399,508 in 1917. The total milk obtained also fell from 87,580,098 gallons in 1918 to 71,856,038 gallons in 1919, but this to a great extent is to be attributed to the dry weather and to the want of conserved fodder to meet these bad times. Excluding the milk used for other purposes than manufacture, the quantity of butter made was 26,213,514 lb., cheese 8,296,318 lb., and 9,170,034 lb. of condensed milk. The quantity of butter exported for the season 1818-19 was 7,839,356 lb., valued at £608,587.

The Chief Inspector of Stock, in an interesting report which should be read by those who own stock, mentions that of the horses exported during the year, about one-third were mares, and as the buyers were not likely to have chosen the worst animals, the country is the worse off in regard to its horse stock by that number. This complaint is frequently referred to in the Annual Report, but no remedy can be taken by the State, because the control of export is with the Federal Government, which for a time during the war prohibited the export, but now has removed the ban.

The prosecutions relating to diseases in stock and under the Slaughtering Act numbered 122 for the year, and in 120 cases a conviction was obtained.

The Veterinary Staff inspected 105 stallions for certificates of registration, of which 22 were rejected, but this represents only those animals which were brought to the show ring, and is but a small proportion of the number of the stallions in the State (about 8,000), and consequently the effects of the registration will be minimised until legislation compels the registration of all stallions.

The work of the cleansing areas was necessarily hampered through the drought, owing to the poverty of the stock in many places, but notwithstanding this, 57 holdings in the Helidon district, covering about 10,000 acres, were declared free of ticks, and this year a further area will be released. The report of the Chief Inspector gives details of the inspections in this area and in the Burnett, Miles-Chinchilla, and Tallebudgera districts, where cleansing areas have been established. There are now 3,795 dips known to be in operation in the State, and to keep them in efficiency as far as possible Stock Inspectors are supplied with portable dip testers, which should also be in the possession of dip-owners.

There was a reduction in outbreaks of pleuro-pneumonia, the number reported being 62, as against 106 in the preceding year, and of 160 head of cattle tested for tuberculosis, but one was pronounced; three were doubtful, and will have to be again tested.

Several investigations were made by the Veterinary Staff into suspected cases of poisoning and disease, details of which are given by the Chief Inspector, and of these, what is known as the "North Coast disease" may be mentioned as being of importance.

An apparently new disease amongst wild pigs was discovered amongst those sent for slaughter, and was determined to be a parasitic mange, and it seems that it does not spread to domestic pigs. The area affected, so far as is known, is in the region from 10 miles to the north and 30 miles to the south of Townsville.

A table of condemnations under the Slaughtering Act is given as a result of the operations of the Act, which show an increase in the number of the cattle, sheep, and pigs slaughtered in the State for human consumption, but a decrease in the number of pigs—which latter can in a measure be attributed to the season, which did not provide material for fattening.

The establishment of an Experiment Farm on the Home Hill irrigation area has received the unanimous approval of the farmers in the vicinity, who realise that their interests will be well served by the investigation and instruction work to be carried out at such an institution. Part of the Experiment Farm area forms portion of the Town Reserve site, 98 acres of land of fair quality having been taken for this purpose—land somewhat uneven in character and contour, but nevertheless adaptable as a site for buildings and for a citrus orchard, pines, and other fruits, and for a number of other minor crops. To complete the holding, an additional 106 acres were recently resumed. This block is considered to be typical of much of the forest country on Inkerman, and it is on this area that it is proposed to undertake the principal part of the experiment work associated with cane production.

The part to be played by an experiment farm and its relation to the larger issues involved in the main irrigation scheme, is fully realised, and it is proposed to demonstrate the several methods of applying water economically to various crops in addition to sugar, so as to encourage general agriculture, not only on the Burdekin, but also in other districts, thus inducing farmers to grow many crops that are now brought as fodder from the South, such as chaffs of various kinds, potatoes, &c. Irrigation has been carried out on the Lower Burdekin for a very long time, but, for some unknown preju-

dice, the preliminary grading of the land has been overlooked. It does not seem to be sufficiently well known that a very careful contour survey has been made of the whole irrigation area by the executive engineer at Home Hill, and it is an anomaly to persons possessing a knowledge of the economic application of water to know that there should be any hesitation on the part of farmers in making use of the data available; in fact, it is vital to the success of such a scheme that water should be easily carried and cheaply applied to any part of the irrigated area.

The Experiment Farm will serve also as a demonstration area, and at the present time a gang of twelve day-men and a foreman are pushing on with the clearing operations, and doing good work. About 60 acres have been cleared and deeply grubbed by day labour, and the ploughing of the cleared area is to be undertaken immediately.

An initial scheme and design for irrigation has been prepared, and development work of this character is to be pushed on with as soon as the land is graded. In this way the farmers will have an opportunity of gaining firsthand information concerning modern methods in the preparation of land.

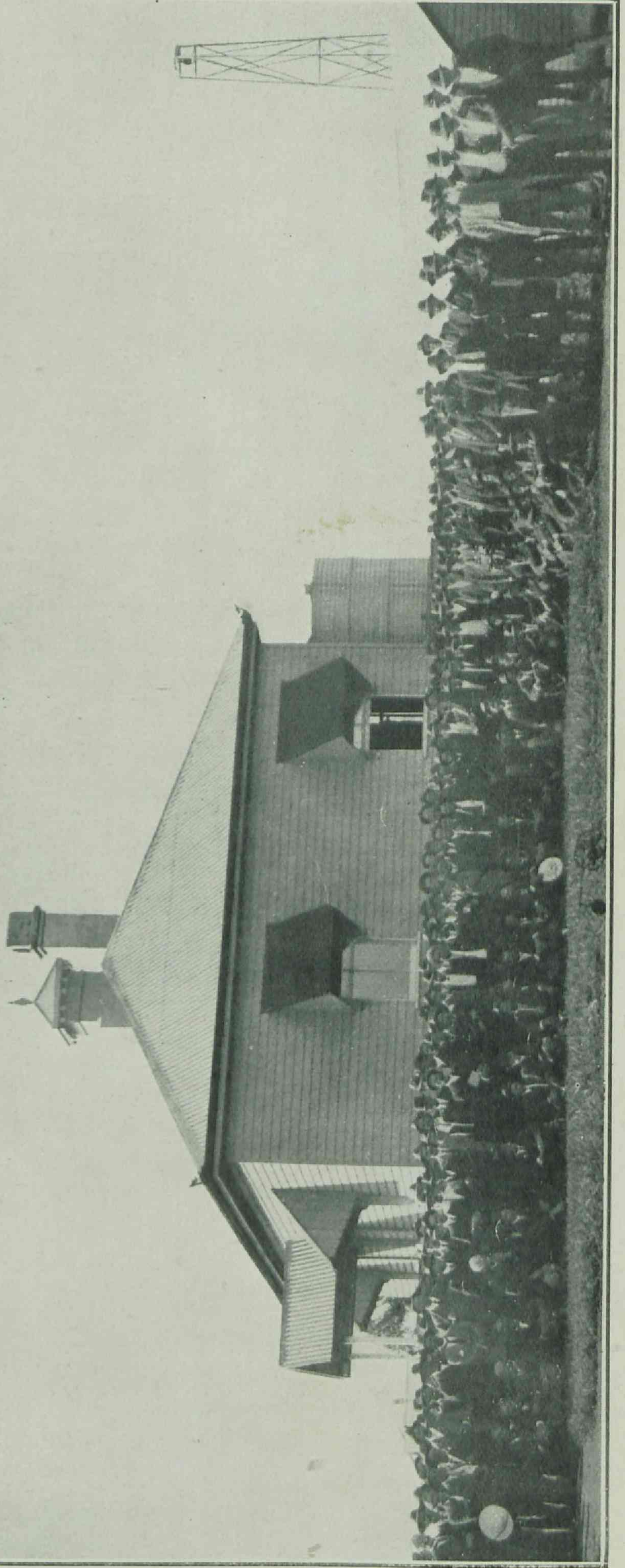
WOOL.

The instruction to farmers who own sheep up to 1,500 head was continued with success during the year, and the gross value of the wool received at this Office on owners' account amounted to £13,000. The Sheep and Wool Instructors were fully employed, and with the return to normal times it is anticipated that the wool received for classification will annually increase. Mr. Brown has continued the blow-fly experiments at Dalmally on behalf of the Science and Industry Bureau—experiments that are entirely based upon and follow the work done by him at the State Farm, Goondi—and the method advocated, viz., that of jetting the sheep with a poisonous dip is now becoming known, and is used throughout Australia. A Bulletin or pamphlet on sheep matters that is in the Press should be of great use to those who contemplate keeping a small number of sheep in conjunction with general farming.

Notwithstanding a reduction of 4.62 per cent. in the number of sheep, the estimated value of the production of wool amounts to £8,606,747 as against £8,177,741 in 1918, the average value of the greasy wool exported being 17½d. a pound, and of scoured wool 28d. a pound.

The quantity of scoured wool used within the State for manufacturing purposes was returned at 122,814 lb. only, a very small total in a State that produces so many sheep, but on the

SUGAR EXPERIMENT STATION, MACKAY.



GENERAL SUPERINTENDENT AND STAFF.

FIELD DAY ON THE STATION.

other hand the value of our wool exported over-sea is set down at £6,765,217, to which must be added the quantity sold through the Southern States and exported from Southern ports. These figures indicate that the movement to increase the local manufacturing plants and retain the profits within Australia is one that should have been started many years ago.

POULTRY.

The main trouble during last year with regard to the improvement of the breeds was the difficulty in obtaining proper food, and in many cases breeding has been allowed to fall back. Even large establishments in some parts of the country found it difficult to make both ends meet, owing to the excessive price of poultry foods. Maize for this purpose in the North reached 12s. a bushel; cracked maize 13s. 6d., wheat 12s., bran and pollard 4s. 9d. a bushel, and potatoes, which had to be substituted for green feed or vegetables, cost 8d. per lb., but eggs were sold at 2s. 6d. a dozen. The number of eggs produced last year was 2,570,985 dozen, a reduction of 354,609 dozen as against the preceding year, but the number of fowls kept for commercial purposes was also reduced by 136,864, the number of head for 1919 being 722,628, and of ducks 28,976, geese 6,025, turkeys 11,101, and others 1,643.

A feature of the year was the outbreak of the fowl tick in several places, and though this pest has always been with us more or less, it became more prominent last year. The Poultry Instructor came across it in several places, and gave advice for its eradication and prevention.

Advices from London indicate a good market for poultry there, but apart from the difficulty of shipping, there is no surplus supply in Queensland suitable for the London market; in fact, the supply is not equal to the local requirements, and first-class poultry realise here as much as they would do in London, after making allowance for freight and charges. Moreover, fully 80 per cent. of the fowls in Queensland are of the Leghorn breed, which does not produce a bird in favour in the British markets. Ducks, too, of the breeds favoured here, Muscovy and Indian Runners, are not liked so much as the Aylesbury, Pekin, or their crosses.

Poultry-keeping is generally looked upon as a negligible quantity upon a farm, but it can be made to give good returns, and it is an industry that everyone living in the country with the command of a greater or smaller plot of land can participate in. The figures published annually in the Report of the Queensland Agricultural College show clearly what can be done by an intelligent ordering of the keeping of poultry, and the knowledge that is there at

the service of the whole community should be a basis for the expansion of the industry, and would be so if those who are interested would take advantage of it.

STOCK AND MEAT.

Excepting cattle, which increased by 2.66 per cent. in 1919, there was an all-round decrease in the numbers of other stock held—horses by 3.69 per cent., sheep by 4.62 per cent., and pigs by 29.35 per cent., but our losses through the drought were not nearly so bad as in other States. The totals were—Horses, 731,705; cattle, 5,940,433; sheep, 17,379,332; and pigs, 99,593; but from a table prepared by the Government Statistician, Queensland comes far behind New South Wales and Victoria in the number of live stock in terms of sheep to the square mile, and is the lowest of eight States and countries comprised in the list. The number of entire horses was 6,616, which gives one entire to about 110 of all other horses, and if it were possible to deduct the geldings, the result would show a greater number that should be kept if the improvement of the breed is to be maintained, and is further evidence of the necessity for some legal control over stallions. In all, there were 43,576 owners of cattle with an average of 136 head to each, and statistics show that the number of owners has been steadily rising in each year during the last ten years, but the size of the herds has not changed materially. The drop of calves was fairly balanced, there having been 588,008 male and 598,524 female calves born. Much the same may be written of sheep, of which there were 4,130 owners with an average of 4,208 to each. Here again the barometer has generally risen during the last ten years.

The drought, no doubt, was responsible for the reduction in the movements of cattle overland from 46,947 in 1918 to 33,256 in 1919, and of sheep from 270,492 to 13,251, and the same reason accounts for the net imports from oversea numbering 10 head of cattle and 9 sheep only.

Likewise the keeping of pigs fell by 29.35 per cent., for the reason that farmers needed all the nutriment available to keep their young dairy stock alive and could not afford to spare any for pigs. The total number of pigs in the State, including therein boars, breeding sows, and young pigs, in 1919 was 99,593, but the number slaughtered in the twenty bacon-curing and meat-preserving factories that were operating upon this class of material was 166,575, and in addition about 30,000 pigs were killed for use as fresh pork, so that in reality, we produced in 1919 only about one-half of the pigs needed for consumption and for export. The

value of the output of pig products was £6,602,899, in the winning of which 4,346 people were employed, and machinery, plant, land, and premises were needed to the value of £2,287,939. Though the number of establishments engaged in the preservation of meat as food, or freezing, or for tallow, was the same as in 1918, and in 1917, the number of people employed has been reduced in each to 4,351, a reduction of 728 people as compared with 1918, and the value of the products turned out fell from £5,830,105 in 1918 to £4,503,806 for last year. The notable feature of the year's operations was a return to the normal in the number of sheep killed for freezing and an increase in the number of lambs killed. The numbers killed respectively for the purposes of these establishments were—Cattle, 245,456; sheep, 264,609; lambs, 4,860; and pigs, 166,575; but from these totals, so far as the export trade is concerned, the meat that was withdrawn for consumption in the State in the State butchers' shops, &c., numbered 40,282 cattle and 30,090 sheep.

Queensland is prominent among the peoples of the world in two things: the consumption of tea and of meat; the consumption of meat in 1919, notwithstanding the high prices, equalled 195.72 pounds for each head of population. This, however, is not the record of the last ten years, for in 1911 the average stood at 278.89 pounds a head for beef, mutton, veal, lamb, and pork. The difference between the consumption here and that in the countries of Europe and America is so great that the normal average elsewhere may well be quoted for comparison by those who are interested. Italy only needs 26 lb. for each head of population, Russia 51 lb., Holland 57 lb., Austria 61 lb., Denmark 64 lb., Belgium 65 lb., France 77 lb., Norway 78 lb., Canada 90 lb., Germany 111 lb., United Kingdom 112 lb., and the United States 150 lb. For domestic use there were needed 204,977 head of cattle, 431,503 sheep, 10,773 calves, 16,219 lambs, and 33,986 pigs.

AGRICULTURE.

Notwithstanding the experiences of 1917, the area under cultivation in 1918 was 988,541 acres, an increase of 6,475 acres, and it was the largest area under cultivation of the last decade, excepting the years 1916 and 1917, in each of which the area exceeded 1,000,000 acres—in the latter year close upon 2,000,000 acres; but a good deal of those areas may be attributed to the special efforts of the war.

The number of people engaged in farming last year was 32,086, and in dairying some 25,675, but the aggregate (57,761) is less by 2,359 persons than in 1918, and in that year the total was less by 6,259 persons than in 1917. Thus in two years the rural com-

munity as applied to farming and dairying is less by 8,618 people than three years ago. Of course, the drought had a good deal to do with the reduction, and to that extent good seasons will soon bring back a revival, but there are also other causes operating, amongst which the lack of skilled labour may be mentioned, and these would seem to call for attention. On the other hand the value of farming, dairying, irrigation, and travelling machinery, which now stands at £2,361,195, shows an increase of over £60,000 on the preceeding year, the principal increase being in relation to farming machinery, the additional value of which is more than half the total increase. The value of the crops raised (£6,297,079) is about £280,000 to the good over 1918, and this additional value is no doubt accounted for by increased prices. Of the principal crops, we did much better with wheat; in 1918 the value was returned at £23,515, but last year it rose to £101,282. Potatoes rose from £38,965 in 1918 to the value of £183,942 during last year; maize, on the other hand, fell from £1,026,494 to £732,266, the bad-season particularly affecting this cereal. Sugarcane fell from £2,733,268 to £2,342,076, and fruits on the whole gave better total values.

The number of agricultural holdings rose from 26,041 in 1918 to 26,713, an increase of 2.58 per cent., and 49.62 per cent. upon the number in 1904; consequently, notwithstanding the drought, want of skilled labour, and other causes, the number of holdings for agricultural or dairying purposes is not diminishing, but the advance is not so quick as could be wished. Of the area under cultivation, there were 2,783 holdings on which not more than 5 acres were cultivated, 6,658 over 5 and under 20 acres, 6,366 over 20 and under 50 acres, and 6,319 holdings with 50 acres and over. Of the petty sessions districts in which more than 50,000 acres are cultivated, Clifton comes first with 77,716 acres, then Warwick with 65,353, followed by Mackay with 54,859 acres. None of the other sugar districts, however, approach that centre in acreage.

Whatever may be the cause, irrigation does not make headway, and though there were some 2,320 acres irrigated in 1919 in excess of 1918, when the acreage stood at 6,947 acres, there is no sign of much advancement. Certainly an extra £9,802 was spent in machinery, but that does not indicate any real progress, owing to the high cost of replacing machinery, and to the season. The real cause of want of progress is the need of conservation of water, and this would appear to be of as great importance as main roads. The farmer can generally get to his market somehow, although the roads may be bad, but the water, unless shackled, runs away and disappears.

The many years of preaching the need of conserving fodder seems at last to be bearing fruit, for the number of makers in 1919, viz., 72, was an increase of 27 over the previous year, and it is to be hoped that with the promise of a return of good seasons, the lessons of the drought will not be forgotten, but instead the conservation of fodder will still increase in volume. The tonnage of ensilage as returned by the makers to the Government Statistician was 4,318 tons. The largest area under wheat in the last decade was in 1916, with 227 acres, and last year the acreage was, owing to the drought, only 46,478 acres, but even this small area was an advance of 24,841 acres over 1918, and the average return rose from 4.83 bushels in the latter year to 6.71 bushels. The quantity of wheat treated in the mills, viz., 2,443,413 bushels, was consequently for the greater part brought from the Southern States. The quantity of flour made was 49,300 tons, which was wholly consumed in the southern half of the State, it being the custom for the North to draw its requirements directly from Sydney and Melbourne. To win the flour needed by the people there were ten mills in operation, and 259 people were engaged in this work.

After years of bad seasons, the harvest of 1920 may be expected to be the largest we have had, but even if that be so it will not come up to our needs.

The area under maize, 105,260 acres, was less by more than 40,000 acres than in any one year of the last five years, and the average yield, 17.39 bushels, was below what it ought to have been, even when making allowances for the dry weather. The petty sessions district of Atherton has the reputation of containing the largest area under maize, 15,616 acres, and the highest average production also to the acre, viz., 42.58 bushels, the lowest average of the year being in the Dalby district, with 4.16 bushels.

The value of the products of market gardens culled from 1,752 acres was £63,486, which gives a return of something over £36 4s. 8d. to the acre.

The fruit we grow here covers a wide assortment, temperate and subtropical, of apples, apricot, bananas, cherries, citrons, custard apples, figs, lemons, mangoes, nectarines, olives, oranges, passion-fruit, papaws, peaches, pears, persimmons, pineapples, plums, quinces, rosellas, strawberries, limes, &c., &c., and of these there were 22,232 acres, the produce of which was valued at £759,191, or a return of £37 10s. 5d. an acre. In addition there were 2,377 acres that are not yet productive, and 748 acres that come under the heading of private gardens, the produce of which was worth £15,511.

COFFEE.

The Department of Agriculture has before tried to encourage the cultivation of coffee in Queensland, for which the soil and climate are essentially suited, and for that purpose installed at the then State Nursery at Kamerunga, a coffee-hulling plant, and growers were invited to send their produce to that place, where it was treated by the Department and sold on their account upon the same lines as is now being done with the cotton crop, viz., an advance upon receipt of the raw material and the balance less charges upon the sale of the marketable product. The attractions of the cultivation of sugar-cane, the price of raw coffee, and the difficulty, perhaps, of obtaining help to pick the coffee, particularly on the larger areas, were against the progress of the industry, and the operations at Kamerunga were suspended.

The aspect now is entirely different, the price for raw coffee and the demand being on a different footing. The industry requires an Instructor, and the system of handling the coffee for growers upon similar lines to the system with regard to cotton should be resuscitated. The cultivation of coffee in large areas, or in other words, upon the plantation system, is not recommended, because of the probable difficulty of obtaining pickers when needed. Instead, coffee should be grown as a subsidiary crop so that the growers may not have difficulty in harvesting.

The imports into Australia in 1916-17 amounted to 3,170,147 lb., and in 1917-18 to 2,757,818 lb., so that there is a good demand for a product which can easily be grown here. The quality, too, is good, evidence of which is to be found in the verdict of Mr. Farrar, the acknowledged authority in London on the coffee market. This verdict was given in the Annual Report of the Department for 1918-19, but may be repeated. Mr. Farrar said it was "his ambition to have at one time five bags in one lot of that choice Queensland coffee he lectured upon, and with that quantity he would so place it that the coffee-broking world would be agog with it." This coffee was grown by Mr. T. A. Bromiley, of Pialba, and was sent to London as part of a consignment of Queensland products for the use of the Agent-General in advertising the State. The coffee was not despatched as specially picked coffee to attract the attention of anyone.

COTTON.

An interesting and valuable Report by Dr. Gilruth to the Minister for Trade and Customs upon his investigations in America entirely confirms the opinions expressed here often that it does not cost any more to raise and harvest cotton in Queensland than it does in America,

consequently the Queensland farmer need have no fear on that score. In America last year the price for picking ran approximately at about the same price as here, therefore if farmers can make it profitable there, surely the same can be done here! The cultivation there is by no means confined to the tropics, the limit being about south of the parallel of 36 degrees of north latitude, and the whole of Australia may roughly be said to be to the north of 35 parallel of south latitude. Dr. Gilruth also observed that in the majority of cases the holdings are small, many fields under 10 acres being seen, while those of 50 acres and upward are rare.

The Federal Government last year guaranteed a minimum value for seed cotton of 4d. on the farm for the 1920 crop, but this has been superseded by the State guarantee of 5½d. until the 30th June, 1922, on the farm for seed cotton of good quality consigned to this Department for treatment. With this guarantee the farmers are assured of a profitable price for two crops, and consequently there is a great incentive at their service to plant anew and extend existing areas, and from the commercial outlook it may reasonably be estimated that the value will exceed that figure. There is a shortage throughout the world of cotton for manufacturing purposes, and there are indications that America is inclined towards keeping her production, which is not increasing, within her own borders and for her own use. The British and other European manufacturers are looking for other sources of supply, and the opportunity should be made use of by Queensland growers. The position as regards the opportunity of Queensland can be illustrated from the opinion of the British Empire Cotton-Growing Committee, which express their opinion broadly thus:—That the present position of the world's cotton supply cannot be regarded by the Empire without misgiving, not altogether because the supply is altogether deficient, but also because the cotton trade of the Empire is, to a most undesirable extent, dependent upon an outside source for its supply of raw material; and that if proper measures be taken it is reasonably certain that in course of time a large proportion of the cotton required by the British Empire could be grown in its own territories.

A deputation recently in Melbourne to the Minister for Customs urged the stimulation of cotton, but added a rider that they wished the manufacturing done in Victoria from the raw material grown in Queensland, but it would have been a more reasonable proposal had they advocated the establishment of manufactories in this State, where cotton goods have before this been made, and had the Commonwealth afforded

protection, the business would by now have been well established.

The production of lint is not the end of the possibilities of cotton. Oil is to be obtained from the seed; indeed, much of the salad oil upon the market is merely cotton-seed oil, and not olive oil as it often purports to be. There is also the meal that is to be gained for cattle food, and the greater part of the seed saved by the Department from the ginning was used for this purpose during the drought of last year. Machinery is needed for the expression of this and other oils so that the utmost results may be obtained from the plant, and attempts have been made to secure what is wanted, but on account of the congestion of trade it has not been possible to obtain anything of the size desired.

Inquiries were made in Great Britain with the view of manufacturing medicated cotton for use in Queensland. The result has been the knowledge that the manufacture of cotton wool in its several forms is kept a close secret by the several firms engaged in the industry; indeed, so well organised is the trade that no one firm is responsible for the whole process, and each firm has a particular branch allotted, the combined process being kept secret.

The importations of cotton and cotton goods and the products of it into Australia of different kinds, such as raw cotton, cotton waste, piece goods, cotton socks and stockings, cotton-seed oil, &c., may be estimated at about £7,000,000 a year in value, all or the greater part of which should be kept in Australia. A recent report from London upon some samples of Queensland cotton sent by the Agent-General to the Imperial Institute is interesting and very valuable, as bearing upon the quality of our cotton. The samples sent were but ½ lb. weight each, and therefore were not commercial samples, and were taken from among the exhibits sent by this Department of Queensland products for the use of the Agent-General. Upon American market values for April, 1920, the value of the lint was put at 25½d. a pound, and the valuations were based upon an assumption that a consignment of a similar character would not exceed 50 to 100 bales at a time. The samples, the Director of the Imperial Institute stated, were too small for an accurate opinion to be formed as to their quality, and they had the disadvantage of being stained.

The samples were Queensland cotton, Caravonica silk, Queensland caravonica wool, and caravonica wool, and the opinion of the British Cotton-Growing Association, whose opinion was also asked, put a value based on American futures (March) at 26d. The opinion further stated that cotton 1³/₁₆ in. to 1½ in., which

describes the Queensland cotton referred to, could about a year ago be bought at about 5d. a pound on the price of American futures. To-day similar cotton is worth from 2s. to 2s. 6d. on the price of American futures. A caution is given that if the next American crop contains a larger percentage of the staple mentioned, a lower price will result.

The value of a supply of raw cotton to the Empire can be gauged by the fact that Great Britain's percentage of the whole of the mills (cotton) in the world is 27, the percentage of spindles is 40, of looms 36, and of operatives 19 per cent. In Great Britain there are over 2,000 cotton mills, employing 655,000 operatives, and in these mills there are 59,000,000 spindles and 800,000 looms, involving an annual consumption of some 4,000,000 bales of cotton of different kinds. The figures given relate to peace conditions, and are on the authority of the Editor of the *Cotton Gazette* and supplied by him to "Whitaker."

Fifty years ago, at this time of the year the Ipswich Custom House dealt with 1,065,492 lb. of ginned cotton, equal to 3,551 bales of 300 lb. each, for export, and expected that 200 more bales would be obtained before the season closed. It is possible to prophesy a similar trade in this decade.

SUGAR.

The unfavourable conditions mentioned in last year's report continued up till the end of 1919 and adversely affected the yield of sugar. The drought was a most severe one; in many of the sugar districts it was stated to be worse than that of 1902. Damage by frost in the Southern districts, particularly Bundaberg, was also great. In the Northern cane areas, although the comparatively small wet season was late, the cane made better progress and fair to good crops were harvested north of Townsville. The yield in the districts south of Townsville, however, was poor. Six of the sugar mills in that part of the State were unable to crush at all, owing to insufficient supply of cane. This unfortunate state of affairs brought the total sugar output down to a lower figure than any since 1915, the previous drought year.

The yield for 1919 amounted to 162,136 tons of sugar, being 27,842 tons less than the 1918 crop and 145,578 tons less than was produced in 1917. The consumption of Australia is considered to be about 285,000 tons of sugar at the present moment, so that the yield of Queensland sugar fell far short of requirements and large amounts of foreign sugar had to be imported at enormous prices.

The total acreage under cane in 1919 was estimated by the Government Statistician to be 148,469 acres, a decrease of 12,065 acres from

the previous year. Of this area, cane from 84,877 acres was crushed, leaving a balance of 63,592 acres, which included standover cane cut for plants, and cane planted for 1920. The total tonnage of cane harvested amounted to 1,258,760 tons. The yield of cane per acre was 14.83 tons, a figure lower than the previous year and falling a good deal short of 1917. The yield of sugar per acre was 1.91 tons, which was very fair.

One of the most interesting of the Statistician's figures each year is the amount of cane taken to manufacture 1 ton of 94 net titre sugar (the standard of quality of the raw sugar supplied to the refineries). This year the "density" or "commercial cane sugar" in the cane was higher than in any other recorded year. This was no doubt largely due to the very dry season, but it also indicates that farmers are growing much better canes from the standpoint of higher sugar contents than was previously the case. This season it only took 7.76 tons of cane as an average throughout Queensland to make 1 ton of sugar—a remarkable achievement. If it had not been for frosts in the Southern districts during 1919 this figure would have been even better.

Unfortunately, for the present season the drought did not break till about May in the sugar districts. Good rain fell in January which was hoped to be the commencement of a heavy wet season, but February, March, and April were comparatively dry and the cane suffered in consequence, particularly in the districts from Mackay south. In the North, above Townsville, when the rain did set in, owing to the greater heat in the ground, the cane went ahead quickly; hence the crushing in those districts north of Townsville will this year be good, but the total yield of sugar will be much lowered by the poor crops in the Southern sugar areas. Cairns and Mossman were both affected by cyclones this year, but the damage to cane was more severe at Mossman than at Cairns and has reduced the crop expected at the Mossman Central Mill.

The poor price received by Australian sugar-growers up to this year, viz., £21 per ton for raw sugars, has undoubtedly had a deterrent effect upon production. It has now been increased to £30 6s. 8d., a much fairer figure and one which will tend to an increase in production of sugar. Altogether the prospects for the Queensland sugar industry are much brighter than they have been for many years, and a good deal more land is being put under cane.

The Sugar Experiment Stations, a branch of this Department, have been engaged in the propagation of new canes from foreign countries and the commercial testing of other varieties.

When these are proved to be of value as croppers and sugar-producers, they are distributed free to growers.

Very successful field days were held at the Bundaberg and Mackay Stations, at which large numbers of farmers attended. Demonstrations of experimental work and implements were made, and addresses on cane-growing delivered.

The new Station at Innisfail is now well under way, and the cane planted last October has made phenomenal growth. Various experiments are being undertaken, and considerable interest in the work has been aroused.

The entomological work of the Sugar Experiment Stations is carried out at Meringa, near Cairns, and is under the charge of Dr. J. F. Illingworth, who is assisted by Mr. Edmund Jarvis and Mr. A. P. Dodd. The work carried out is principally practical and research investigation in connection with the grub pest of sugar-cane, but other insects attacking the cane plant are also dealt with.

Full reports upon the work of the Sugar Experiment Stations in all its branches will appear in the Annual Report of the Bureau later in the year.

TOBACCO.

During the last ten years there has been a great drop in the area under tobacco, and the decline can practically be traced to have commenced from the time when Mr. Nevill, the late tobacco expert, relinquished his appointment. In 1910 there were 655 acres, and the apex was reached in 1913, the last year Mr. Nevill was here, when the area covered 731 acres, since when there has been an annual drop to 321 acres in 1919. The cigar-tobacco area at Bowen, where the cultivation is by Europeans, has not declined to the extent of the Inglewood and Texas districts, where the cultivation is for the most part in the hands of the Chinese, and herein lies the difficulty in encouraging the cultivation of tobacco in this State. A similar position obtains in the Southern States where tobacco is cultivated. In New South Wales the proportion of European growers to the whole is 36 per cent., and of those of alien extraction, 64 per cent. There is no doubt whatever as to the possibilities and the profitableness of tobacco-growing in Queensland, but for one reason or another—perhaps the close attention needed during the growing period, Europeans do not, excepting in the Bowen area, take kindly to the industry. The changed conditions of the world, and particularly in America, have increased the value so much, and the consequent alteration in comparison with other products would seem to encourage another trial. But this cannot be done unless properly qualified instructors are employed to

educate the growers, and so prevent the loss and disappointment that follow from ignorance of the best methods for curing and preparing for market, as well as in the cultivation, and it is from this cause that many who have before tried tobacco-growing have failed.

Tobacco shows some signs of recovery by an advance of average from 213 acres in 1918 to 321 acres last year, but there is a wide margin yet between the latter figures and those of 1913, when 731 acres were under crop. The difficulties of oversea commerce have given a splendid opportunity for growers here to consolidate their position in the Australian market, where there is a constant demand, and, at the prices offered by the manufacturing companies, at a profitable figure, but there seems to be an indisposition here to really enter upon the industry.

The main difficulty in overcoming the hesitation of Europeans to cultivate this crop lies in the close attention needed during the growing period and in the curing. It is the latter phase that has caused the greatest disappointment in the prices realised, and this has been because the people have not sufficient knowledge of curing. Messrs. W. D. and H. O. Wills went to great expense at Inglewood in setting up curing sheds and building houses for those employed, but they were not successful in keeping the interest of Europeans.

RESULTS OF JUVENILE CORN-GROWING COMPETITION, 1919-20.

Seventy-three entries were received by the Department of Agriculture, but only thirty-three out of this number completed the conditions, those not doing so having failed to secure a crop owing to drought or through mishap.

In districts where the season was favourable, high yields were secured, notably on the North Coast and in the Mary Valley (No. 2 district), where seven competitors harvested crops ranging in yield from 109.2 to 151.4 bushels per acre, the highest yield recorded being that obtained by Miss N. Pickering, of Eumundi, who was only thirteen and a-half years old at the time her nomination was received. Although unsuccessful in winning a special prize, another girl, about a year older (Miss E. Marks, of Alberton, *viâ* Yatala), won the No. 1 district (South Coast) prize with a yield of 138.5 bushels per acre.

The special prizes for the first, second, and third highest number of points in the competition amount to £10, £5, and £3 respectively, and prizes similarly for each district of £5, £2, and £1, the State, for the purposes of the competition, being divided up into nine districts. In two districts, Nos. 7 (Dalby and Roma) and 8 (Cen-

tral), the drought affected the returns and the competitors failed to secure any crop.

Open orders to the value of the prizes won are furnished to the respective winners by the Department of Agriculture and Stock, which is holding another corn-growing competition for

juveniles under eighteen years of age during the approaching 1920-21 season.

It is satisfactory to be able to record the fact that the average yield obtained by the thirty-three competitors who completed the conditions was at the rate of 83 bushels per acre.

RESULTS OF JUVENILE CORN COMPETITION—1919-1920.

| Name of Competitor. | Age. | Yield per Acre in Bushels. | Points awarded for Yield. Maximum Points, 75. | Quality of Grain and Uniformity of Ear. Maximum Points, 15. | Records Field Data. Points, 10. | Total Maximum Points, 100. | Remarks. |
|--|-------|----------------------------|---|---|---------------------------------|----------------------------|------------------------|
| <i>Special Prizes.</i> | | | | | | | |
| Miss N. Pickering, Mount View, via Eumundi | 13 6 | 151.4 | 68.4 | 9.9 | 6 | 84.3 | No. 2 Dist., 1st, £10. |
| R. H. Pickering, Mount View, via Eumundi | 16 0 | 146.5 | 66.1 | 10.8 | 6 | 82.9 | No. 2 Dist., 2nd, £5. |
| A. G. McGinn, Oakey Ck., via Eumundi | 15 6 | 147.5 | 66.6 | 9.3 | 5 | 80.9 | No. 2 Dist., 3rd, £3. |
| <i>No. 1 District Prizes.</i> | | | | | | | |
| Miss E. Marks, Alberton, via Yatala .. | 14 11 | 138.5 | 62.5 | 9.2 | 7 | 78.7 | 1st, £5. |
| W. Schmidt, Alberton, via Yatala .. | 12 0 | 96.4 | 43.5 | 11.0 | 4 | 58.5 | 2nd, £2. |
| R. Jonasson, Alberton, via Yatala .. | 11 0 | 93.4 | 42.1 | 10.2 | 5 | 57.3 | 3rd, £1. |
| Reg. Crowther, Pimpama, S. C. Line .. | 12 2 | 94.6 | 42.7 | 9.2 | 5 | 56.9 | |
| P. A. Abraham, Lark Hill, via Walloon | 13 5 | 93.2 | 42.1 | 7.4 | 4 | 53.5 | |
| H. Beitz, Alberton, via Yatala .. | 12 10 | 77.7 | 35.1 | 10.1 | 4 | 49.2 | |
| Ruby Lehmann, Carbrook, via Beenleigh | 13 0 | 70.2 | 31.7 | 10.5 | 6 | 48.2 | |
| Nor. Crowther, Pimpama, S.C. Line .. | 10 0 | 71.3 | 32.2 | 9.3 | 5 | 46.5 | |
| C. Rehfeldt, Alberton, via Yatala .. | 14 7 | 69.4 | 31.3 | 8.7 | 4 | 44.0 | |
| J. M. Morrison, Purga .. | 13 0 | 56.9 | 25.7 | 8.7 | 3 | 37.4 | |
| E. J. Wolff, Alberton, via Yatala .. | 14 10 | 28.3 | 12.7 | 8.9 | 8 | 29.6 | |
| F. O. Freese, Lark Hill, via Walloon .. | 14 3 | 28.2 | 12.7 | 7.5 | 4 | 24.2 | |
| V. F. Abraham, Lark Hill, via Walloon | 14 5 | 23.8 | 10.7 | 7.2 | 4 | 21.9 | |
| <i>No. 2 District.</i> | | | | | | | |
| N. Pickering, Mount View, via Eumundi | 13 6 | 151.4 | 68.4 | 9.9 | 6 | 84.3 | 1st, £5. |
| R. H. Pickering, Mount View, via Eumundi | 16 0 | 146.5 | 66.1 | 10.8 | 6 | 82.9 | 2nd, £2 |
| A. G. McGinn, Oakey Ck., via Eumundi | 15 6 | 147.5 | 66.6 | 9.3 | 5 | 80.9 | 3rd, £1 |
| V. R. Ellis, Kandanga, Mary Valley Line | 16 10 | 139.3 | 62.9 | 8.5 | 7 | 78.4 | |
| M. H. McGinn, Oakey Ck., via Eumundi | 13 6 | 126.7 | 57.2 | 10.8 | 5 | 73.0 | |
| A. H. Sims, Gheerulla, via Eumundi .. | 13 2 | 115.2 | 52.0 | 12.0 | 6 | 70.0 | |
| E. A. Sims, Gheerulla, via Eumundi .. | 14 10 | 109.2 | 49.3 | 10.1 | 6 | 65.4 | |
| E. A. Guldbransen, Cedar Ck., Samford | 16 3 | 78.8 | 35.6 | 8.0 | 5 | 48.6 | |
| W. J. Guldbransen, Cedar Ck., Samford | 17 6 | 69.4 | 31.3 | 9.4 | 5 | 45.7 | |
| C. A. Hansen, Perry St., North Bundaberg | 14 0 | 26.2 | 11.8 | 7.2 | 5 | 24.0 | |
| <i>No. 3 District.</i> | | | | | | | |
| H. Morgenstein, Pinelands, via Crow's Nest | 17 0 | 59.4 | 26.8 | 10.3 | 4 | 41.1 | 1st, £5 |
| <i>No. 4 District.</i> | | | | | | | |
| S. Marshall, Cedar Gap, Wooroolin .. | 16 9 | 36.2 | 16.3 | 8.4 | 4 | 28.7 | 1st, £5 |
| L. Wiedon, Kingaroy .. | 14 0 | 25.2 | 11.3 | 6.8 | 7 | 25.1 | 2nd, £2 |
| <i>No. 5 District.</i> | | | | | | | |
| G. E. Gonchee, North Killarney .. | 17 0 | 105.9 | 47.8 | 9.4 | 9 | 66.2 | 1st, £5 |
| W. Gonchee, North Killarney .. | 15 0 | 91.0 | 41.1 | 8.1 | 8 | 57.2 | 2nd, £2 |
| <i>No. 6 District.</i> | | | | | | | |
| E. D. Meredith, Gurgeena, via Gayndah | 13 3 | 26.3 | 11.8 | 8.3 | 5 | 25.1 | 1st, £5 |
| <i>No. 9 District.</i> | | | | | | | |
| L. A. Favier, Kairi, via Tolga, N.Q. .. | 17 0 | 105.3 | 47.5 | 9.3 | 4 | 60.8 | 1st, £5. |
| J. M. Favier, Kairi, via Tolga, N.Q. .. | 15 0 | 96.5 | 43.5 | 8.9 | 4 | 56.4 | 2nd, £2 |
| A. Windhaus, Atherton .. | 14 0 | 86.7 | 39.1 | 10.8 | 3 | 52.9 | 3rd, £1 |
| E. A. Hastie, Atherton .. | 13 7 | 55.3 | 24.9 | 8.9 | 6 | 39.8 | |

No. 7 District.—1 competitor failed to complete.

No. 8 District.—2 competitors failed to complete.

HORSE-BREEDING.

As matters now are, no progress can be made in improving our stock so long as there is no legislation governing the use of stallions, and even of mares, but the first step is to provide for the stallions. Draft Bills have been prepared on more than one occasion and presented to Parliament, but no success has been achieved, and excepting for the registration of stallions after examination by a Government veterinary surgeon, Queensland is in the same position as it was twenty years ago, and the breed is deteriorating annually. The State contains many horses that can only be designated as scrubbers, and the cry has been heard that it would be profitable to commence killing for export for human food or even for feeding pigs. From a business point of view it should pay to breed good stock, but that aspect does not seem to commend itself to many of those who require the use of a stallion; instead, the search appears to be limited to where the cheapest can be obtained. The proposal for legislation is by no means original, for legislation of the kind advocated is in operation in many countries, and in others the same end is gained by State establishments at which stallions are reared for the use of small holders. In the United States of America fifteen States have laws relating to stallions and the improvement of horse-breeding, the first State to take steps in this direction being Wisconsin, in 1906. Since then the Wisconsin law has been amended and made more stringent, the policy throughout being to advance by degrees instead of enacting legislation providing at the commencement for all that was desired. The other States that have followed the lead of Wisconsin differ, of course, in legislative details, but as the object of all is the same, details are of small account. In Europe the system is somewhat different, but it may be said that farmers there are fully alive to the importance of using pure-bred stallions only and to the profit to be derived therefrom, and the different Governments have helped in many ways. The French Government has, for more than a century, bred stallions which it places at the service of the farmers at very low rates, the principal restrictive limitation being that the Government shall have first call upon the progeny at market rates. Belgium follows under somewhat similar lines, Germany and Austria have long had the reputation of doing a great deal towards improving the breed of horses in those countries, and have spent

great sums of money annually for that purpose, but what the situation is now is not known. The value of legislation and effort in this direction can be summed in the words of Dr. Alexander, of the Wisconsin Experiment Station, who in writing of the Clydesdale in Canada, says:—"The success achieved in the breeding of Clydesdale horses in Canada serves as a good example of what can be accomplished by persistency and expert selection."

During 1919, the Agent-General was asked to furnish any Reports, published or otherwise, that were obtainable, bearing upon animals used in transport and for riding during the war, and upon the fodder stuffs used for their maintenance. The Reports were asked for in the hope that something might be learned of use to breeding in this State. A most excellent Report was received in relation to the horses used in Europe and in Asia.

Summarised, the opinion appears to be similar to that arrived at on the close of the Boer war, that the small animal of whatever type is the best adapted for war purposes. The bigger and taller the animal the greater the ration, and consequently more time is needed for consumption. An important sentence appears in the report reading thus:—"It has been a noteworthy experience of veterinary hospital experience that the small pack animal or cob has been conspicuous by its absence as a sick animal." The further statement is made that the tall, big, leggy animals of any class usually form the majority of debility cases. "Therefore it is that size comes very greatly into the utility and success of the army animal where so much depends on the ration."

The report is too long for publication here, and it may be that the War Office would not like the whole of it made public, but as regards draught horses, the consensus of opinion is in favour of the small Welsh draught horse, either heavy or light. Unfortunately for the purpose of the inquiry, Australian horses were not present in Europe in sufficient numbers to attract attention, but of the different breeds of draught horses known here, the following summary of notes may be of service:—

**Shire—*

Merits—Weight renders this breed suitable for heavy traction at slow paces.

Demerits—Requires a large forage ration and much careful stable management to maintain condition. The size and weight of shoe is a disadvantage.

Clydesdale—

Merits—Weight, activity, good feet and pasterns; walks fast with a heavy load.

Demerits—Requires a large forage ration and considerable care; size and weight of shoe is a disadvantage, but to a lesser degree than in the case of the Shire. The indifferent Clydesdale is inclined to be leggy and light in the middle.

Suffolk Punch—

Merits—Active, walks fast, maintains condition when exposed to fatigue and hardship, is clean legged, docile, a good doer, and requires less forage than the heavier types.

Demerits—Lack of sufficient weight for heaviest work, but as a small supply only was available, experience was not extensive.

Small cart horse such as the Welsh—

Merits—Great hardihood, good constitution and heart. A Welsh horse will usually pull till he drops. He is more active and hardy than the Shire horse, whose blood he partly inherits, and lives on a smaller ration. Has proved himself to be a most valuable heavy draught for war purposes.

Demerits—From a military point of view, practically none, but in civil life would lack the weight for the heaviest haulage.

American Heavy Draught Horse
(Percheron, pure or half-breed)—

Merits—Docility, courage, good feet, sound legs, a good doer and trier, a first-class heavy horse for military purposes, and second only to the Welsh cart horse and the Suffolk Punch.

Demerits—Less weight than the Shire and inclines to faults of conformation, such as being “back at the knees.”

The reports from Egypt upon the draught breeds follow closely upon the experience in Europe. Much information has also come to hand upon the light horses, for riding, but it is with the draught that breeders in this State are perhaps more immediately concerned, so that a comparison may be at their service in relation to the breeds in use here in civil life.

REPORT OF THE REGISTRAR OF BRANDS.

SIR,—I have the honour to submit herewith a report on the administration of “*The Brands Acts, 1915 to 1916*” for the year ended 30th June, 1920.

Details of registration of brands and earmarks are as follow:—

| | YEAR 1919-20. | | Number since Inception of Legislation. |
|--|---------------|----------------|--|
| | Number. | Fees Received. | |
| Three-piece brands registered | 2,806 | £ 1,403 0 0 | 70,508 |
| Cancelled brands registered | 114 | 171 0 0 | 6,377 |
| Transfers | 1,388 | 346 10 0 | 29,083 |
| Brands cancelled | 44 | .. | .. |
| Marks cancelled | 195 | .. | .. |
| Alteration of address | 467 | .. | .. |
| Symbols registered | 53 | 265 0 0 | 1,060 |
| Cattle marks registered | 1,488 | 744 0 0 | 8,194 |
| Sheep brands and marks registered | 272 | 94 10 0 | 7,418 |
| Sheep brands and marks transferred | 192 | 24 0 0 | 2,541 |
| | .. | 3,048 0 0 | .. |

The figures for the year show an increase of almost 100 per cent. on the figures for the previous year in the registration of three-piece brands. This is attributable to the fact that a new series was introduced in the early part of the year which provided for the use of designs consisting of hearts, diamonds, clubs, and spades, in conjunction with the ordinary block letters and numerals. Owners have expressed great satisfaction at the simplicity and utility of this series.

Cancelled brands registered show a decided decrease in numbers, due primarily to the fact that the scope of selection is now very limited, and those available do not compare favourably with the new series of brands in use. Although there was an increase in the number of brands cancelled, there is no doubt that the number of brands out of use, but not cancelled, has increased to such an extent that definite action to provide for cancellation under section 19 of "The Brands Act of 1915" is now essential and will be probably taken at an early date.

A decrease on the previous year's figures is noted in the number of symbol brands registered, and it is becoming increasingly difficult to provide designs dissimilar to those already allotted.

A comparative increase is recorded in the number of horse and cattle brands transferred, and of sheep brands and marks registered and transferred.

The demand for registration of cattle earmarks is still great, and it is found difficult to prevent confusion in the registration of similar marks in one district. Stockowners place great value on the earmark for drafting purposes, and in cases where the animal carries a heavy coat it is undoubtedly of considerable advantage, but it must be borne in mind that the brand is *primâ facie* evidence of ownership. It was found desirable recently to increase the fee for registration of cattle earmarks from 5s. to 10s., which has not in any way tended to reduce the demand.

Many irregularities are still noted in the imprinting of brands on incorrect positions, although prosecutions have been initiated, and this is all the more remarkable by reason of the fact that rules of branding with sequence of branding positions are endorsed on the certificate of registration issued to each owner. It should be remembered that where the correct procedure

is not adopted, *primâ facie* ownership through the brand cannot be established in the event of an owner being unable to provide other definite means of identification in the case of stock impounded or lost.

Cases of cattle and sheep stealing are still occupying the criminal courts, and the suppression of illegal practices is apparently attended with extreme difficulty, especially in some parts of the State, where extra vigilance has been shown for some time past.

CO-OPERATIVE AGRICULTURAL PRODUCTION ACTS.

The original Act was designed to help the establishment of co-operative factories in relation to agricultural production, and the limit of advance under it was 50 per cent. of the cost of erection. This, from experience, was considered to be insufficient, especially in these times when the cost of material, transport, &c., has risen so much, and under the amending Act of last year the advance to a company has been extended to 66 per cent. under proper security, but it has also been necessary to increase the rate of interest from 4 per cent. to 6 per cent. per annum. Another important item of progress is that under the original Act it was necessary that the majority of the shareholders should be primary producers in relation to the business of the company. This was found to be a hindrance to success, and the alteration in the number of primary-producing shareholders has been a distinct advantage.

The main reason for the amending Bill is, however, in relation to the advances that are provided for the purchase by individual farmers of dairy stock, pigs, and sheep, and for the erection of silos. The governing idea in this respect was to increase production and to help those beginners who from various reasons are unable to purchase stock, although they may have their farms otherwise improved and well grassed. There would seem, however, to be an impression that the Act is intended for anyone who has less than the number of stock prescribed by the Acts, and applications from dealers have not been unknown. Incidental, perhaps naturally, to the passing of the Act, an inflation of the values of dairy stock in connection with purchases under the Act has been noticed, and other practices have been tried that have needed careful watching.

The very dry season, of course, prevented full advantage being taken of the provisions of the amending Act, but this fact does not explain the small number of applications for advances for the erection of silos, and thereby it would seem that many dairymen still require to be awakened to the absolute need for the conservation of fodder, as they have been advised to do year in and year out. The Annual Report of the United States Department of Agriculture affords an object lesson in this respect; wherein it is stated that in that country the first recorded silo was erected in 1875, and that now there are 404,000 silos in use, of an average capacity of 78 tons. Appreciation of the amending Act has been expressed, and the following extract from one of the letters may be taken as being typical:—“... and am looking forward to making a big cheque from October on. I am doing well out of the fourteen new ones, and wish to thank the Minister for placing such an Act on the statute-book, as I consider it is a big thing; at least it is to me.”

The business done up to the 30th September last has been:—

| | |
|------------------------------------|-----|
| Applications received | 214 |
| Applications approved | 84 |
| Applications withdrawn or rejected | 66 |
| Applications in abeyance | 64 |
| Total amount of advances approved, | |
| £12,305. | |

DINGO AND MARSUPIAL DESTRUCTION ACT.

The operations of the year ended the 31st December last, though showing an increase of about 100 per cent. in the number of dingoes and foxes destroyed, have not approached the expectations from the encouragement given by this Act for their destruction. It may be that the financial standing of some Boards is not equal to the strain of paying the bonus provided for dingoes and foxes, and it may be admitted that for foxes, the skins of which are of considerable commercial value, the bonus is too high, but the principal reason is, it is thought, to be found in the attitude of cattle-owners towards the destruction of the dingo and the fox. There is no doubt about the enthusiasm of the sheep-owners in this respect, but the cattle-owners think otherwise, and it is feared that some Boards have not exercised the powers they have and compelled owners to destroy. Exemption on the ground that an owner is destroying with the men employed by

him has also been a ground for complaint, it being averred that destruction was not proceeding with the celerity it should in such cases. The Act has not yet been long in operation, and another year may show better results, but should it not do so, it might be a subject for consideration as to whether a better system could not be devised for compelling all and sundry to destroy dingoes and foxes, or have it done for them at their cost as a first charge upon their property. It is, however, for the Boards to prove that each owner is doing his duty in this matter, and in case of failure to do so, there is power under the Act whereby a Board can enforce destruction.

The increase in the destruction of foxes is about 400 per cent., and the number of dingo scalps paid for is largely in excess of previous years, but the dingo and fox population is a large one in this State and much destruction is needed to keep them under. The number killed last year cannot, by any calculation, equal the normal increase; indeed, it has been reckoned by a good authority that a pair of foxes, undisturbed in their breeding, will increase to 3,568 animals in five years. Even if these figures represent the outside limit, the deductions would leave a dangerous result. Moreover, so lucrative is the bonus upon foxes and the dealing in the skin, that persons have been detected in the State of Queensland breeding foxes as part of their income.

There is also a decided increase in the numbers of dingoes paid for, and on reference to the return for previous years, it will be noted that the present year's figures easily constitute a record since the inception of legislation on the matter. The volume of marsupial destruction shows a decrease of the figures for the previous year, and is the lowest yet recorded. The returns as a whole certainly indicate that the increased bonus paid for dingoes and foxes under “*The Dingo and Marsupial Destruction Act of 1918*” have been responsible for the corresponding increase in the number of these classes of scalps paid for, and as a result, scalpers have not paid so much attention to marsupials destruction as formerly. It will, of course, be noted that a proportion of the Boards have taken advantage of the optional clause in the Act, and refuse to pay for marsupial scalps.

As a result of the volume of destruction of dingoes and foxes, and in view of the fact that a minimum of £1 per scalp is payable on these

classes, the amount of bonus paid is in excess of that for any previous year with the exception of 1898-99.

In order to provide funds for carrying on operations, Boards in areas where dingoes and foxes are very numerous, have been compelled to levy the maximum assessment of 6s. on every twenty-five head of cattle, or 125 sheep, and in the case of the Diamantina and Leichhardt East Boards, advice has been received that the amount collected will not suffice for all bonus payments to be made during the year. The opinion is generally expressed by members of various Boards that the bonus of £1 per scalp is not justified, as the price of the skin would, with a greatly reduced bonus, be ample recompense for scalpers.

Many suggestions have been received during the year towards improving the Act, and the outstanding suggestions include a growing feeling that the reserved area on a holding allowed under the Act should, on notice to a Board, be

a movable area, particularly on sheep stations during lambing time. The stricter enforcement of the use of permits, in so far that they apply only to the person to whom they are issued, and not as being interchangeable among the members of a family, has also been brought forward. The inclusion of crows and wild pigs in the Act, an almost perennial proposal, has also been suggested, but it is not quite possible to stretch the definition of a dingo or marsupial so as to include either.

The desire for a reduction of the bonus on foxes seems to be general, and an idea has been mooted that the bonus should be withdrawn and that all owners of stock should be compelled to fence with dog-proof fencing, the material to be supplied by the Government, and charged against the estate.

The following is a table of operations in respect of dingo and marsupial destruction since legislation was first introduced on the subject in 1877 until 31st December, 1919:—

PARTICULARS OF DESTRUCTION.

| Year. | Kangaroos and Wallaroos. | Wallabies. | Bandicoots, Paddamelons, and Kangaroo Rats. | Dingoes (including Foxes). | Total. | Bonus Paid. | | | Government Endowment. | | |
|--------------------------------|--------------------------|-----------------------|---|----------------------------|------------|-----------------------------|----------|----|-----------------------|----|----|
| | | | | | | £ | s. | d. | £ | s. | d. |
| 1877-1878-1879 .. | 1,171,427 | 595,531 | .. | .. | 1,766,958 | 31,056 | 0 | 5 | 21,967 | 15 | 8 |
| 1880-1881 .. | .. | No Returns. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 1882 .. | 424,651 | 551,276 | .. | .. | 975,927 | 19,272 | 2 | 0 | 4,429 | 4 | 5 |
| 1883 .. | 361,450 | 684,554 | .. | .. | 1,046,004 | 24,550 | 4 | 6 | 18,322 | 14 | 9 |
| 1884 .. | 380,625 | 570,290 | .. | .. | 950,915 | 24,140 | 4 | 9 | 12,912 | 2 | 8 |
| 1885 .. | 312,139 | 486,913 | 2,113 | 74 | 801,239 | 21,846 | 12 | 10 | 11,088 | 8 | 2 |
| 1886 .. | 284,897 | 449,656 | 13,207 | 9,833 | 757,593 | *20,500 | 0 | 0 | 11,143 | 18 | 3 |
| 1887 .. | 175,363 | 316,946 | 8,925 | 11,525 | 512,759 | 17,542 | 18 | 4 | 12,844 | 14 | 0 |
| 1888 .. | 275,729 | 445,080 | 24,377 | 19,552 | 764,738 | 27,235 | 11 | 2 | 13,193 | 4 | 0 |
| 1889 .. | 312,476 | 353,994 | 27,424 | 19,570 | 713,464 | 26,741 | 1 | 11 | 14,617 | 9 | 10 |
| 1890 to 1 Feb., 1891 | 259,208 | 375,269 | 38,776 | 14,220 | 687,473 | 21,596 | 4 | 3 | 17,697 | 2 | 0 |
| 1891-1892 .. | .. | No Act in force. | .. | .. | .. | .. | .. | .. | 7,231 | 13 | 3 |
| 1893-1894-1895 .. | .. | No Returns furnished. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 1896 .. | 288,658 | 522,653 | 24,449 | 16,782 | 852,542 | Estimated at 106,450 0 0 | } 16,959 | 4 | 1 | .. | .. |
| 1897 .. | 717,717 | 601,307 | 177,811 | 26,000 | 1,522,835 | | | | | | |
| 1 Jan. to 30 June, 1898 | 290,163 | 298,078 | 6,505 | 11,090 | 605,836 | 44,392 | 0 | 8 | 13,030 | 8 | 9 |
| 1898-1899 .. | 823,700 | 851,022 | 36,138 | 24,447 | 1,735,307 | 35,318 | 16 | 10 | 15,155 | 10 | 6 |
| 1899-1900 .. | 634,223 | 620,109 | 29,912 | 20,331 | 1,304,575 | 33,118 | 13 | 0 | 15,329 | 12 | 2 |
| 1900-1901 .. | 413,992 | 816,300 | 40,517 | 24,939 | 1,295,748 | 29,613 | 13 | 7 | 11,163 | 1 | 7 |
| 1901-1902 .. | 281,445 | 751,061 | 30,684 | 21,289 | 1,084,479 | 22,922 | 0 | 10 | 11,775 | 15 | 8 |
| 1902-1903 .. | 282,770 | 636,856 | 48,768 | 18,148 | 986,542 | 9,901 | 6 | 2 | 5,819 | 8 | 0 |
| 1903-1904 .. | 53,301 | 190,353 | 9,279 | 12,477 | 265,410 | 11,272 | 16 | 2 | 4,176 | 15 | 8 |
| 1904-1905 .. | 81,892 | 208,631 | 36,164 | 10,176 | 336,863 | 13,964 | 19 | 1 | 4,699 | 18 | 9 |
| 1905-1906 .. | 109,349 | 339,815 | 84,887 | 19,420 | 553,471 | 11,990 | 11 | 5 | 3,146 | 5 | 1 |
| 1906-1907 .. | .. | 398,284 | 81,746 | 9,758 | 489,788 | 13,259 | 14 | 8 | 5,515 | 4 | 2 |
| 1907-1908 .. | .. | 474,387 | 127,618 | 11,493 | 613,498 | 16,063 | 16 | 4 | 5,399 | 3 | 6 |
| 1908-1909 .. | .. | 509,006 | 105,110 | 13,897 | 628,013 | 31,419 | 17 | 6 | 5,260 | 7 | 9 |
| 1 July, 1909, to 31 Dec., 1910 | .. | 1,198,059 | 103,534 | 23,828 | 1,325,421 | 18,657 | 19 | 9 | 5,887 | 10 | 11 |
| 1911 .. | .. | 708,501 | 40,055 | 21,508 | 770,064 | 25,340 | 8 | 7 | 6,271 | 16 | 9 |
| 1912 .. | .. | 912,795 | 43,267 | 23,743 | 979,805 | 19,535 | 18 | 2 | 6,541 | 8 | 3 |
| 1913 .. | .. | 787,558 | 18,627 | 18,757 | 824,942 | 15,665 | 4 | 6 | 3,467 | 19 | 8 |
| 1914 .. | .. | 433,325 | 9,044 | 21,061 | 463,430 | 17,596 | 1 | 9 | 4,063 | 7 | 0 |
| 1915 .. | .. | 319,437 | 14,048 | 25,924 | 359,409 | 17,143 | 3 | 8 | 3,596 | 5 | 6 |
| 1916 .. | .. | 202,612 | 5,330 | 26,525 | 234,467 | 14,472 | 11 | 10 | 3,223 | 19 | 3 |
| 1917 .. | .. | 220,721 | 4,197 | 18,916 | 243,834 | 17,264 | 19 | 10 | 3,450 | 18 | 6 |
| 1918 .. | .. | 211,306 | 5,287 | 22,206 | 238,799 | 43,781 | 18 | 4 | 5,000 | 0 | 0 |
| 1919 .. | .. | 154,246 | 7,882 | 42,292 | 204,420 | 803,627 | 12 | 10 | £304,382 | 8 | 6 |
| TOTALS .. | 7,935,175 | 17,195,871 | 1,205,681 | 559,781 | 26,896,508 | | | | | | |

Appended is also a table of operations of the various Boards throughout the State for the year ended 31st December, 1919:—

| Name of Board. | NUMBER OF SCALPS PAID FOR. | | | | | Bonus Paid. | | |
|--------------------------|----------------------------|---------------------|-----------|----------------|---------|-------------|----|----|
| | Wallaby. | Smaller Marsupials. | Fox. | Dingo. | Total. | £ | s. | d. |
| Adavale | 162 | .. | 115 | 413 | 690 | 532 | 1 | 0 |
| Aramac | 806 | .. | .. | 397 | 1,203 | 417 | 3 | 0 |
| Barcoo | .. | .. | 5 | 288 | 293 | 293 | 0 | 0 |
| Belyando | 3,634 | .. | .. | 1,040 | 4,674 | 1,092 | 0 | 9 |
| Booringa | 3,197 | .. | 202 | 561 | 3,960 | 806 | 0 | 0 |
| Boulia | .. | .. | .. | 1,271 | 1,271 | 1,229 | 0 | 0 |
| Bowen | Operations | commenced | after 1st | January, 1920. | .. | .. | .. | .. |
| Bulloo | 748 | .. | 103 | 1,439 | 2,290 | 1,510 | 5 | 0 |
| Bungil | 463 | .. | 330 | 910 | 1,703 | 1,241 | 8 | 10 |
| Burnett | 19,177 | 1,081 | 81 | 2,853 | 23,192 | 3,151 | 12 | 6 |
| Burke | Operations | commenced | after 1st | January, 1920. | .. | .. | .. | .. |
| Clermont | 10,957 | .. | .. | 859 | 11,816 | 1,049 | 13 | 0 |
| Cloncurry | .. | .. | .. | 2,055 | 2,055 | 2,055 | 0 | 0 |
| Condamine | .. | .. | 220 | 997 | 1,217 | 1,163 | 15 | 0 |
| Cook | Operations | commenced | after 1st | January, 1920. | .. | .. | .. | .. |
| Dalrymple | .. | .. | 1 | 413 | 414 | 413 | 0 | 0 |
| Darling Downs | 6,288 | 53 | 1,905 | 476 | 8,722 | 2,438 | 5 | 10 |
| Dawson | .. | 56 | .. | 1,975 | 2,031 | 1,895 | 9 | 4 |
| Diamantina | .. | .. | .. | 229 | 229 | 229 | 0 | 0 |
| East Moreton | Operations | commenced | after 1st | January, 1920. | .. | .. | .. | .. |
| Gregory | .. | .. | 2 | 1,132 | 1,134 | 1,134 | 0 | 0 |
| Gogango | .. | .. | 1 | 501 | 502 | 501 | 0 | 0 |
| Hughenden | 10 | 18 | .. | 1,020 | 1,048 | 1,020 | 5 | 0 |
| Kennedy | Operations | commenced | after 1st | January, 1920. | .. | .. | .. | .. |
| Mitchell West | .. | .. | 5 | 622 | 627 | 851 | 0 | 0 |
| Paroo | .. | .. | 2,995 | 254 | 3,249 | 3,154 | 10 | 0 |
| St. George | 1,086 | .. | 3,432 | 411 | 4,929 | 3,640 | 11 | 6 |
| Tambo | 1,752 | 6 | 86 | 441 | 2,285 | 555 | 5 | 0 |
| Warrego | 3,541 | 12 | 619 | 1,118 | 5,290 | 1,774 | 14 | 4 |
| Western Downs | .. | .. | 2,122 | 842 | 2,964 | 2,964 | 0 | 0 |
| West Moreton | 38,322 | 4,515 | 914 | 966 | 44,717 | 2,153 | 1 | 1 |
| Windorah | .. | .. | 36 | 1,692 | 1,728 | 1,728 | 0 | 0 |
| Wide Bay | .. | 37 | .. | 225 | 262 | 225 | 18 | 6 |
| Leichhardt East | .. | .. | .. | 1,685 | 1,685 | 1,516 | 10 | 0 |
| Leichhardt South | 64,103 | 2,104 | .. | 2,033 | 68,240 | 3,046 | 8 | 8 |
| TOTALS | 154,246 | 7,882 | 13,174 | 29,118 | 204,420 | 43,781 | 18 | 4 |

NATIVE ANIMALS PROTECTION ACT.

The recent regulations under the Poisons Act, which prohibited the sale of cyanide excepting under the authority of the police, have in some measure lessened the indiscriminate and unsportsmanlike use of this material, but there is much yet to be done to protect the interests of the honest trapper and to prevent the extermination of the opossum. The devices used by some people affect other matters than the slaughter of opossums, and complaints have been made of the effect of them. For instance, one of the devices is the use of the electric torch or light to locate the animals, and this, it is stated, has had a serious effect by disturbing cattle at night, especially in breeding paddocks. Though the season this year is a short one and the total number killed will be proportionately less, the figures the Department was able to gather of the number of opossums and native bears whose skins passed through the market, clearly show that the extermination of native animals of these kinds is in sight. The number of opossums that it was ascertained had passed through the markets exceeded 2,250,000, and if to these be

added the many thousands that were killed but never found, the total shows but one end to the trade. The fall in the values of skins that has recently taken place will, of course, reduce the number of trappers, but it would seem that to preserve the trade, protection for some years will be needed to permit the animals to breed up again.

Proposals have been made that any future legislation should prohibit the sale of any cub-skins, that is, any skin of an animal under six months of age, but it is feared, from the methods of catching opossums and native bears, that the proposal would have no effect upon the indiscriminate slaughter that now takes place, because the trapper in most cases does not see the animals until they are dead.

The permit fee seems, in the interests of the man who is really a trapper and hunter, to be at too low a figure. At present it stands at 2s. 6d. a year only, and under it, with the prices that have been ruling of late, persons of all ages and descriptions took out licenses, and many of them were people who followed other occupations and took the opportunity of thus adding

to their income, but to the detriment of those to whom trapping is a main source of livelihood.

The systems of issuing permits under the Dingo and Marsupial Destruction Act and the Native Animals Protection Acts differ to an extent that has caused complaints. Under the former Act the issue is by the Board in the district concerned, and the holder can go to any holding named on the permit held by him, and to any part of that holding excepting such parts as are reserved under the Act, and these shall not exceed more than one-sixth of the whole. Under the Native Animals Protection Act, permits are issued from the offices of clerks of petty sessions, and the holder of a permit must obtain the consent of the occupier of a holding before entering thereon. This difference sometimes leads to misunderstanding and confusion, and especially so when many men combine the calling of dingo-destruction and opossum-hunting.

NATIVE BIRDS PROTECTION ACT.

The societies interested in the native birds of this State have, during the year manifested great interest in the welfare of the birds, and have made many suggestions of help towards further protecting our birds, but until the Act is amended so as to give sufficient protection there is not any hope of carrying out the wishes of these societies in their entirety. Two years ago a Bill was prepared to include animals and birds under the general name of game, and this Bill included most of the points advocated by the societies. For instance, there is no power now to prevent anyone collecting the eggs of protected birds, and there is quite a trade in the eggs of the rarer birds for sale to private collectors or for museums outside of Australia. This trade is a most effective means for the extinction of a species, even more so than by shooting, and it should be stopped. Again, there is no provision for licensing dealers in birds, so as to be able to control sales, and at present it is somewhat doubtful what success would be obtained in the case of even protected birds in confinement for sale. Another power that is badly wanted is control over bird skins and the feathers of protected birds at least, if not over other birds. No interference has ever been made with the destruction of birds by aborigines for food, and this leniency has been made use of by others, who employ them to kill the birds for the trade that is possible in plumage and skins for ornamental purposes. These matters have

been suggested by those interested in our birds as being matters of importance for proper protection and for inclusion in any amendment in our existing laws, which are now, owing to increased population and settlements, quite inadequate for that purpose. There are predatory birds which require to be kept in subjection, but, on the whole, birds are very good friends to the pastoralist and to the farmer, and even the much-abused crow has some friends among pastoralists.

It is admitted that there is great difficulty in administering an Act of this description, which does not provide funds for administration, and which comes under the saying that "What is every one's business is nobody's business." Reserves upon private properties are fairly well watched, but on reserves to which the public have access preventive action generally falls upon the police, who, though giving every help wherever possible, are quite unable, through their many duties, to give the protection needed. Sporting clubs also help, but the members mostly are townspeople and so are only able to give attention to the reserves immediately in their neighbourhood. What is needed is the appointment of rangers at a retaining fee sufficiently large to ensure interest in the appointment. Preferably people living in the neighbourhood should hold the office, because they would have the better knowledge of the inhabitants in the neighbourhood.

PURE SEEDS AND STOCK FOODS ACTS.

During the year there has been a large increase in the number of samples sent in by both farmers and merchants for seed testing, and great difficulty has been experienced in keeping up with the work, every appliance for seed testing being in use up to its utmost capacity.

The number of samples dealt with each year since the Act came into force clearly shows the increasing importance of this branch of your Department.

Samples tested were as follows:—

| Year. | No. of Samples. |
|---------------|-----------------|
| 1915 | 467 |
| 1916 | 995 |
| 1917 | 1,020 |
| 1918 | 1,070 |
| 1919 | 1,345 |
| 1920 | 2,021 |

Owing to this large increase and the additional work under the Stock Foods Act, it has been impossible to make the frequent inspection of the seed stocks held by merchants in different parts of the State that is desirable.

In order to cope with the natural increase, additional apparatus is on order and under construction, which it is hoped will be installed early in 1921 and will be capable of dealing with an additional 1,000 samples per annum.

Five prosecutions were instituted for breaches of the Pure Seeds Acts, the defendants in each instance being fined for selling seeds which contained a larger proportion of foreign ingredients than is prescribed by the regulations. As usual, many complaints were made as to the quality of the oats purchased for sowing; unfortunately, in nearly every instance, the buyers had not purchased seed oats, and nothing could be done to protect their interests.

It cannot be too widely known that farmers may send in samples of seeds to the Department for testing, no charge being made providing the seeds have been purchased as seeds for sowing, and the following particulars are given:—

Vendor's name and address.

Name of seed,

Quantity purchased,

Locality where the seed is to be sown,

Name and address of purchaser,

the weight of the samples sent being that prescribed by the regulations under the Acts.

There is much to be said in favour of seed grown within the State; this, however, requires to be cleaned with as much care as that produced elsewhere, and farmers would do well to ascertain the percentage of purity and germination of their own seed, as well as that purchased from a neighbour. The trading between farmers of ungraded seeds leads to the spread of many weeds, some, such as *Datura stramonium*, being of a poisonous nature, and it is to be regretted that there is an increasing number of millet and Sudan grass samples in which it appears. As soon as farmers realise the seriousness of such pests it will be possible to get down to the real source of the trouble—the farm where the seed was grown.

The attached tables give the percentage of samples that came up to the prescribed standard, or low grade, as well as those that did not com-

ply with the Acts on account of purity or germination.

It is to be noted that 6.5 per cent. of the paspalum and 4.8 per cent. of the rhodes grass samples grew over 50 per cent., which is proof that a far better quality than is usually sold can be produced in Queensland.

“*The Stock Foods Act of 1919*” came into force in January, 1920. Under this Act every wholesale seller of any mixed concentrated or prepared stock food or prescribed by-products must send a fair average sample of such food on or before the thirty-first day of January in each year. The sample is to be in a sealed glass jar or bottle bearing a label with the name or trade mark of the food, and is to be accompanied by a statutory declaration that it is a fair average sample of the stock food it represents, and stating the specific name and proportion or amount of each of the original grains, seeds, materials, or ingredients. It must also be accompanied by a specimen copy of the invoice certificate relating to such food, and all directions, if any, for the use of the food, and also a label (which is to be affixed to every package) clearly certifying—

The number of net pounds in the package;

The name or trade mark of the stock food;

The name and address of the wholesale seller; and

The chemical analysis.

And in the case of mixed stock foods or prescribed stock foods, the specific name of each of the original grains, or seeds, or materials, or ingredients, and the specific name and proportion or amount of the foreign ingredients, if any, must be given.

To the 31st March, only six wholesale sellers had complied with this section of the Act, and a circular was therefore issued drawing attention to the matter. This has had some measure of success, as sixty-five samples have now been received from twenty-four wholesale sellers.

In order to explain the Act generally, and at the request of several Country Traders' Associations, Mr. Coleman, the expert, visited most of the important towns in the State and met those interested in the sale of stock foods.

There is, unfortunately, a reluctance on the part of some to comply with the Act; this will, no doubt, be overcome in time.

AGRICULTURAL SEEDS TESTED UNDER THE PURE SEEDS ACTS, 1919-20.

| | PERCENTAGE OF SAMPLES GERMINATING BETWEEN | | | | | | | | | | Percentage of Samples up to the prescribed Standards of Purity and Germination. | Percentage of Low Grade Samples. | Percentage of Samples which did not comply with the prescribed Standards on account of Impurities or Germination. |
|------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|---|----------------------------------|---|
| | 100-90 | 89-80 | 79-70 | 69-60 | 59-50 | 49-40 | 39-30 | 29-20 | 19-10 | 9-0 | | | |
| Barley, Cape | 95.2 | 4.8 | .. | .. | .. | .. | .. | .. | .. | .. | 94.0 | 5.0 | 1.0 |
| Barley, skinless | 70.0 | 20.0 | .. | .. | .. | .. | 10.0 | .. | .. | .. | 70.0 | 19.0 | 11.0 |
| Barley, malting | 100.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 100.0 | .. | .. |
| Cowpea | 17.4 | 21.7 | 34.8 | 8.7 | 13.1 | 4.3 | .. | .. | .. | .. | 17.4 | 51.0 | 31.6 |
| Cotton | 14.3 | 42.8 | .. | 28.6 | .. | .. | .. | 14.3 | .. | .. | 57.1 | .. | 42.9 |
| Canary seed | .. | 20.0 | 20.0 | 40.0 | .. | 20.0 | .. | .. | .. | .. | 39.0 | 39.0 | 22.0 |
| Kale | .. | 14.3 | 42.8 | 14.3 | .. | 14.3 | 14.3 | .. | .. | .. | 71.4 | .. | 28.6 |
| Lucerne | 36.3 | 52.3 | 6.8 | 2.3 | .. | .. | .. | .. | 2.3 | .. | 86.0 | 10.0 | 4.0 |
| Mangel | .. | 2.6 | 12.8 | 10.2 | 23.1 | 20.5 | 15.4 | 7.7 | 5.1 | 2.6 | 45.6 | .. | 54.4 |
| Maize | 66.1 | 23.7 | 6.8 | 1.7 | 1.7 | .. | .. | .. | .. | .. | 66.1 | 23.7 | 10.2 |
| Millet, Foxtail | 66.6 | 9.5 | 2.4 | 2.4 | 4.8 | 4.8 | .. | 7.1 | .. | 2.4 | 76.1 | 4.8 | 19.1 |
| Millet, Japanese | 38.3 | 18.3 | 8.3 | 8.3 | 10.0 | 6.7 | 1.7 | 1.7 | 1.7 | 5.0 | 56.6 | 16.6 | 26.8 |
| Millet, French | 44.4 | 44.4 | .. | .. | 11.2 | .. | .. | .. | .. | .. | 88.8 | .. | 11.2 |
| Millet, broom | 20.0 | 40.0 | 20.0 | 20.0 | .. | .. | .. | .. | .. | .. | 60.0 | 40.0 | .. |
| Oats | 70.0 | 23.4 | 3.3 | .. | .. | .. | 3.3 | .. | .. | .. | 91.0 | 3.0 | 6.0 |
| Paspalum | .. | 1.1 | .. | 1.1 | 4.3 | 8.6 | 8.6 | 20.4 | 20.4 | 35.5 | 15.1 | 29.0 | 55.9 |
| Panicum, white | 50.0 | 37.5 | .. | 6.25 | .. | .. | .. | 6.25 | .. | .. | 87.5 | 6.25 | 6.25 |
| Rhodes grass | .. | .. | .. | .. | 4.8 | 15.0 | 14.4 | 25.1 | 27.3 | 13.4 | 19.8 | 39.5 | 40.7 |
| Rye | 40.0 | .. | .. | 20.0 | .. | .. | 20.0 | .. | .. | 20.0 | 40.0 | .. | 60.0 |
| Rape | 25.0 | 12.5 | 37.5 | 12.5 | .. | .. | .. | .. | .. | 12.5 | 87.5 | .. | 12.5 |
| Sorghum, saccharine .. | 37.0 | 42.6 | 11.1 | 5.5 | 1.9 | 1.9 | .. | .. | .. | .. | 79.6 | 15.4 | 5.0 |
| Sorghum, grain | 37.0 | 14.8 | 40.8 | .. | 3.7 | 3.7 | .. | .. | .. | .. | 51.8 | 40.8 | 7.4 |
| Soudan grass | 15.1 | 45.3 | 11.3 | 7.5 | 3.8 | .. | 5.7 | 1.9 | 3.7 | 5.7 | 60.4 | 18.8 | 20.8 |
| Sweet corn | 16.7 | 50.0 | 16.7 | 16.6 | .. | .. | .. | .. | .. | .. | 82.0 | 18.0 | .. |
| Tares | 100.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 100.0 | .. | .. |
| Tobacco | .. | 14.3 | 42.8 | 14.3 | 28.6 | .. | .. | .. | .. | .. | 14.3 | 57.1 | 28.6 |
| Wheat | 89.5 | 9.9 | 0.6 | .. | .. | .. | .. | .. | .. | .. | 89.5 | 10.5 | .. |

VEGETABLE SEEDS TESTED UNDER THE PURE SEEDS ACTS, 1919-20.

| | PERCENTAGE OF SAMPLES GERMINATING BETWEEN | | | | | | | | | | Percentage of Samples up to the prescribed Standards of Purity and Germination. | Percentage of Samples that did not comply with the prescribed Standards on account of Impurities or Germination. |
|-----------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|---|--|
| | 100-90 | 89-80 | 79-70 | 69-60 | 59-50 | 49-40 | 39-30 | 29-20 | 19-10 | 9-0 | | |
| Beet | .. | 11.1 | 35.6 | 24.4 | 13.3 | 9.0 | 2.2 | .. | 4.4 | .. | 77.0 | 23.0 |
| Beans, French | 59.1 | 29.6 | 4.5 | 4.5 | .. | .. | .. | .. | .. | 2.3 | 92.0 | 8.0 |
| Beans, Lima | 75.0 | 19.4 | 5.6 | .. | .. | .. | .. | .. | .. | .. | 97.0 | 3.0 |
| Cabbage | 37.3 | 33.0 | 14.3 | 6.6 | 3.3 | 1.1 | 2.2 | 2.2 | .. | .. | 94.0 | 6.0 |
| Cauliflower | 13.6 | 27.3 | 27.3 | 18.2 | 9.1 | .. | 4.5 | .. | .. | .. | 95.0 | 5.0 |
| Carrot | 1.9 | 5.8 | 15.4 | 21.2 | 15.4 | 21.2 | 11.5 | 3.8 | 3.8 | .. | 70.0 | 30.0 |
| Cucumber | 45.4 | 18.2 | 36.4 | .. | .. | .. | .. | .. | .. | .. | 100.0 | .. |
| Celery | .. | .. | .. | 42.8 | .. | .. | 14.3 | 28.6 | 14.3 | .. | 42.8 | 57.2 |
| Kohl Rabi | 22.3 | 33.3 | 11.1 | 11.1 | 22.3 | .. | .. | .. | .. | .. | 100.0 | .. |
| Leek | .. | .. | 16.7 | .. | 25.0 | .. | 16.7 | 33.3 | 8.3 | .. | 41.7 | 58.3 |
| Lettuce | 69.2 | 10.3 | 15.4 | 5.1 | .. | .. | .. | .. | .. | .. | 100.0 | .. |
| Melon, Water | 9.4 | 50.0 | 15.6 | 6.3 | 12.5 | .. | .. | .. | .. | .. | 100.0 | .. |
| Melon, Rock | 9.1 | 36.3 | 18.2 | 9.1 | .. | 9.1 | .. | 3.1 | .. | 3.1 | 78.0 | 22.0 |
| Marrow | 47.1 | 5.9 | 17.6 | 17.6 | 5.9 | .. | .. | 5.9 | .. | .. | 70.0 | 30.0 |
| Mustard | 42.8 | 28.6 | .. | 14.3 | .. | .. | 14.3 | .. | .. | .. | 82.0 | 18.0 |
| Onion | .. | 24.2 | 27.3 | 18.2 | 6.1 | 15.2 | 3.0 | 3.0 | 3.0 | .. | 86.7 | 14.3 |
| Peas | 70.5 | 22.9 | 5.0 | 1.6 | .. | .. | .. | .. | .. | .. | 69.7 | 30.3 |
| Parsley | .. | .. | .. | 14.3 | 28.6 | 42.8 | .. | .. | 14.3 | .. | 99.0 | 1.0 |
| Parsnip | .. | .. | .. | 12.5 | 12.5 | 37.5 | 12.5 | 12.5 | .. | 12.5 | 63.0 | 37.0 |
| Pumpkin | .. | 41.6 | 25.0 | .. | 8.3 | .. | 8.3 | 8.4 | .. | 8.4 | 75.0 | 25.0 |
| Radish | 54.5 | 25.0 | 6.8 | 2.3 | 6.9 | 4.5 | .. | .. | .. | .. | 66.6 | 33.4 |
| Swede | 35.0 | 40.0 | 20.0 | 5.0 | .. | .. | .. | .. | .. | .. | 95.5 | 4.5 |
| Spinach | .. | .. | .. | 16.7 | 16.7 | .. | 16.7 | 33.3 | 16.6 | .. | 100.0 | .. |
| Turnip | 43.2 | 18.2 | 11.3 | 9.1 | .. | 2.3 | 6.8 | 2.3 | .. | 6.8 | 33.4 | 66.6 |
| Tomato | 30.1 | 41.3 | 17.5 | 9.5 | 1.6 | .. | .. | .. | .. | .. | 81.8 | 18.2 |
| | | | | | | | | | | | 98.4 | 1.6 |

RETURN SHOWING THE OVERSEA EXPORTS OF THE UNDERMENTIONED ARTICLES FROM THE STATE OF QUEENSLAND
DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1920.

| Items. | Quantity. | Value. |
|----------------------------|-----------|-------------|
| Butter | .. lb. | £ |
| Cheese .. .. . | .. .. . | 469,135 |
| Fruits, fresh .. .. . | .. .. . | 126,102 |
| Sugar | Centals | .. |
| Meats— | .. cwt. | 721 |
| Beef | .. lb. | 101,065,300 |
| Mutton (183,609 carcasses) | .. .. . | 2,031,934 |
| Lamb (1,537 carcasses) | .. .. . | 6,903,794 |
| Pork .. .. . | .. .. . | 147,175 |
| Other .. .. . | .. .. . | 47,851 |
| In tins .. .. . | .. .. . | 1,293 |
| Milk, concentrated .. .. . | .. .. . | 6,965,675 |
| Milk, preserved .. .. . | .. .. . | 186,308 |
| Hides .. .. . | .. .. . | 7,517,665 |
| Skins | No. | 436,795 |
| Tallow .. .. . | .. .. . | 5,282,142 |
| Wool— | .. cwt. | 229,424 |
| Greasy (264,498 bales) | .. lb. | 229,450 |
| Clean (88,342 bales) | .. .. . | 293,549 |
| Bacon and Hams .. .. . | .. .. . | 92,835,718 |
|  | .. .. . | 6,630,813 |
|  | .. .. . | 2,295,603 |
|  | .. .. . | 111,751 |

COMPARATIVE PRICES OF CERTAIN PRODUCTS FOR PERIODS FROM 1ST JULY, 1919, TO 30TH JUNE, 1920.

| | Highest. | | | Lowest. | | | Average Highest. | | | Average Lowest. | | |
|-------------------------------------|----------|----|-----|---------|----|----|------------------|----|-----|-----------------|----|-----|
| | £ | s. | d. | £ | s. | d. | £ | s. | d. | £ | s. | d. |
| Bacon | 0 | 1 | 5 | 0 | 0 | 9 | 0 | 1 | 1½ | 0 | 1 | 1½ |
| Barley | 0 | 7 | 0 | 0 | 5 | 3 | 0 | 4 | 10½ | 0 | 4 | 9½ |
| Bran | 19 | 0 | 0 | 8 | 15 | 0 | 11 | 9 | 4½ | 10 | 3 | 1½ |
| Broom millet | 80 | 0 | 0 | 20 | 0 | 0 | 54 | 5 | 0 | 42 | 1 | 8 |
| Butter | 11 | 8 | 0 | 8 | 16 | 0 | 8 | 19 | 10 | 8 | 19 | 10 |
| Chaff, mixed | 17 | 0 | 0 | 7 | 5 | 0 | 13 | 11 | 8 | 10 | 16 | 8 |
| Chaff, oaten | 18 | 0 | 0 | 10 | 0 | 0 | 14 | 15 | 6 | 12 | 16 | 3 |
| Chaff, lucerne | 25 | 10 | 0 | 9 | 10 | 0 | 18 | 6 | 8 | 13 | 9 | 7 |
| Chaff, wheaten | 17 | 0 | 0 | 8 | 0 | 0 | 13 | 12 | 6 | 11 | 5 | 2½ |
| Cheese | 0 | 1 | 7 | 0 | 0 | 11 | 0 | 1 | 2½ | 0 | 0 | 11½ |
| Flour | 19 | 10 | 0 | 12 | 5 | 0 | 16 | 0 | 0 | 15 | 13 | 0 |
| Hams | 0 | 2 | 4 | 0 | 1 | 3 | 0 | 1 | 11 | 0 | 1 | 8 |
| Hay, lucerne | 19 | 0 | 0 | 7 | 10 | 0 | 13 | 13 | 9 | 12 | 7 | 6 |
| Hay, oaten | 18 | 0 | 0 | 10 | 15 | 0 | 14 | 16 | 8 | 14 | 8 | 0 |
| Hay, wheaten (three months only) | 10 | 10 | 8 | 10 | 0 | 0 | 10 | 7 | 1½ | 10 | 6 | 2½ |
| Honey | 0 | 0 | 7½ | 0 | 0 | 4½ | 0 | 0 | 6½ | 0 | 0 | 5½ |
| Maize | 0 | 11 | 6½ | 0 | 6 | 9 | 0 | 9 | 6½ | 0 | 8 | 2½ |
| Oats | 0 | 8 | 0 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 5 | 2½ |
| Onions | 27 | 15 | 0 | 15 | 0 | 0 | 20 | 10 | 6 | 14 | 10 | 10 |
| Peanuts | 0 | 0 | 10½ | 0 | 0 | 4 | 0 | 0 | 8½ | 0 | 0 | 6½ |
| Pollard | 14 | 0 | 0 | 9 | 5 | 0 | 10 | 9 | 6 | 10 | 3 | 6 |
| Potatoes | 54 | 15 | 0 | 12 | 0 | 0 | 24 | 0 | 10 | 18 | 6 | 2 |
| Potatoes, sweet | 0 | 13 | 0 | 0 | 5 | 6 | 0 | 10 | 4 | 0 | 7 | 10 |
| Pumpkins (cattle) | 25 | 5 | 0 | 2 | 3 | 0 | 12 | 5 | 6 | 8 | 10 | 4½ |
| Eggs | 0 | 3 | 11 | 0 | 0 | 10 | 0 | 2 | 3 | 0 | 1 | 6¾ |
| Fowls | 0 | 10 | 9 | 0 | 3 | 0 | 0 | 9 | 7 | 0 | 5 | 6 |
| Ducks (English) | 0 | 7 | 0 | 0 | 3 | 6 | 0 | 5 | 5½ | 0 | 4 | 6 |
| Ducks (Muscovy) | 0 | 17 | 0 | 0 | 3 | 6 | 0 | 10 | 1 | 0 | 5 | 9¾ |
| Geese | 0 | 15 | 0 | 0 | 5 | 0 | 0 | 10 | 11½ | 0 | 8 | 6 |
| Turkeys (hen) | 0 | 17 | 0 | 0 | 11 | 0 | .. | .. | .. | .. | .. | .. |
| Turkeys (gobblers) | 4 | 0 | 0 | 0 | 17 | 6 | 2 | 15 | 8 | 1 | 9 | 7 |
| Bullocks | 40 | 15 | 0 | 13 | 10 | 0 | 27 | 9 | 1½ | 22 | 11 | 7 |
| Cows | 24 | 13 | 9 | 12 | 0 | 0 | 18 | 1 | 0 | 16 | 1 | 0 |
| Merino wethers | 3 | 19 | 0 | 1 | 16 | 9 | 2 | 9 | 6 | 2 | 8 | 10½ |
| Crossbred wethers | 3 | 12 | 0 | 1 | 16 | 9 | 2 | 5 | 3 | 2 | 5 | 2 |
| Merino ewes | 3 | 12 | 0 | 1 | 6 | 0 | 1 | 17 | 0 | 1 | 15 | 5 |
| Crossbred ewes | 3 | 6 | 6 | 1 | 17 | 3 | 2 | 4 | 5 | 2 | 4 | 5 |
| Lambs | 2 | 18 | 0 | 1 | 11 | 3 | 1 | 19 | 2 | 1 | 19 | 2 |
| Pigs (back fatters), one month only | 9 | 10 | 0 | 9 | 10 | 0 | 9 | 10 | 0 | 9 | 10 | 0 |
| Bacon pigs | 5 | 11 | 0 | 5 | 11 | 0 | 5 | 11 | 0 | 5 | 11 | 0 |
| Porkers | 4 | 7 | 6 | 2 | 4 | 0 | 3 | 4 | 9 | 3 | 4 | 9 |
| Slips | 3 | 4 | 9 | 3 | 4 | 9 | 3 | 4 | 9 | 3 | 4 | 9 |

Appended are Reports from the Principal of the Queensland Agricultural College, the Agricultural Chemist, the Director of Fruit Culture, the Director of Agriculture, the Chief Dairy Expert, the Chief Inspector of Stock, the Government Bacteriologist, the Government Botanist, and the Curator of the Botanic Gardens.

With this Report also are the Statistics upon rural matters, compiled by the Government Statistician, and in them will be found much interesting and valuable information.

I have, &c.,

ERNEST G. C. SCRIVEN,

Under Secretary.

REPORT OF THE PRINCIPAL OF THE QUEENSLAND AGRICULTURAL COLLEGE.

I have the honour to submit to you the Annual Report of the Queensland Agricultural College for the year ending 30th June, 1920.

As for the year 1918-1919, the dominating factor controlling all farm operations has been the drought. As anticipated in my last year's Annual Report, the winter of 1919 proved dry (see diagram of rainfall). From June to December it was exceptionally dry, and, as a result, straw crops failed, not only at the College, but throughout the whole surrounding district. A few, but very few, good plants of new lucerne were secured on the May rainfall, but, generally speaking, lucerne planting was a failure. In the early part of December we had the first useful rain for six months, and a rush planting of summer crops was made on all prepared land. Unfortunately, the remainder of December proved dry, and, though all the crops germinated well, they did not make any growth until rain came in January. By the end of January, prospects for a fair yield of maize and summer crops were good. February, however, was extra dry, rainfall 18 points, and by the end of the month it was quite evident that none of the early planted maize had a chance of maturing for grain. Similar conditions prevailed throughout the Lockyer Valley and South-Eastern Queensland. Hence, when the College decided to convert its more or less perished maize crops into silage, we advertised that a demonstration of stack silage building would continue for a fortnight as from the end of February, and inviting all farmers interested to attend at their convenience. It is pleasing to report that between 280 and 300 farmers from the Lockyer, the Downs, and the Coast availed themselves of the offer and visited the College. By far the majority went back to their farms and converted much of their own stunted maize into silage, and, from reports received, this has proved of inestimable benefit to them, particularly for dairy stock.

Some of those endeavouring to make silage made failures. This is greatly to be regretted, and certainly many failures would have been prevented had it been possible for members of the College staff to have gone out and given timely instruction and advice on the different farms in the Valley. This could not be done owing to lack of suitable rapid transit.

As illustrating this, I quote the following letter:—

“Djuan,
“Haden.

“DEAR SIR,—I have made a big stack of ensilage since I was down at the College, and it turned out real A1 stuff. I have made my stack 21 by 10 by 12 feet high when it settled, as we used heavy weights on every night after each day's operations, which made it settle down a foot every night, allowing us to get more stuff into the stack, of which I estimated about 70 tons. We erected a whip pole to pull up the stuff, which worked very well. I am thankful to you for the information which I obtained from

the College, and many other farmers are sorry they did not go down as well, as they made stacks and they turned out manure heaps.

“Yours faithfully,
“H. F. GERSEKOWSKI.”

Certainly in our immediate district the College could have prevented many such manure heaps being constructed had we been able to get right out on to the individual farms. Further, assistance so given at a time when sound practical advice was vital would have done much to strengthen that confidence in the College which we wish the whole farming community to have.

The demonstration of the building of a stack silo was followed up at the Royal Show at Toowoomba, where the College had a working model of a stack and gave daily lectureries on conservation of silage. The lectureries were attended by large numbers of the Downs farmers and were much appreciated. The model was also shown at Ipswich, where the lectureries were repeated. This demonstration of how to conserve stack silage, which the College made at Toowoomba and Ipswich agricultural shows, was undertaken with the idea of reaching as many farmers as possible, in view of the extreme urgency to save as much as we could of the scanty growth which had developed on the December and January rains. As a means of getting into close contact with the farmers, the demonstration was somewhat of an experiment. I am pleased to be able to report that the results were much more satisfactory than was anticipated. There would seem to be a wide field in these demonstrations at agricultural shows, whereby much work of the Department and the College might be brought home to the farmers.

Referring again to the diagram of rainfall at the College for the past four seasons, it will be noted that the past three winters have been well below normal. Together with this, we have the fact that the last two summers have been very dry. The accumulated effect of this deficient rainfall is evident in our subsoils, which, a few feet below the surface, are still dry. Further, our streams have not their accustomed flow, nor can we expect this until the subsoils have been sufficiently wetted. Recently at the College a well was sunk through the black soil, and the subsoil was exceedingly dry down to a depth of 32 feet. When we remember that each foot of depth of our black soils can retain from 1 to 2 inches of rain, some conception can be got of the quantity of surplus rain needed before our under-soils can recover from the shortage of rain during the past three seasons. Thus, though at present all-winter crops are promising remarkably well throughout South-Eastern Queensland, we have to face the fact that drought conditions still hold sway in our subsoils. If we fail to recognise this, we are gambling on our optimism; we are gambling on the uniform continuance of the present beneficial rains. Should these continue uniformly over a number of years, well and good. But if they do not, and there is a break of dry weather,

drought conditions, more or less severe, must inevitably reappear. Hence, irrespective of the necessity for systematic fodder conservation, there is this year an immediate urgency. Fortunately, the prospect for large winter crops is good. The opportunity for fodder conservation is with us, but will many of our farmers avail themselves of this opportunity?

From observations made over a fairly wide field, I am certain that it is useless to expect that many individual farmers will conserve fodder this winter unless some scheme of financial assistance is forthcoming. The reasons for this are obvious:—

- (1) For the last two years there has been a big drain on the resources of most farmers.
- (2) Because of the falling off of production, land values have depreciated, with the result that many who were working on a mortgage with a safe margin find that their reserve of security has disappeared.

As a result, the majority of farmers will be forced to realise on their produce at the earliest possible moment, and if the season is as good as it promises the prices realised will be low during the flush of the season. Market prices, however, must be expected to rise later. It can scarcely be otherwise in view of the general shortage of fodder in the State. Hence this winter's crop will yield a profit, but will the farmer (the producer) get it?

EDUCATION.

The session ending 30th June, 1919, closed with twenty-five students. Of these, three left and one new student entered in July, leaving a total of twenty-three on the roll. At the close of the December session, eleven students left, five having completed their course of training. In January, twenty-two new students entered, leaving a total of thirty-three on the roll. Last year closed with six returned soldier students, but this year seventy-six returned men have entered the College, fifty-six of whom have left after having completed periods of training, extending from 3 to 9 months. At present there are twenty-six returned soldiers in residence.

Since the inception of the College, the following have received direct instruction at the institution:—

| | |
|---|--------------|
| Ordinary students | 633 |
| Returned soldier students | 139 |
| Attending teachers' schools | 506 |
| Attending farmers' winter schools | 159 |
| Dairy inspectors | 20 |
| Crown lands rangers | 12 |
| Total | 1,469 |

At the annual examinations in December, 1919, the following results were obtained:—

Third Year in Agriculture—Nicholson, G. W. M. (Dux and gold medal); Bennett, E. C.; and Tighe, V., obtained Diploma in Agriculture.

Second Year in Agriculture—Gillingwater, F. J.; Higgins, T. J. M.; Horneman, W. B.; Irwin, J. N.; and Tait, J. A., passed.

First Year in Agriculture—Fanning, T. J.; Hall, D. S.; McLuckie, A. W.; de Stokar, O.; and Straughan, W. R., passed. Tait, E. G. S., failed.

Second Year in Dairying—Herbert, Thos.; and Hodges, R. K., obtained Diploma in Dairying.

First Year in Dairying—Black, N. A., passed.

Milk and Cream Testing Certificates were secured by Bennett, E. C.; Gillingwater, F. J.; Higgins, T. J. M.; Horneman, W. B.; Irwin, J. N.; Tait, J. A.; Hensel, W.; and by returned soldiers Hagen, L.; McLaren, J. W.; Stewart, A. D.; Moody, L.; and Wellspring, T. C.

Butter-making Certificates were secured by Brightwell, A. D.; and returned soldiers Hagen, L.; McLaren, J. W.; Stewart, A. D.; Moody, L.; and Wellspring, T. C.

Cheese-making Certificates were secured by Hensel, W.; and Stewart, A. D.

Third Class Engine Driver's Certificates were gained by Herbert, Thos.; Gillingwater, F. J.; Irwin, J. N.; Tait, J. A.; Horneman, W. B.; Black, N. A.; and Hagen, L.

Returned Soldiers.—During the past year seventy-six have entered the College for training, making a grand total of 139 since the commencement of the work in April, 1917. It is to be regretted that the accommodation at the College has been insufficient to fully meet the demand for this class of agricultural instruction. This lack of accommodation (the College undertook to make provision for twenty-five men at a time) has been accentuated, as the majority of the soldiers now entering prefer to stay with us for six or nine months. Throughout, the conduct of these men has been excellent, and their earnest attention to work most gratifying.

Winter School for Farmers.—Beginning on 14th June, a three weeks' school for farmers was held this year. The number attending was thirty.

Poultry Conference.—The third annual conference of poultry breeders was convened at the College, and was held in September. About 156 took advantage of the invitation to attend. This conference is an undoubted benefit to the poultry industry, as it affords an opportunity for all those interested to meet together to discuss matters of common interest. But, further, it keeps the College in close touch with the industry, and I feel that it would be of great advantage if we extended the idea, and held conferences for those interested in other branches of agriculture.

Diploma Day.—After a lapse of several years, because of war conditions, Diploma Day was re-established this year. Above 100 accepted the invitation to be present at the distribution of the diplomas, certificates, and prizes.

Visitors.—During the year, 750 visited the College. Included amongst these were Dr. Donaldson, Archbishop of Brisbane; General Sir William Glasgow; Hon. W. Gillies, M.L.A., Minister for Agriculture; the interstate poultry delegates; and the Toowoomba Chamber of Commerce; but by far the majority were farmers visiting us for the express purpose of obtaining some definite information.

Agricultural Education.—The full course of instruction for the students has been carried out. Officers on leave of absence with the A.I.F. have returned, and the teaching work has in consequence become more regular and consistent. Outside the College, every endeavour has been made to stimulate an interest in the value of technical training for agriculture. In connection with this, I gave lectures to the Chambers of Commerce in Brisbane, Toowoomba, and Ipswich, and the Toowoomba Chamber in particular are actively interested in this matter.

I would again appeal for a closer co-operation between the Departments of Public Instruction and Agriculture in this matter of agricultural education. At present there is a break in a boy's schooling from the age of about 14 to 16. In very many cases he completes his schooling at the younger age, but the College will not admit him until he is 16 or over.

Students' Quarters.—A common room for the students has just been completed. This will fill a long felt want, and should materially assist in the maintenance of quiet and orderliness in the dormitories. But, beyond this, I would impress the necessity to reconstruct the dormitories at the earliest possible moment. The existing structures are the worst feature of the College organisation. The arrangements are such that two students are required to share a room. Further, all rooms open out on to verandahs, which serve as passage ways. As a result, there is no privacy, every room being practically the common property of all students. Under these conditions it is extremely difficult for those studiously inclined to read quietly. They are subject to interruptions and interference, and the general tendency is for the whole College to be as rowdy as the rowdiest section of students in residence. This year tentative plans were submitted to the Department of Public Works, embodying what are considered the essential features of suitable study-bedrooms for students. I trust that a portion of this suggested new building may be constructed during 1920-1921. Following this, I most strongly urge that the full reconstruction be carried out at the earliest possible moment. Until such a reconstruction is made, it will be impossible to expect the collegiate side to develop and progress as it should.

IMPROVEMENTS.

A second well and windmill were established in the railway paddocks, thus rendering this section of the farm independent of the College pumping plant with regard to water supply.

A new slaughter-house has been constructed to meet the conditions set forth in the Stock Regulations.

A washing and loading pen was built at the piggery.

A veranda was attached to the blacksmith's shop for the purpose of housing implements undergoing repair.

The feed room of the stable was reconstructed. This was essential as the roof was falling in and the whole room was in a dangerous condition, there being grave risk of collapse. The room was also altered so as to afford more head room and carrying capacity, more light and

ventilation. The arrangements also permit of the handling of all fodder with less labour and expense.

The reconstruction of the milking bails was also undertaken. This work, however, was held up owing to the difficulty of securing certain supplies. At present the job is incomplete, and the bails in a disorganised state.

EXPERIMENT PLOTS.

This year a carefully selected site was chosen for field experiments, including variety trials and manurial tests. One portion of the area is to be laid down in various grasses. Much work in this section was rendered useless by the prolonged dry weather. On the railway paddock an area of 11 acres has been placed under test with lime, limestone, and gypsum. Here again the drought was the dominant factor and little or no information could be obtained from the crop yield. Another section of the farm, 15 acres, was put under a field trial with superphosphates, super and dried blood, and no manure, but no definite results were possible this season. This work has now been carefully organised, and the College should soon possess valuable information as to the value of fertilisers in the general agriculture of the Lockyer Valley.

POWER HOUSE.

I must again refer to the very unsatisfactory state of the electric plant at the College. This plant is overloaded, and as it is composed of a single engine and generating set, there is absolutely no chance to keep it in good repair, or to properly overhaul it. As a result of the natural accumulation of faults, an expensive stoppage was necessitated last December. General repairs were then effected, but, though the repairs have enabled us to continue working, the service obtained is anything but satisfactory. There are frequent minor breakdowns, failure of lights, and irritating derangements of farm work. A duplication of this plant was authorised five years ago, and then deferred until after the war. This five years has seen a constant depreciation, and the installation of a second but larger plant is now a matter of urgency.

OUTSIDE SECTIONS.

The Farm.—The following was the rainfall at the College from April, 1919, to June, 1920:—

| Month. | Rainfall. | Rainy Days. |
|-------------------|---------------|-------------|
| 1919. | | |
| April | Points. 26 | 5 |
| May | 297 | 12 |
| June | 40 | 3 |
| July | 4 | 2 |
| August | 42 | 2 |
| September | 12 | 3 |
| October | 66 | 2 |
| November | 65 | 3 |
| December | 182 | 5 |
| 1920. | | |
| January | 547 | 15 |
| February | 18 | 2 |
| March | 188 | 6 |
| April | 51 | 6 |
| May | 326 | 4 |
| June | 218 | 6 |

In view of the rainfall, the College has done exceedingly well, as is indicated by the following records of the crops obtained and the standing crops:—

CROPS HARVESTED 1ST JULY, 1919, TO 30TH JUNE, 1920.

| | Tons. | Tons. |
|-------------------------------------|-------|-------|
| Silage— | | |
| Maize and sorghums .. | .. | 469 |
| Hay— | | |
| Lucerne | 94 | .. |
| Wheaten | 109 | .. |
| Millet | 42 | .. |
| Sudan grass | 35 | .. |
| Oaten | 10 | .. |
| | — | 290 |
| Green feed, sorghum | .. | 245 |
| Pumpkins | .. | 116 |
| Mangolds, turnips, potatoes | .. | 38 |
| Total | .. | 1,158 |

STANDING CROPS ON 30TH JUNE, 1920.

| | Acres. |
|---|--------|
| Lucerne, planted previous to June, 1919 | 78 |
| Lucerne planted this year | 92 |
| Wheat | 125½ |
| Oats | 64 |
| Barley and tares | 18 |
| Pumpkins (estimated to yield 150 tons) .. | 45 |
| Mangolds | 5 |
| Swede turnips | 1¼ |
| Flax | 2½ |
| Rape and mustard | 8 |
| Silver beet | 15½ |
| Fallow | 71 |
| Stubble | 100¼ |
| Total under cultivation | 626 |

It will be noted that we have 626 acres of the farm under cultivation. During the past two years we have been able to cope with this area with our present staff and equipment. It is doubtful, however, if we shall be able to properly handle such an area if normal wet seasons are met with, unless the College equipment is strengthened. For successful farming under our normal rainfall, it is necessary to crowd in heavy field work at certain definite periods, so as to have the land prepared to take advantage of our periodic rainfalls. To be behind hand in the ploughing may easily result in losing the one good rainfall of the year. Further, if the land is prepared and lying fallow, rapid cultivation after storms is necessary in order to keep down weeds. At present the College cultivation paddocks are much too badly infested with weeds, and I am certain this has resulted from the fact that we have in the past had insufficient strength to carry out proper and thorough cultivation. Even while recognising the danger of having too much cultivated land, we have recently extended the area under plough. This was necessary to provide a sufficiency of crops to carry our stud stock. It now becomes necessary to strengthen the College equipment to enable us to handle the extra cultivation. For this purpose the College should have a motor tractor. Not only would this relieve the situation, but it would be an important addition to the instruction given to students. Motor tractors have now taken their place in agriculture, and the College should be in a position to give the students instruction on them.

The returns from the Farm were as follows:—

| | £ | s. | d. | £ | s. | d. |
|-----------------------------------|-----|----|----|-------|----|----|
| Outside sales | .. | .. | .. | 252 | 9 | 4 |
| College dairy herd | 414 | 6 | 0 | | | |
| College piggery | 285 | 12 | 7 | | | |
| College poultry | 25 | 0 | 0 | | | |
| College dining-hall | 13 | 18 | 8 | | | |
| College garden department | 23 | 7 | 6 | | | |
| College power house | 61 | 4 | 10 | | | |
| College dairy factory | 31 | 18 | 4 | | | |
| | | | | 855 | 8 | 11 |
| Total | .. | .. | .. | 1,107 | 18 | 3 |

HORSES.

No mares were received for service, nor were any stock sold during the year.

HORSES AT COLLEGE, 30TH JUNE, 1920.

| | |
|--|----|
| Clydesdale stallions | 3 |
| Mare | 38 |
| Geldings | 24 |
| Mules | 2 |
| Foals and young stock not yet broken in .. | 17 |
| Total | 84 |

THE DAIRY FACTORY.

The supply of cream was low throughout the year, and the profits in this section are far below what should be realised in a good season. The general scheme which has been adopted whereby the College serves as a commercial factory for a limited number of suppliers, has proved of exceptional value to us in the matter of instruction. With improved seasons it should also prove to be a paying proposition up to the extent of covering the College expenditure on the dairy factory.

BALANCE SHEET.

Disbursements.

| | £ | s. | d. |
|--|--------|----|----|
| Purchase of cream from suppliers | 3,687 | 8 | 11 |
| College dairy herd supplies | 686 | 10 | 9 |
| Total | £4,373 | 19 | 8 |

Receipts.

| | £ | s. | d. |
|--|--------|----|----|
| Cash sales butter | 3,976 | 6 | 0 |
| Supplied to College dining-hall | 615 | 0 | 3 |
| Skim and whole milk fed to calves | 81 | 11 | 3 |
| Skim milk and buttermilk for piggery | 28 | 16 | 4 |
| Refrigeration for butchery | 32 | 6 | 6 |
| Total | £4,734 | 0 | 4 |

Showing a balance of £360 0s. 8d. to cover working expenses, salaries, &c.

DAIRY HERD.

CATTLE SOLD, 1ST JULY, 1919, TO 30TH JUNE, 1920.

| | Bulls. | Cows. | Value. | | | | | |
|--|--------|-------|--------|----|----|-------|----|----|
| | | | £ | s. | d. | £ | s. | d. |
| Ayrshires | 3 | .. | 48 | 10 | 0 | | | |
| | .. | 11 | 227 | 13 | 0 | 276 | 3 | 0 |
| Jerseys | 5 | .. | 112 | 8 | 0 | | | |
| | .. | 5 | 64 | 17 | 0 | | | |
| Holsteins | 3 | .. | | | | 177 | 5 | 0 |
| Service of bulls | 5 | .. | | | | 103 | 19 | 6 |
| | | | | | | 2 | 10 | 0 |
| Total for which cash received | | | | | | 559 | 17 | 0 |
| Killed for College dining-hall, 6 head | | | | | | 50 | 7 | 0 |
| Milk supplied to College dairy factory | | | | | | 686 | 10 | 9 |
| Total | | | | | | 1,296 | 14 | 9 |

CATTLE AT COLLEGE, 30TH JUNE, 1920.

| | Stud Bulls. | Stud Cows. | Young Bulls. | Young Females. | Steers. | Total. |
|---------------|-------------|------------|--------------|----------------|---------|--------|
| Ayrshires .. | 4 | 24 | 8 | 21 | 11 | 68 |
| Shorthorns .. | .. | 4 | .. | 2* | 1* | 7 |
| Jerseys .. | 2 | 21 | 2 | 14 | 8 | 47 |
| Holsteins .. | 1 | 8 | 5 | 4 | .. | 18 |
| Guernseys .. | 1 | 5 | 2 | 6 | .. | 14 |
| Totals .. | 8 | 62 | 17 | 47 | 20 | 154 |

*Grades.

HORTICULTURAL SECTION.

| | £ | s. | d. |
|----------------------------------|-----|----|----|
| Sales of vegetables and fruit .. | 139 | 3 | 11 |

SHEEP SECTION.

| | £ | s. | d. |
|--------------------------------------|------|----|----|
| Sales for cash | 139 | 10 | 1 |
| Sales of wool | 139 | 0 | 7 |
| Sheep killed for College dining-hall | 53 | 8 | 1 |
| | £331 | 18 | 9 |

PIGGERY.

SALES OF PIGS, 1ST JULY, 1919, TO 30TH JUNE, 1920.

| Breed. | Boars. | Sows. | Value | |
|--|--------|-------|----------|-------|
| | | | £ | s. d. |
| Berkshires .. | 43 | .. | 184 | 8 0 |
| | .. | 34 | 142 | 3 6 |
| | | | 326 11 6 | |
| Yorkshires .. | 9 | .. | 43 | 5 0 |
| | .. | 11 | 54 | 12 0 |
| | | | 97 17 0 | |
| Total sales stud pigs | | | 424 | 8 6 |
| Grades and culls sold as baconers, 192 head | | | 753 | 16 11 |
| Service of sows, 16 head | | | 4 | 0 0 |
| Keep of sows sent for service | | | 1 | 13 0 |
| Pig crates | | | 0 | 18 0 |
| Total sales for cash | | | 1,184 | 16 5 |
| Killed for College dining-hall, 22 head | | | 30 | 11 8 |
| Totals returns | | | 1,125 | 8 1 |

PIGS AT COLLEGE, 30TH JUNE, 1920.

| | Stud Boars. | Stud Sows. | Young Stock and Barrows. | Total. |
|-----------------------|-------------|------------|--------------------------|--------|
| Berkshires | 4 | 21 | 65 | 90 |
| Yorkshires | 3 | 13 | 80 | 96 |
| British Black | .. | 1 | .. | 1 |
| Totals | 7 | 35 | 145 | 187 |

POULTRY SECTION.

SALES OF POULTRY AND EGGS, 1ST JULY, 1919, TO 30TH JUNE, 1920.

| | Settings | Birds. | Value. | |
|---------------------------|----------|--------|----------|-------|
| | | | £ | s. d. |
| White Leghorns | 69½ | 190 | 42 | 0 0 |
| | .. | .. | 137 | 16 0 |
| | | | 179 16 0 | |
| Brown Leghorns | 17 | 54 | 9 | 12 0 |
| | .. | .. | 29 | 18 0 |
| | | | 39 10 0 | |
| Black Orpingtons | 46½ | 140 | 24 | 15 6 |
| | .. | .. | 86 | 10 0 |
| | | | 111 5 6 | |
| Rhode Is. Reds | 16 | 126 | 8 | 0 0 |
| | .. | .. | 52 | 11 6 |
| | | | 60 11 6 | |
| Indian Game .. | 6 | 20 | 3 | 10 0 |
| | .. | .. | 10 | 7 6 |
| | | | 13 17 6 | |
| S. L. Wyandottes | 3 | 6 | 2 | 1 0 |
| | .. | .. | 4 | 15 6 |
| | | | 6 16 6 | |
| Houdans .. | .. | 5 | .. | 3 1 0 |
| Total sales stud stock .. | 158 | 541 | 414 | 18 0 |

Other sales—

| | | | |
|---|---|----|----|
| Table eggs sold for cash, 112 dozen | 7 | 6 | 10 |
| Table fowls sold for cash, 31 head | 3 | 10 | 0 |
| Fowl crates, 9 | 2 | 1 | 6 |

| | | | |
|--------------------------------|-----|----|---|
| Total sales for cash | 427 | 16 | 4 |
| Dining-hall— | | | |
| Table fowls, 132 head | 13 | 18 | 6 |
| Table eggs, 221½ dozen | 11 | 1 | 3 |
| Total returns | 452 | 16 | 1 |

EGG-LAYING COMPETITION.

A full report has already appeared in the *Queensland Agricultural Journal*.

BALANCE-SHEET.

| Receipts. | | £ | s. | d. | £ | s. | d. |
|-----------------------------------|--|----------|----|----|---|----|----|
| Entrance Fees | | 88 | 10 | 0 | | | |
| Sales— | | | | | | | |
| Defence Department, 5,096 doz. | | 418 | 13 | 1 | | | |
| College dining-hall, 1,751½ doz. | | 153 | 0 | 0 | | | |
| | | 571 13 1 | | | | | |
| Total receipts | | £660 | 3 | 1 | | | |
| Expenditure. | | £ | s. | d. | £ | s. | d. |
| Prize money | | 50 | 8 | 0 | | | |
| Food— | | | | | | | |
| Wheat, 291 bushels | | 97 | 5 | 5 | | | |
| Pollard, 415 bushels | | 50 | 19 | 0 | | | |
| Bran, 226½ bushels | | 23 | 13 | 10 | | | |
| Cracked corn, 14½ bushels | | 6 | 6 | 8 | | | |
| Meggitt's meal, 4 cwt. | | 7 | 16 | 3 | | | |
| Dried blood, 5 cwt. | | 4 | 17 | 6 | | | |
| Green lucerne, valued at | | 2 | 0 | 0 | | | |
| Soup meat, valued at | | 3 | 0 | 0 | | | |
| | | 195 18 8 | | | | | |
| Balance | | 413 | 16 | 5 | | | |
| Total | | £660 | 3 | 1 | | | |

CUTHBERT POTTS,

Principal, Queensland Agricultural College,
Gatton.

KAIRI STATE FARM.



FARM BUILDINGS.
CATTLE ON PASTURE.

REPORT OF THE AGRICULTURAL CHEMIST.

SIR,—I have the honour to submit to you herewith my Annual Report on the work of the Chemistry Division of your Department for the year ended 30th June, 1920.

LABORATORY.

The supply of glassware and chemical is still in a most unsatisfactory state, many items being quite unprocurable, particularly arsenic free reagents. Goods ordered over twelve months ago have not yet come to hand.

WORK PERFORMED.

The following table give a summary of the samples received and analysed during the year, showing considerable increase all around:—

| | 1917-18. | 1918-19. | 1919-20. |
|--|----------|----------|----------|
| Soils | 56 | 122 | 153 |
| Waters | 42 | 95 | 153 |
| Dipping fluids | 2,268 | 1,273 | 1,303 |
| Dip concentrates | 19 | 17 | 21 |
| Milks and cream | 129 | 110 | 204 |
| Butters | 109 | 18 | 128 |
| Margarines | .. | 4 | 29 |
| Condensed milks | 81 | 12 | 27 |
| Cheeses | 76 | 3 | 55 |
| Fertilisers | 150 | 91 | 72 |
| Wheats, milled and flour | 7 | 3 | .. |
| Seeds, grasses | 19 | 5 | 34 |
| Stock foods | .. | 42 | 65 |
| Sugar canes | 3 | .. | 9 |
| Leathers | 11 | 44 | 50 |
| Tanning materials | 38 | 8 | 1 |
| Viscera, stomach contents, &c. | 36 | 37 | 42 |
| Sugars and molasses | 10 | 10 | 6 |
| Dairy salts and preservatives | 5 | 9 | 6 |
| Parchment papers | 2 | .. | .. |
| Limestones, marls, &c. | 17 | 37 | 13 |
| Rocks | 12 | 25 | .. |
| Ashes | 40 | 4 | 3 |
| Jams and preserves | 45 | 28 | 30 |
| Canned fruits | .. | .. | 15 |
| Miscellaneous | 58 | 96 | 42 |
| Total | 3,223 | 2,093 | 2,461 |
| Glassware tested | 8,622 | 6,574 | 3,275 |

SOILS.

The soils of the State Farms have been again sampled and exhaustively analysed. As some of the State Farms which had been previously analysed have been given up, in only two districts the analyses made twenty years ago can be compared with the analyses carried out this year.

Agricultural College, Gatton.—The analyses recorded on Table IA. are from samples taken as near as possible from the same spots where they were previously obtained. The result of the mechanical analyses are hardly comparable, as the method employed now has been much improved. The chemical analyses of the soil and subsoil, considered broadly, show practically no difference after twenty years, except on the poor sandy soil on the hillside orchard, where a distinct loss in potash and phosphoric acid has taken place. In the rich heavy soils of the alluvial flats the only change noticeable is in the phosphoric acid, which has been considerably reduced

by cultivation and cropping. The physical condition of the soils, as expressed by increased capillarity, shows a decided improvement in the orchard soil and also in the alluvial soil of the potato patch.

Hermitage State Farm.—We find again that in the heavy black alluvial soils there is practically no difference in the analyses taken with twenty years interval (Table IB.), and in many instances the percentage of constituents is identical.

In the so-called "salt patch" of the low-lying flat, the cultivation has brought about a slight improvement in the physical condition, and the amount of chlorine in the soil has been reduced.

There is a great difference shown in these soils between the total amount of potash and potash in available form.

The rich soils of the Agricultural College actually contains less potash (as dissolved by hydrochloric acid for the ordinary analysis) than the soils of the Hermitage State Farm, but the available amount of potash, soluble in weak citric acid solution, and soluble in water containing carbonic acid, is very much higher in the College soil than at Hermitage.

Roma State Farm.—The light sandy soils of this farm (Table IC.) show considerable variation on the different blocks of the farm. The agricultural analysis shows them to be rather poor in the actual amounts of plant foods, which in combination with good physical condition makes the soils particularly suitable for wheat culture.

Kairi State Farm.—The soils of this farm are characteristic of the chocolate volcanic soils of the Atherton-Tolga Tableland, and are found (Table ID.) to contain a large amount of humus, good amounts of nitrogen, phosphoric acid, and lime, but are deficient in potash. The potash is present in an exceptionally readily available form, whereas the phosphoric acid is in a very insoluble form. The soils show a very serious depletion, due to cultivation and leaching out, as shown by a comparison with an average analysis of soils made about twelve years ago. The amounts of phosphoric acid and potash have been reduced in an alarming degree.

The soils which grow at present good crops of maize, sugar-cane, sorghums, and grasses are inclined to set hard if not properly cultivated. Lucerne does well, but after two or four years shows a considerable thinning out.

The use of artificial fertiliser, particularly such as contains phosphoric acid and potash, have a marked improvement on the crop.

As the soils are decidedly low in potash and have absolutely no reserve of potash in the insoluble portion, which will be referred to later on, all settlers are strongly advised to use as soon as possible for all their crops heavy applications of phosphoric acid and potash. The phosphoric acid is best applied in form of basic superphosphate, or bone meal, or crushed rock phosphate.

Warren State Farm, in the Central district, about 50 miles distant from the sea, represents a different type of soils or alluvial flats on Neerkol Creek. Good crops of sorghums, maize, lucerne, cereals, pumpkins, and root crops are grown. The soils are a black sandy clay, with a subsoil of rather stiff black clay. The analyses (Table I.E.) show that the soils contain a fair amount of humus and potash, but are decidedly deficient in lime and phosphoric acid.

Some of the soils are rather cementitious, inclined to set hard on drying, which, with rather uncertain seasons, frequently hampers the crops.

The effect of liming is also being tried on this farm, and the analyses of the soils from the different blocks to be limed appear in the general soil analysis sheet (Table III).

Of particular interest are the analyses of the insoluble portions of the various typical soils just discussed, and the results of these complete analyses (Table II.) are well worth studying. For comparison the complete analyses of typical Stanthorpe soils, carried out some years back, are also given, and the large amounts of potash, sufficient for many generations, as compared with the good amounts found in the alluvial soils of the Lockyer, Hermitage, Warren, and even in the poor sandy soils of Roma, and the exceedingly small amount of total potash found in the Atherton Tableland soils, must be particularly noted.

Liming experiments are also being carried out at the Agricultural College, Gatton, under the direction of the Principal. The analyses of the blocks joining each other appear in the general soil analysis sheet, and the difference in the amounts of lime, &c., in the samples is rather surprising, the amount of available lime varying from 14,700 to 76,500 lb. of lime per acre, but they go absolutely hand in hand with the actual crop results already recorded. The analysis of these blocks after application of lime in various forms and amounts will be repeated, and, with the results of crops, published later on.

DIPPING FLUIDS.

The position with regard to the composition of the dipping fluids submitted by the owners of dips is still disappointing, and shows again that only a small percentage of the fluids can be considered absolutely effective.

Analyses showed that—

| | |
|---|---------------------------------------|
| ·6% (last year 4·5%) contained from 0 to 2 lb. | } of Arsenious Acid per 400 galls. |
| 4·8% (last year 2·6%) contained from 2 to 4 lb. | |
| 13·4% (last year 11·5%) contained from 4 to 6 lb. | |
| 14·1% (last year 13·5%) contained from 6 to 7 lb. | |
| 15·8% (last year 18·3%) contained from 7 to 8 lb. | |
| 18·1% (last year 19·9%) contained from 8 to 9 lb. | |
| 9·2% (last year 12·5%) contained from 9 to 10 lb. | |
| 20·3% (last year 21·2%) contained 10 lb. and over | |
| 3·7% were concentrates | |
| 76·2% (last year 70·2%) were free from oxidation. | } of Arsenic Acid per 400 galls. |
| 4·3% (last year 9·1%) contained from 0 to 5 lb. | |
| ·9% (last year 4%) contained from 5 to 1 lb. | |
| 1·9% (last year 2·5%) contained from 1 to 2 lb. | |
| 2·8% (last year 3·0%) contained from 2 to 3 lb. | |
| 13·9% (last year 14·0%) contained 3 lb. and over. | |

The inspectors are using the portable dip tester with success, but the danger of making mistakes by testing oxidised fluids must be again pointed out, as one inspector recommended increasing the strength of dip to a dangerously high amount, being misled by obtaining a low test for arsenic in a fluid which was nearly all oxidised.

WATERS.

The greatly increased number of samples of water submitted for analysis is a sure indication of the serious times of drought the State has passed through, and, unfortunately, in the great majority of cases the water was found, on account of high salinity, unfit for stock or irrigation.

VISCERA AND STOMACH CONTENTS.

Forty-two samples of viscera, &c., were submitted for analysis, and in twenty-one cases the cause of poisoning was ascertained.

The samples sent are frequently quite unsuitable for analysis, being generally far too small to make proper tests; again, the use of tins, soldered up, is not recommended, as the solder used frequently contains arsenic. A sample of linseed chaff, which was fed with fatal effects, was found to contain large amounts of hydrocyanic acid. The result was confirmed on testing plants grown at the Botanic Gardens, and it was found that not only the seed, but the whole plant, contains large amounts of a hydrocyanic-yielding glucoside.

DAIRY PRODUCTS.

The work of analysing butter, condensed milk, and cheeses for export under the Commerce Act was resumed by us during the year, and a large number of samples were analysed.

The work commenced last year for the Dairy Expert to test the working and returns of butter factories was continued; further tests have to be made the coming year.

TESTING OF DAIRY GLASSWARE.

Under "The Dairy Produce Acts, 1904 to 1905," the following glassware, &c., was tested:—

| | Tested. | Approved. | Condemned. | Broken. | Percentage Condemned. |
|------------------|---------|-----------|------------|---------|-----------------------|
| Cream bottles | 1,215 | 1,211 | 1 | 3 | 0·1 |
| Milk bottles | 676 | 631 | 45 | .. | 6·7 |
| Pipettes | 750 | 739 | 5 | 6 | 0·7 |
| Thermometers | 624 | 608 | 15 | 1 | 2·4 |
| Hydrometers, &c. | 10 | 10 | .. | .. | ·0 |
| Total | 3,275 | 3,199 | 66 | 10 | 2·0 |

We also prepared 89 bottles of N/10 alkali, and 1 bottle N/10 acid for factory use.

FERTILISERS.

Under "*The Fertilisers Act of 1914*" 72 firms were licensed as dealers, registering 221 fertilisers.

Seventy-two samples of fertilisers were analysed, and of 38 samples taken by your inspectors in June last, 6 samples were found to be slightly below guarantee in one of the fertilising constituents.

STOCK FOODS.

"*The Stock Foods Act of 1919*" came nominally into operation on the 1st of January, 1920, but for various reasons, the chief being scarcity of many by-products, the regulations under the Act could not be enforced until a few months ago. All concentrated and prepared food, including certain by-products, like bran and pollard, must be labelled, and analysis must

appear on the label. The foods can only be sold under their true name, and, for instance, a meal made from damaged wheat and mill sweepings cannot be sold as pollard, which was a common practice hitherto.

Retail sellers, even if selling only small amounts of bran or pollard, must label such small packages.

Sixty-five samples of foods were analysed, most of which are recorded on Table IV.

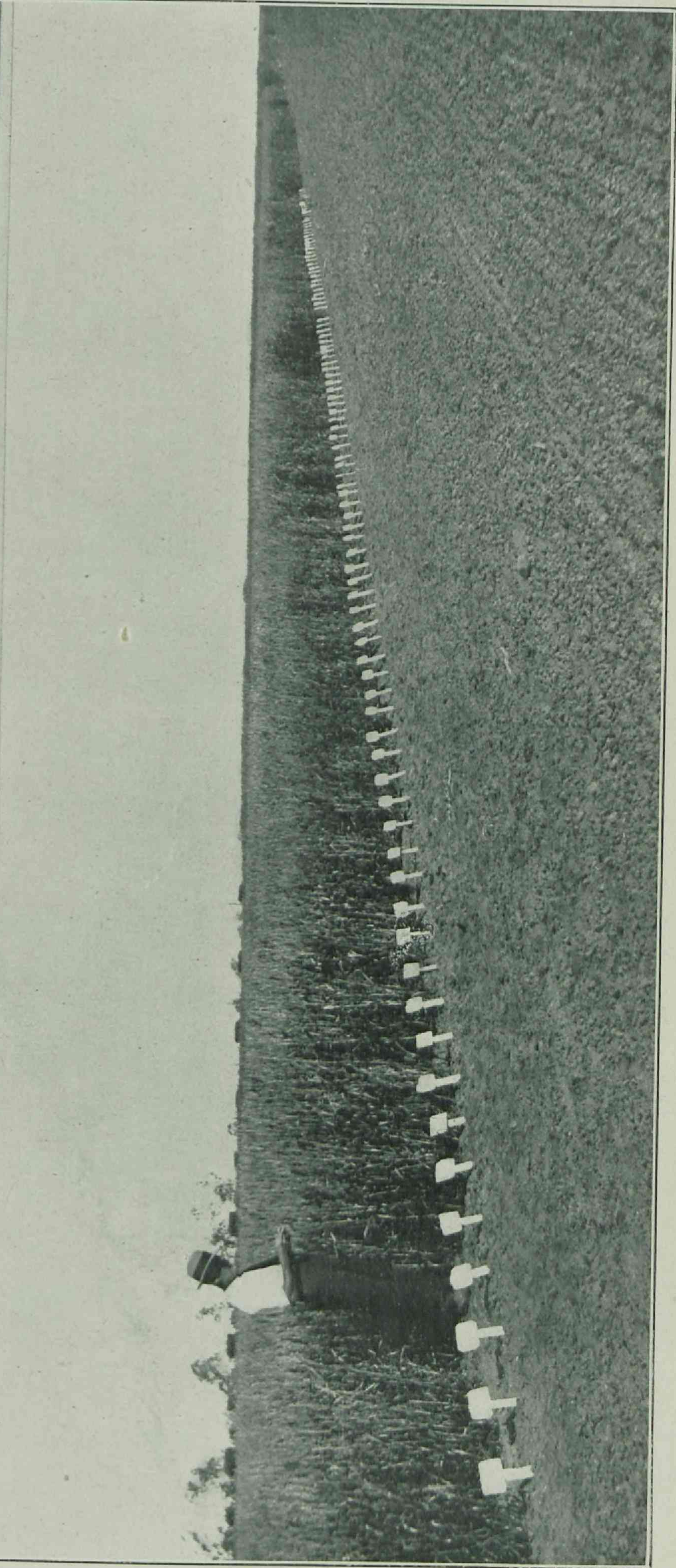
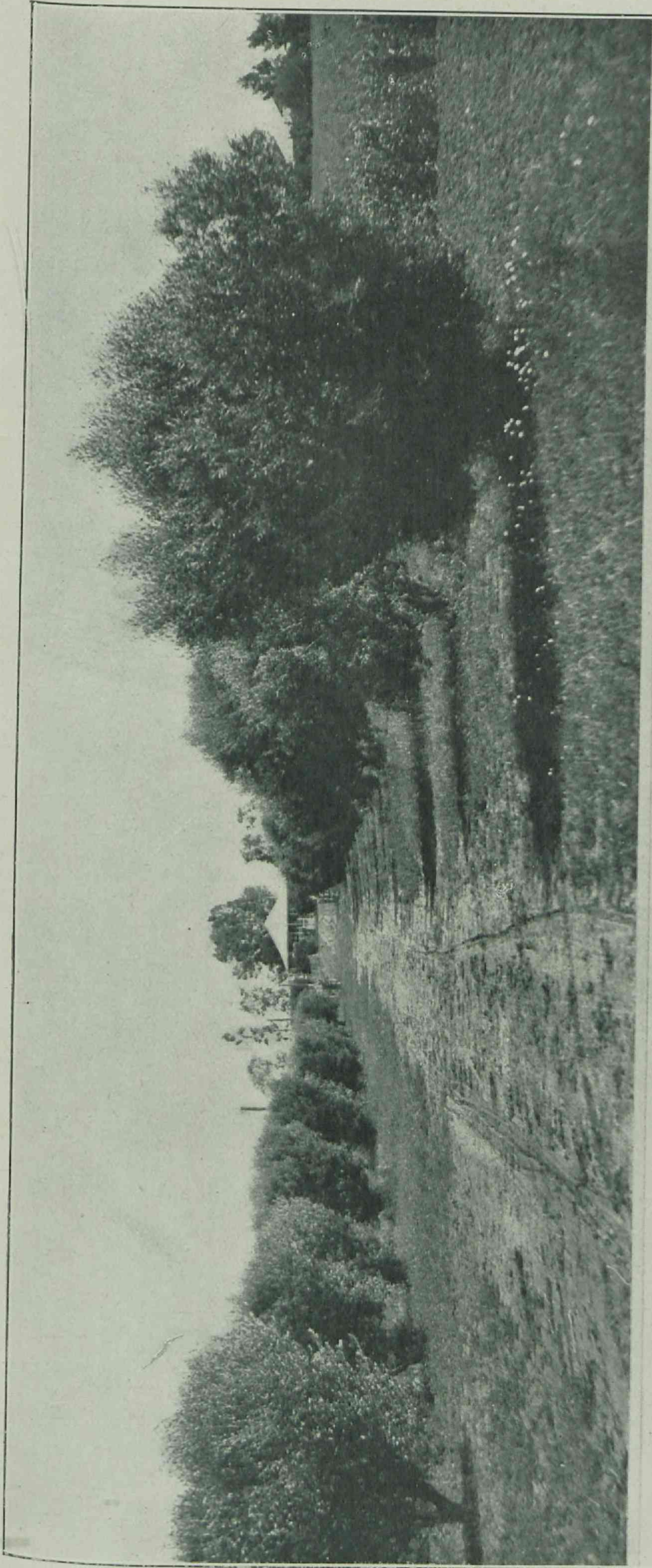
Several samples of lucerne chaff, which caused mortality of stock, were found to contain large amounts of the highly poisonous thorn-apple plants.

A sample of fowl food, consisting of mill sweepings, which killed several hundred fowls, was found to contain 30 per cent. of salt.

J. C. BRÜNNICH, Agricultural Chemist.

TABLE IA.—ANALYSES OF SOILS FROM STATE FARMS.
AGRICULTURAL COLLEGE, GATTON.

| Field or Block | College Hill Orchard (holes 1, 2, and 3). | | | River Flat, Potato Patch (holes 1-3). | | | River Flat, Bull Paddock (holes 4-6). | | | | | |
|---|---|--|----------------------|---------------------------------------|---------------------|--|---------------------------------------|--|----------------------|--|----------------|--|
| | Forest Land. | | | Rich Alluvial Flats. | | | Rich Alluvial Flats. | | | | | |
| Description of Land | Soil: Poor sandy. | | Subsoil: Sandy clay. | | Soil: Black clayey. | | Soil: Black clayey. | | Subsoil: Black clay. | | | |
| Description of Soil | 1900. | | 1920. | | 1900. | | 1920. | | 1900. | | 1920. | |
| Date of Analysis | Neutral. | | Slightly acid. | | Neutral. | | Acid. | | Neutral. | | Slightly acid. | |
| Reaction | 1-55 | | 1-32 | | 1-31 | | 1-26 | | .. | | 1-25 | |
| Apparent Specific Gravity | 94, 114, — | | 94, 11, — | | —, 74, 9 | | 14, 24, — | | —, 24, 34 | | 24, 34, — | |
| Capillarity: In 3-6-12 | 164, —, 194 | | 144, —, 174 | | 144, —, 184 | | 5, —, 64 | | 44, 64, — | | 6, —, 74 | |
| In inches, 24-36-48 hours | 34, 4, — | | 34, —, 174 | | 74, 10, — | | 44, 64, — | | 44, 64, — | | 6, —, 74 | |
| Mechanical Analyses— | % | | % | | % | | % | | % | | % | |
| Stones over 5 mm. | 4.69 | | .. | | .. | | .. | | .. | | .. | |
| Gravel from 2 to 5 mm. | 7.40 | | .. | | .. | | .. | | .. | | .. | |
| Fine gravel, from 1 to 2 mm. | 14.45 | | 14.8 | | trace. | | Nil | | 2.46 | | Nil | |
| Coarse sand, from .5 to 1 mm. | 13.0 | | 12.6 | | .2 | | .30 | | .. | | .5 | |
| Medium sand, from .25 to .5 mm. | 37.6 | | 13.2 | | 10.1 | | 13.7 | | .. | | 4.3 | |
| Fine sand, from .05 to .25 mm. | 11.0 | | 3.4 | | 21.6 | | 16.9 | | .. | | 8.5 | |
| Silt, from .02 to .05 mm. | 3.5 | | trace | | 13.3 | | 10.2 | | .. | | 7.7 | |
| Fine silt, from .01 to .02 mm. | trace | | trace | | 3.1 | | 2.0 | | .. | | .9 | |
| Clay | 20.6 | | 45.8 | | 40.8 | | 46.5 | | 80.55 | | 61.1 | |
| Organic matter and water | 2.20 | | 10.2 | | 10.9 | | 10.4 | | 16.36 | | 17.0 | |
| Agricultural Analyses— | % | | % | | % | | % | | % | | % | |
| Moisture | .87 | | 4.86 | | 4.61 | | 4.32 | | 5.11 | | 7.42 | |
| Humus | 1.26 | | .16 | | 3.29 | | 1.05 | | 3.62 | | 1.95 | |
| Other organic matters | .83 | | .58 | | 4.14 | | 2.73 | | 8.05 | | 2.81 | |
| Combined water | .004 | | 4.61 | | .01 | | 2.77 | | 7.79 | | 6.38 | |
| Chlorine, Cl | .18 | | .02 | | .01 | | .01 | | .01 | | .01 | |
| Carbonic acid, CO ₂ | .025 | | .03 | | .54 | | .11 | | .49 | | .07 | |
| Nitrogen, N | .07 | | .025 | | .175 | | .108 | | .120 | | .181 | |
| Soluble in Hydrochloric Acid of 1:1 Specific Gravity— | .07 | | .07 | | .05 | | .09 | | .06 | | .11 | |
| Sulphuric acid, SO ₄ | .03 | | .03 | | .34 | | .17 | | .83 | | .24 | |
| Phosphoric Acid, P ₂ O ₅ | 2.40 | | 5.23 | | 7.40 | | 8.05 | | 6.73 | | 6.84 | |
| Iron, Fe ₂ O ₃ | 1.88 | | 14.07 | | 6.73 | | 7.20 | | 8.71 | | 9.14 | |
| Alumina, Al ₂ O ₃ | .12 | | .12 | | 1.01 | | 1.03 | | .94 | | .94 | |
| Lime, CaO | .12 | | .26 | | 1.05 | | .82 | | 1.00 | | .74 | |
| Magnesia, MgO | .15 | | .05 | | .24 | | .26 | | .22 | | .34 | |
| Potash, F ₂ O | .14 | | .07 | | .17 | | .11 | | .18 | | .18 | |
| Soda, Na ₂ O | 92.23 | | 70.42 | | 70.85 | | 71.66 | | 65.57 | | 62.39 | |
| Insoluble in hydrochloric acid | .. | | .. | | .. | | .. | | .. | | .. | |
| Ready Available Plant Foods— | % | | % | | % | | % | | % | | % | |
| Soluble in 1 per cent. Citric Acid Solution— | .. | | .. | | .. | | .. | | .. | | .. | |
| Phosphoric acid | .0013 | | .0002 | | .0297 | | .0130 | | .0211 | | .0151 | |
| Lime | .0728 | | .0185 | | .1834 | | .1383 | | .1691 | | .1643 | |
| Magnesia | .0248 | | .0156 | | .0840 | | .0676 | | .1109 | | .1227 | |
| Potash | .0075 | | .0060 | | .0314 | | .0101 | | .0284 | | .0082 | |
| Soluble in Water containing Carbonic Acid— | % | | % | | % | | % | | % | | % | |
| Phosphoric acid | .00004 | | .. | | .00059 | | .. | | .00047 | | .. | |
| Lime | .0086 | | .. | | .0133 | | .. | | .0111 | | .. | |
| Potash | .0015 | | .. | | .0063 | | .. | | .0059 | | .. | |
| Total solids in watery extract | .0330 | | .. | | .0430 | | .. | | .0510 | | .. | |
| Lime requirements of soils in cwt. per acre | 19 cwt. | | .. | | 16 cwt. | | .. | | 23 cwt. | | .. | |



OLIVE GROWING.

WHEAT EXPERIMENTAL ROWS.

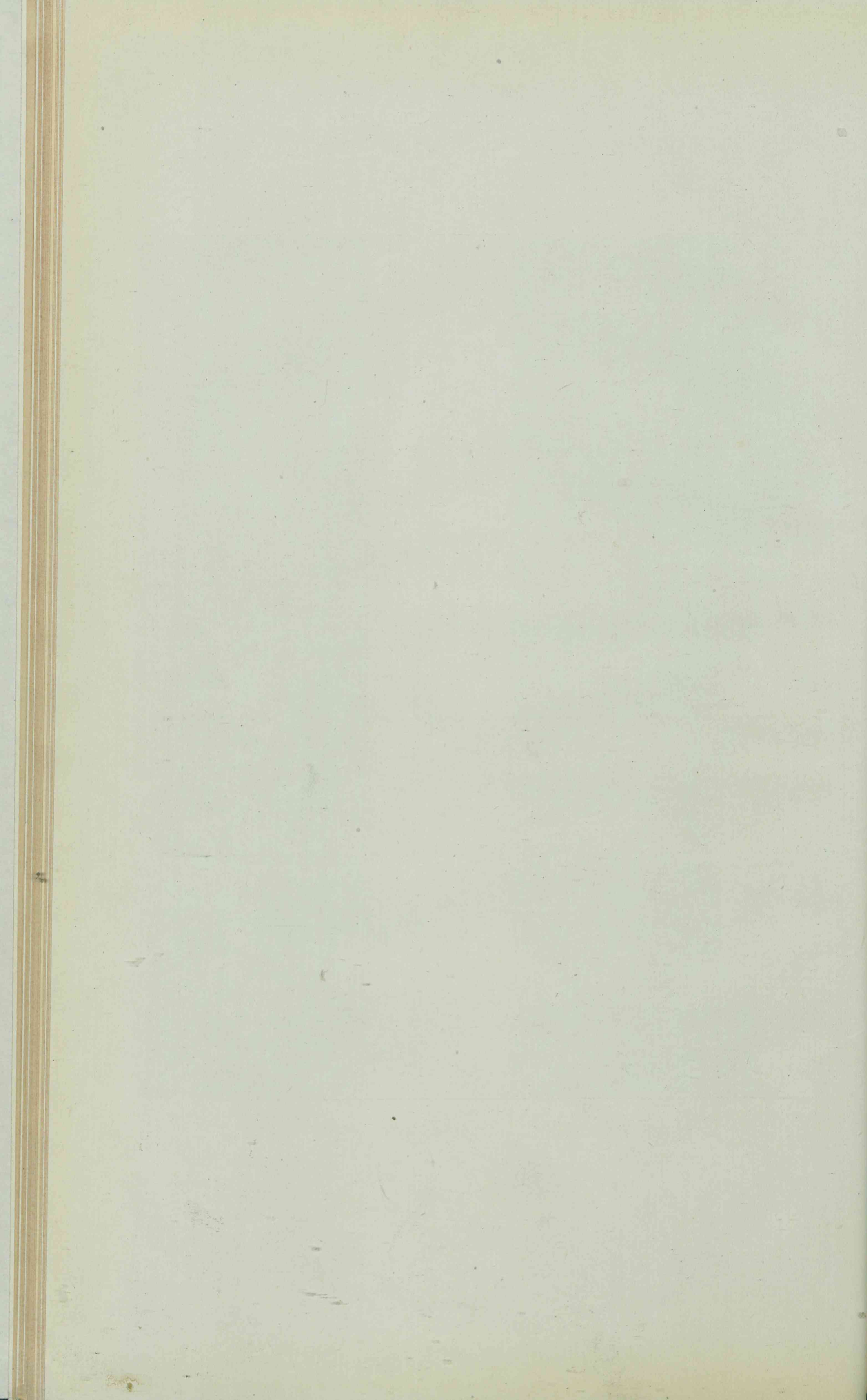


TABLE ID.—ANALYSES OF SOILS FROM STATE FARMS.
KAIRI STATE FARM, ON ATHERTON TABLELAND.

| Description of Land | No. 1 from No. 1 Clearing. | | No. 2 from No. 2 Clearing. | | No. 3 from No. 3 Clearing. | | No. 4 from No. 5 Clearing. | | No. 5 from No. 5 Paddock. | | No. 6 from No. 6 Paddock. | | Nos. 7 and 8 from Garden and Cane-field. Cleared 5 years. | | Average of 85 soils from Tableland. |
|--|-----------------------------------|-------------------------|----------------------------|---|----------------------------|---------------------|----------------------------|-----------------------|----------------------------|-------------------|---------------------------|---|---|--------------------|-------------------------------------|
| | Under Grass. Cleared 5 years ago. | Soil, Chocolate Clayey. | Subsoil, Red Clay. | Well Grassed with Rhodes and Couch Grass. | Soil, Red Clayey. | Subsoil, Red Clay. | Grass Paddock. | Best Grassed Paddock. | Rhodes Grass and Paspalum. | Soil, Red Clayey. | Subsoil, Red Clay. | Grass. Stock feed heavily in this corner. | Soil, Red Clayey. | Subsoil, Red Clay. | |
| Field or Block | 84, 91 | 102, 111 | 63, 74 | 134, 16 | 51, 61 | 51, 6 | 10, 11 | 121, 131 | 51, 61 | 51, 6 | 61, 81 | 8, 10 | 8, 81 | 9, 10 | |
| Principal Crops | | | | | | | | | | | | | | | |
| Years Cultivated or Cleared | | | | | | | | | | | | | | | |
| Description of Soil | Sl. Alkaline | Sl. Acid. | Neutral. | Sl. Acid. | Alkaline. | Subsoil, Red Sandy. | Soil, Red Clayey. | Subsoil, Red Clay. | Alkaline. | Neutral. | Sl. Alkaline. | Subsoil, Red Clay. | Neutral. | Subsoil, Red Clay. | Analysed 12 years ago. |
| Reaction | 1-25 | 1-15 | 1-16 | 1-15 | 1-21 | 1-22 | 1-21 | 1-15 | 1-21 | 1-25 | 1-15 | 1-20 | 1-26 | Neutral. | |
| Apparent Specific Gravity | | | | | | | | | | | | | | | |
| Capillarity, in 3, 6 | | | | | | | | | | | | | | | |
| In inches, 24, 48 hrs. | | | | | | | | | | | | | | | |
| Fine gravel, 1 to 2 mm. | 1-09 | | 1-34 | .60 | 41-80 | 23-78 | .76 | .6 | 19-9 | 14-56 | 1-1 | .8 | .48 | | |
| Coarse sand, from .5 to 1 mm. | 1-24 | | 1-20 | 1-38 | 6-94 | 4-64 | 1-58 | 1-6 | 2-6 | 2-64 | 1-6 | 3-0 | 2-04 | | |
| Medium sand, from .25 to .5 mm. | 4-26 | | 7-16 | 7-04 | 9-72 | 11-14 | 6-90 | 7-1 | 7-2 | 7-24 | 6-7 | 6-6 | 5-78 | | |
| Fine sand, from .05 to .25 mm. | 6-08 | | 6-20 | 6-42 | 2-44 | 4-98 | 4-70 | 5-8 | 4-7 | 5-01 | 5-3 | 5-0 | 5-28 | | |
| Silt, from .02 to .05 mm. | 4-56 | | 5-64 | 2-92 | .56 | 3-24 | 6-50 | 4-4 | 2-0 | 3-74 | 6-5 | 4-1 | 4-50 | | |
| Fine silt, from .01 to .02 mm. | 2-38 | | 1-46 | .54 | trace | 1-16 | 1-42 | .9 | .6 | .96 | 2-0 | 1-1 | 2-42 | | |
| Clay | 53-11 | | 50-89 | 60-67 | 15-67 | 31-92 | 53-04 | 58-0 | 40-0 | 44-51 | 50-5 | 59-8 | 55-61 | | |
| Organic matter and water | 27-33 | | 26-11 | 20-43 | 22-87 | 18-84 | 25-10 | 21-6 | 23-0 | 21-34 | 26-3 | 19-6 | 23-89 | | |
| Agricultural Analyses— | | | | | | | | | | | | | | | |
| Moisture | 12-97 | | 12-20 | 11-14 | 7-95 | 7-62 | 11-88 | 11-34 | 7-85 | 9-78 | 11-34 | 9-85 | 10-65 | | 5-08 |
| Humus | 2-77 | | 2-66 | .60 | 5-50 | 2-46 | 2-53 | .87 | 4-01 | 1-75 | 3-50 | .98 | 2-29 | | |
| Other organic matters | 2-40 | | 2-40 | .81 | 2-10 | 1-09 | 2-44 | .52 | .232 | 1-25 | 2-27 | .65 | 2-11 | | |
| Combined water | 8-17 | | 7-92 | 8-04 | 6-92 | 6-95 | 7-68 | 8-37 | 8-15 | 8-39 | 8-69 | 7-89 | 8-41 | | 14-98 |
| Chlorine, Cl | .01 | | .01 | .01 | .01 | .01 | .01 | .00 | .01 | .01 | .01 | .01 | .01 | | |
| Carbonic acid, CO ₂ | 1-02 | | .79 | .34 | .40 | .72 | .57 | .50 | .60 | .17 | .54 | .28 | .43 | | |
| Nitrogen, N | .279 | | .251 | .059 | .368 | .200 | .224 | .098 | .290 | .144 | .801 | .094 | .216 | | |
| Soluble in Hydrochloric Acid of 1:1 Sp. G.— | | | | | | | | | | | | | | | |
| Sulphuric acid, SO ₃ | .18 | | .13 | .09 | 15 | .10 | .14 | .12 | .16 | .11 | .19 | .15 | .10 | | |
| Phosphoric acid, P ₂ O ₅ | .38 | | .25 | .17 | .14 | .23 | .23 | .18 | .24 | .28 | .29 | .22 | .24 | | |
| Iron, Fe ₂ O ₃ | 24-14 | | 11-27 | 11-75 | 4-83 | 9-34 | 13-20 | 10-94 | 19-31 | 16-90 | 11-27 | 21-73 | 18-15 | | 8-64 |
| Alumina, Al ₂ O ₃ | 9-04 | | 17-05 | 18-43 | 5-91 | 10-86 | 17-00 | 21-40 | 8-79 | 13-68 | 19-95 | 11-83 | 14-61 | | 22-00 |
| Lime, CaO | .91 | | .59 | .12 | .47 | .53 | .99 | .63 | 1-22 | .45 | .78 | .28 | 56 | | |
| Magnesia, MgO | .23 | | .45 | .34 | .16 | .11 | .22 | .18 | .08 | .21 | .21 | .22 | 74 | | |
| Potash, K ₂ O | .09 | | .11 | .07 | .04 | .07 | .08 | .04 | .08 | .03 | .10 | .12 | .06 | | .74 |
| Soda, Na ₂ O | .08 | | .09 | .11 | .09 | .09 | .15 | .22 | .21 | .17 | .21 | .19 | .10 | | .62 |
| Insoluble in hydrochloric acid | 37-32 | | 44-01 | 48-98 | 65-15 | 59-94 | 42-43 | 44-73 | 46-65 | 47-19 | 40-37 | 45-44 | 41-65 | | |
| Ready Available Plant Foods— | | | | | | | | | | | | | | | |
| Soluble in 1% Citric Acid Solution— | | | | | | | | | | | | | | | |
| Phosphoric acid | .0068 | | .0006 | .0011 | .0096 | .0077 | .0005 | .0003 | .0056 | .0016 | .0013 | .0006 | .0013 | | |
| Lime | .3621 | | .2620 | .0630 | .2196 | .3688 | .2800 | .0930 | .5624 | .1898 | .4480 | .1764 | .1983 | | |
| Magnesia | .1359 | | .1302 | .0890 | .0692 | .0628 | .0260 | .0556 | .0612 | .0510 | .1122 | .1163 | .0744 | | |
| Potash | .0354 | | .0278 | .0332 | .0116 | .0282 | .0280 | .0180 | .0228 | .0090 | .0643 | .0545 | .0252 | | |
| Soluble in Water containing Carbonic Acid— | | | | | | | | | | | | | | | |
| Phosphoric acid | .00017 | | .00018 | | .00014 | | .00012 | | .00015 | | .00008 | | .00014 | | |
| Lime | .0786 | | .0406 | | .0149 | | .0795 | | .0795 | | .052 | | .0385 | | |
| Potash | .0134 | | .0145 | | .0043 | | .0179 | | .0169 | | .0253 | | .0132 | | |
| Total solids in watery extract | .2280 | | .1200 | | .0570 | | .1990 | | .2310 | | .1860 | | .0810 | | |
| Lime requirements of soil in cwt. per acre | 31 cwt. excess | | 7 cwt. excess | | 30.5 cwt. | | 9.5 cwt. excess | | 39.5 cwt. excess | | 27.5 cwt. excess | | 26.0 cwt. excess | | |

TABLE I.E.—ANALYSES OF SOILS FROM STATE FARMS.

| WARREN STATE FARM. | | | | | |
|--|--|--|--------------------------------|------------------------------|-------------------------|
| Description of Land | Alluvial Flats—Forest Land with Black Clay Subsoils. | | | | |
| Field or Block | Cultivation Paddock (1A and 1B). | Cultivation Paddock (2A and 2B). | Cultivation (3 and 4). | Grazing Paddock (5). | Cultivation (6). |
| Principal Crops | Maize, Canary Seed, and Lucerne. | Sorghums. | Panicum, Sudan Grass, Cow Pea. | Grasses. | Rape and Root Crops. |
| Years Cultivated or Cleared | 6 years. | 6 years. | | Cleared 8 years. | |
| Description of Soil | Soil, Black Clayey. | Soil, Black Clayey, rather Cementitious. | Soil, Black Sandy Clay. | Soil, Black Fine Sandy Clay. | Soil, Black Sandy Clay. |
| Reaction | Acid. | Acid. | Acid. | Acid. | Neutral. |
| Apparent Specific Gravity | 1.18 | 1.41 | 1.35 | 1.29 | 1.28 |
| Capillarity: In 3, 6 | 7½, 10½ | 7½, 11½ | 9½, 14 | 9, 12½ | 7½, 11½ |
| In Inches, 24 and 48 hrs. | 13½, 15½ | 16½, 20½ | 16½, 19½ | 17½, 21 | 14½, 16½ |
| Fine gravel, from .1 to .2 mm. | trace | 1.0 | .4 | .8 | 4.5 |
| Coarse sand, from .5 to .1 mm. | .3 | 3.2 | 4.3 | 3.5 | 10.8 |
| Medium sand, from .25 to .5 mm. | 4.4 | 15.3 | 17.3 | 14.1 | 24.5 |
| Fine sand, from .05 to .25 mm. | 16.0 | 3.0 | 17.4 | 24.1 | 9.1 |
| Silt, from .02 to .05 mm. | 9.2 | 10.0 | 8.2 | 12.0 | 7.2 |
| Fine silt, from .01 to .02 mm. | 7.4 | 2.2 | trace | trace | 1.7 |
| Clay | 48.8 | 59.0 | 44.7 | 35.4 | 33.9 |
| Organic matter and water | 13.9 | 6.3 | 7.7 | 10.1 | 8.3 |
| Agricultural Analyses— | | | | | |
| Moisture | 4.92 | 2.02 | 3.56 | 3.44 | 2.46 |
| Humus | 1.55 | 1.90 | 1.53 | 1.71 | 1.45 |
| Other organic matters | 2.61 | 1.07 | 1.84 | 1.37 | 2.16 |
| Combined water | 4.78 | 1.29 | .73 | 3.62 | 2.23 |
| Chlorine, Cl | .01 | .01 | .01 | .01 | .01 |
| Carbonic acid, CO ₂ | trace | Nil | Nil | Nil | trace |
| Nitrogen, N | .123 | .092 | .080 | .090 | .085 |
| Soluble in Hydrochloric Acid of 1-1 Sp. G.— | | | | | |
| Sulphuric acid, SO ₃ | .09 | .08 | .05 | .04 | .09 |
| Phosphoric acid, P ₂ O ₅ | .20 | .09 | .09 | .10 | .12 |
| Iron, Fe ₂ O ₃ | 5.39 | 2.49 | 2.82 | 4.82 | 3.22 |
| Alumina, Al ₂ O ₃ | 10.21 | 3.81 | 3.09 | 5.29 | 5.35 |
| Lime, CaO | 1.20 | .43 | .49 | .50 | .74 |
| Magnesia, MgO | .88 | .27 | .36 | .40 | .52 |
| Potash, K ₂ O | .31 | .17 | .31 | .31 | .30 |
| Soda, Na ₂ O | .13 | .08 | .12 | .12 | .12 |
| Insoluble in hydrochloric acid | 68.82 | 86.60 | 84.71 | 78.66 | 81.10 |
| Ready Available Plant Foods— | | | | | |
| Soluble in 10% Citric Acid Solution— | | | | | |
| Phosphoric acid | .0228 | .0134 | .0179 | .0112 | .0238 |
| Lime | .1990 | .1232 | .1001 | .1508 | .1810 |
| Magnesia | .0701 | .0125 | .0145 | .0344 | .0492 |
| Potash | .0088 | .0126 | .0157 | .0077 | .0208 |
| Soluble in Water containing Carbonic Acid— | | | | | |
| Phosphoric acid | .00022 | .00032 | .00023 | .00012 | .00067 |
| Lime | .0183 | .0143 | .0095 | .0115 | .0209 |
| Potash | .0022 | .0022 | .0040 | .0023 | .0075 |
| Total solids in watery extract | .0510 | .0610 | .0450 | .0400 | .0840 |
| Lime requirements of soil in cwt. per acre | 19 cwt. | 19 cwt. | 24.5 cwt. | 16 cwt. | Nil |

TABLE II.—SOIL ANALYSES: ANALYSES OF PORTIONS INSOLUBLE IN HYDROCHLORIC ACID.

| Locality. | Gatton Agricultural College. | Hermitage State Farm. | Koma State Farm. | Kairi State Farm. | Warren State Farm. | Tolga. | Stanthorpe—Thulimbah. | Stanthorpe—Ballandean. | South Johnstone. | Cooroy. | Beerburum. |
|-------------------------------|------------------------------|-----------------------|------------------|-------------------|--------------------|------------|-----------------------|------------------------|------------------|------------|------------|
| Total Insoluble | % 71.66 | % 63.86 | % 88.70 | % 46.65 | % 78.66 | % 47.90 | % 95.22 | % 90.80 | % 47.28 | % 70.46 | % 94.80 |
| Soluble in Sulphuric Acid— | | | | | | | | | | | |
| Silica | 12.12 | 11.20 | 11.20 | 10.48 | 13.33 | 22.10 | 2.44 | 4.86 | 13.53 | 15.66 | 2.62 |
| Iron Oxide | .60 | .56 | .06 | 1.09 | .97 | 8.54 | .70 | 1.75 | 8.01 | .76 | .04 |
| Alumina | 3.44 | 3.18 | 3.79 | 3.12 | 3.86 | 3.52 | .10 | 1.2 | 3.99 | 4.03 | .41 |
| Lime | .05 | .06 | .04 | .06 | .12 | .05 | .04 | .09 | .03 | .07 | .09 |
| Magnesia | .06 | .04 | .06 | .09 | .04 | .04 | .07 | .09 | .02 | .07 | .08 |
| Potash | .06 | .04 | .15 | .14 | .10 | .08 | .07 | .22 | .21 | .35 | .03 |
| Soda | .29 | .22 | .36 | .28 | .32 | .09 | .23 | .30 | .08 | .08 | .09 |
| Total Clay | 16.62 | 15.30 | 15.66 | 15.26 | 18.74 | 34.42 | 3.58 | 7.34 | 25.87 | 21.02 | 3.36 |
| Soluble in Hydrofluoric Acid— | | | | | | | | | | | |
| Alumina | 7.18 | 4.80 | 3.95 | 1.06 | 7.62 | .13 | 2.70 | .18 | .38 | .17 | .17 |
| Lime | 1.12 | .73 | .49 | .17 | 1.27 | .05 | .21 | .60 | .04 | .06 | .07 |
| Magnesia | .09 | .01 | .11 | .04 | .11 | .04 | .05 | .03 | .03 | .04 | .06 |
| Potash | .61 | .41 | .68 | .04 | .61 | .03 | 4.74 | 3.29 | .10 | .02 | .02 |
| Soda | 2.69 | 1.84 | 1.61 | .43 | 2.70 | .10 | .92 | 2.30 | .14 | .10 | .09 |
| Corresponding to— | | | | | | | | | | | |
| Clay | 16.62 | 15.30 | 15.66 | 15.26 | 18.74 | 34.42 | 3.58 | 7.34 | 25.87 | 21.02 | 3.36 |
| Potash Feldspar | 3.63 | 2.43 | 4.03 | .25 | 3.61 | .18 | 28.06 | 19.48 | .59 | .12 | .12 |
| Soda | 22.76 | 15.57 | 13.62 | 3.64 | 23.84 | .85 | 7.74 | 19.46 | 1.18 | .85 | .76 |
| Lime | 5.57 | 3.63 | 2.44 | .85 | 6.32 | .25 | 1.04 | 2.99 | .20 | .30 | .35 |
| Mica | .30 | .04 | .34 | .04 | .34 | .13 | .15 | .10 | .10 | .13 | .20 |
| Quartz Sand | 23.20 | 27.26 | 53.61 | 26.94 | 26.58 | 11.43 | 54.66 | 41.44 | 19.18 | 48.67 | 89.41 |
| Soil contains Total Amounts— | | | | | | | | | | | |
| Lime | 2.20 | 2.35 | 1.16 | 1.45 | 1.89 | .59 | .41 | .85 | .13 | .24 | .21 |
| Potash | .93 | .71 | 1.11 | .26 | 1.02 | .25 | 4.85 | 3.66 | .41 | .82 | .08 |

TABLE III.—ANALYSES OF QUEENSLAND SOILS.

| Laboratory No. | Locality. | Description of Soils. | Reaction. | Moisture. | Humus. | Combined Water and other Organic Matter. | Chlorine. | Nitrogen. | TOTAL ELEMENTS IN THE SOIL. | | | | | 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. P. r. Acre, 12" Deep. | | | Cwt. of Lime required per Acre, 12" Deep. |
|----------------|-----------------------------|------------------------------|-------------------|-----------|--------|--|-----------|-----------|-----------------------------|-------|-----------|---------|-------------------------|--|-------|-----------|---------|---|------------------|--------|---------|---|-------|---------|---|
| | | | | | | | | | Phosphoric Acid. | Lime. | Magnesia. | Potash. | Total Insoluble Matter. | Phosphoric Acid. | Lime. | Magnesia. | Potash. | Nitrogen. | Phosphoric Acid. | Lime. | Potash. | Phosphoric Acid. | Lime. | Potash. | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| 311 | NORTH KENNEDY— Japoon .. | Drab clayey loam | Acid .. | 1.70 | 1.46 | 4.57 | .017 | .129 | .05 | .05 | .11 | .25 | 77.62 | .0027 | .0413 | .0158 | .0135 | 4,316 | 1,673 | 8,364 | 90 | 1,387 | 454 | 61 | |
| 312 | Ditto .. | Clayey subsoil.. | Sl. acid.. | 1.19 | .64 | 3.78 | .020 | .041 | .031 | .06 | .04 | .37 | 79.95 | .. | .. | .. | .. | 1,390 | 2,072 | 12,778 | .. | .. | .. | .. | |
| 313 | Johnstone .. | Red volcanic soil | Sl. alka- line | 1.85 | 2.66 | 12.31 | .018 | .221 | .13 | .38 | .10 | .04 | 51.38 | .0084 | .3486 | .0252 | .0111 | 6,795 | 3,996 | 11,680 | 258 | 10,715 | 341 | 8.5 | |
| 314 | Ditto .. | ditto .. | Sl. acid.. | 4.20 | 3.33 | 12.77 | .007 | .251 | .02 | .13 | .07 | .04 | 46.37 | .0026 | .1050 | .. | .0183 | 7,814 | 620 | 1,240 | 81 | 3,256 | 567 | 60 | |
| 315 | Ditto .. | Red volcanic subsoil | Acid .. | 3.86 | 1.87 | 9.70 | .045 | .123 | .01 | .07 | .04 | .02 | 45.54 | .. | .. | .. | .. | 3,881 | 310 | 631 | .. | .. | .. | .. | |
| 316 | Ditto .. | Red volcanic soil | Acid .. | 4.43 | 2.66 | 17.83 | .020 | .172 | .05 | .04 | .07 | .01 | 21.27 | .0029 | .0175 | .0034 | .0070 | 5,195 | 1,510 | 302 | 88 | 528 | 211 | 115 | |
| 317 | Ditto .. | Red volcanic subsoil | Acid .. | 5.77 | 1.18 | 15.63 | .204 | .034 | .08 | .05 | .33 | .01 | 24.93 | .. | .. | .. | .. | 999 | 2,350 | 294 | .. | .. | .. | .. | |
| 318 | Ditto .. | Red volcanic .. | Acid .. | 3.31 | 1.11 | 12.21 | .031 | .048 | .23 | .05 | .14 | .02 | 42.57 | .0013 | .0060 | .0011 | .0055 | 1,554 | 7,445 | 647 | 42 | 194 | 178 | 91.5 | |
| 319 | Ditto .. | Reddish-brown clayey loam | Acid .. | 4.85 | 1.60 | 9.67 | .171 | .168 | .13 | .10 | .30 | .27 | 56.44 | .0043 | .0932 | .0052 | .0135 | 5,209 | 4,032 | 8,372 | 133 | 2,890 | 418 | 44.5 | |
| 320 | Ditto .. | Red volcanic .. | Acid .. | 4.59 | 2.05 | 14.02 | .340 | .161 | .24 | .06 | .18 | .03 | 27.57 | .0017 | .0581 | .0128 | .0171 | 4,862 | 7,247 | 906 | 51 | 1,754 | 516 | 86 | |
| 321 | Ditto .. | ditto .. | Acid .. | 3.89 | 1.79 | 14.12 | .015 | .133 | .10 | .04 | .02 | .01 | 27.95 | .0019 | .0161 | .0030 | .0058 | 3,980 | 2,990 | 290 | 57 | 481 | 174 | 93 | |
| 322 | Ditto .. | Red volcanic subsoil | Acid .. | 3.43 | .83 | 12.55 | .025 | .007 | .06 | .08 | .10 | .01 | 29.95 | .. | .. | .. | .. | 209 | 1,795 | 299 | .. | .. | .. | .. | |
| 323 | Ditto .. | Reddish-brown volcanic | Acid .. | 2.50 | 2.38 | 7.80 | .010 | .188 | .11 | .06 | .01 | .27 | 66.75 | .0043 | .0175 | .0025 | .0044 | 6,290 | 3,680 | 9,032 | 144 | 585 | 147 | 93 | |
| 324 | Ditto .. | Red volcanic .. | Acid .. | 4.99 | 3.22 | 15.07 | .014 | .168 | .18 | .07 | .09 | .02 | 29.23 | .0018 | .0175 | .0020 | .0038 | 5,027 | 5,386 | 599 | 54 | 524 | 114 | 96 | |
| 325 | Ditto .. | Red volcanic subsoil | Acid .. | 7.65 | 1.68 | 13.90 | .500 | .231 | .11 | .09 | .32 | .02 | 26.33 | .. | .. | .. | .. | 7,228 | 3,441 | 625 | .. | .. | .. | .. | |
| 326 | Ditto .. | Yellowish-red alluvial | Acid .. | 4.62 | 1.83 | 7.69 | .056 | .193 | .12 | .12 | .01 | .12 | 66.88 | .0031 | .0386 | .0036 | .0102 | 6,090 | 3,786 | 3,786 | 98 | 1,218 | 322 | .. | |
| 327 | Ditto .. | Yellowish-red subsoil | Acid .. | 2.90 | .94 | 7.13 | .022 | .056 | .11 | .11 | .03 | .11 | 67.18 | .. | .. | .. | .. | 1,782 | 3,501 | 3,501 | .. | .. | .. | .. | |
| 774 | Tolga .. | Chocolate sandy clay | Sl. acid.. | 11.09 | 1.45 | 11.55 | .011 | .174 | .32 | .35 | .55 | .07 | 44.22 | .0059 | .1383 | .1190 | .0159 | 5,017 | 9,226 | 2,018 | 170 | 3,988 | 458 | 70.3 | |
| 775 | Ditto .. | ditto .. | Acid .. | 10.87 | 2.77 | 12.58 | .012 | .224 | .23 | .37 | .37 | .17 | 39.62 | .0020 | .1595 | .2220 | .0179 | 6,762 | 6,944 | 5,133 | 60 | 4,816 | 540 | 75.0 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|---------------------------------|---------------------------|-------------------|----|-------|------|-------|-------|-------|------|------|------|------|-------|--------|--------|--------|-------|-------|-------|--------|--------|-------|--------|-----|-------|
| 776 | Tolga .. | Chocolate sandy clay | Acid | .. | 10.82 | 2.05 | 11.03 | 0.36 | 0.179 | 0.25 | 0.29 | 0.30 | 0.15 | 43.60 | 0.0020 | 0.1252 | 0.1008 | 0.269 | 5,356 | 7,480 | 8,677 | 4,488 | 60 | 3,746 | 805 | 75.0 |
| 777 | Ditto .. | ditto | Alkaline | .. | 12.71 | 1.90 | 10.17 | 0.009 | 0.196 | 0.24 | 0.62 | 0.36 | 0.24 | 42.10 | 0.0016 | 0.3405 | 0.1070 | 0.204 | 6,078 | 7,442 | 19,225 | 7,442 | 50 | 10,558 | 633 | 20.3 |
| 778 | Ditto .. | ditto | Alkaline | .. | 12.55 | 1.38 | 10.26 | 0.013 | 0.146 | 0.23 | 0.83 | 0.25 | 0.09 | 44.18 | 0.0012 | 0.7520 | 0.1070 | 0.162 | 4,448 | 7,007 | 25,288 | 2,742 | 37 | 22,910 | 494 | 25.0 |
| 1027 | LEICHHARDT— Duaringa .. | Reddish-brown sandy clay | V. sl. acid | .. | 2.22 | 0.90 | 3.35 | 0.003 | 0.056 | 0.02 | 0.09 | 0.02 | 0.05 | 84.69 | 0.0005 | 0.0504 | 0.0111 | 0.065 | 2,163 | 772 | 3,476 | 1,931 | 19 | 1,947 | 251 | 36.0 |
| 1027B | Ditto .. | Red sandy clay | V. sl. acid | .. | 5.04 | 0.08 | 6.13 | 0.003 | 0.020 | Nil | 0.02 | 0.02 | 0.04 | 66.99 | Nil | 0.0154 | 0.0140 | 0.049 | 740 | Nil | 740 | 1,480 | Nil | 569 | 181 | .. |
| 1061 | Dawson River .. | Sandy loam | Acid | .. | 2.79 | 1.43 | 1.82 | 0.009 | 0.073 | 0.04 | 0.67 | 0.29 | 0.37 | 85.54 | 0.0214 | 0.1406 | 0.0406 | 0.152 | 2,858 | 1,567 | 26,240 | 14,491 | 838 | 5,507 | 595 | 42 |
| 1062 | Ditto .. | Clay | Acid | .. | 4.31 | 0.29 | 2.71 | 0.006 | 0.031 | 0.12 | 0.82 | 0.60 | 0.60 | 76.97 | .. | .. | .. | .. | 1,105 | 4,276 | 29,240 | 21,380 | .. | .. | .. | .. |
| 1063 | Ditto .. | Black alluvial .. | Acid | .. | 3.64 | 1.60 | 3.58 | 0.008 | 0.090 | 0.10 | 0.41 | 0.37 | 0.41 | 83.45 | 0.0159 | 0.1607 | 0.0163 | 0.116 | 3,158 | 3,508 | 14,385 | 14,385 | 558 | 5,639 | 407 | 17 |
| 1064 | Ditto .. | Sandy subsoil .. | Acid | .. | 2.83 | 0.69 | 1.95 | 0.005 | 0.039 | 0.07 | 0.28 | 0.28 | 0.30 | 86.39 | .. | .. | .. | .. | 1,432 | 2,570 | 10,280 | 11,015 | .. | .. | .. | .. |
| 1065 | Ditto .. | Sandy alluvial.. | Acid | .. | 1.67 | 1.15 | 2.01 | 0.006 | 0.071 | 0.05 | 0.22 | 0.13 | 0.16 | 90.30 | 0.0123 | 0.2010 | 0.0354 | 0.116 | 2,742 | 1,931 | 8,497 | 6,179 | 475 | 7,762 | 448 | 34.5 |
| 1066 | Ditto .. | Sandy subsoil .. | Sl. alka- line | .. | 2.63 | 1.30 | 2.86 | 0.006 | 0.084 | 0.07 | 0.41 | 0.23 | 0.26 | 88.24 | .. | .. | .. | .. | 3,130 | 2,608 | 15,275 | 9,688 | .. | .. | .. | .. |
| 290 | SOUTH KENNEDY— Poopoonbah .. | Brown Sandy .. | Acid | .. | 3.63 | 1.77 | 4.17 | 0.008 | 0.118 | 0.14 | 1.39 | 0.94 | 0.49 | 74.47 | 0.0214 | 0.2262 | 0.0170 | 0.189 | 4,301 | 5,102 | 50,660 | 17,860 | 780 | 8,228 | 689 | 23.0 |
| 76 | PORT CURTIS— Yaamba .. | Greyish-brown sandy | Sl. acid.. | .. | 0.58 | 0.55 | 1.26 | 0.005 | 0.050 | 0.03 | 0.14 | 0.10 | 0.08 | 94.04 | .. | .. | .. | .. | 1,931 | 1,159 | 5,408 | 3,090 | .. | .. | .. | 4.0 |
| 335 | Warren .. | Black clay .. | Sl. acid.. | .. | 1.62 | 1.20 | 3.36 | 0.005 | 0.081 | 0.10 | 0.59 | 0.49 | 0.34 | 85.67 | 0.0166 | 0.1445 | 0.0355 | 0.187 | 3,217 | 4,091 | 23,430 | 13,502 | 659 | 5,739 | 743 | 10.9* |
| 336 | Ditto .. | ditto | Sl. acid.. | .. | 2.12 | 1.60 | 3.36 | 0.006 | 0.084 | 0.11 | 0.61 | 0.43 | 0.37 | 83.65 | 0.0176 | 0.1390 | 0.0514 | 0.197 | 3,199 | 4,265 | 23,230 | 14,090 | 670 | 5,294 | 750 | 29.7* |
| 337 | Ditto .. | ditto | Sl. acid.. | .. | 2.36 | 1.55 | 3.71 | 0.005 | 0.089 | 0.11 | 0.71 | 0.50 | 0.38 | 82.30 | 0.0132 | 0.1380 | 0.0267 | 0.137 | 3,317 | 4,062 | 26,458 | 14,160 | 492 | 5,143 | 510 | 26.6* |
| 338 | Ditto .. | ditto | Sl. acid.. | .. | 1.74 | 1.70 | 4.16 | 0.006 | 0.095 | 0.10 | 0.58 | 0.39 | 0.38 | 83.24 | 0.0175 | 0.1530 | 0.0503 | 0.144 | 3,488 | 3,819 | 21,300 | 13,952 | 643 | 5,618 | 529 | 32.8* |
| 749 | Yeppoon .. | Dark clayey loam | Acid | .. | 1.07 | 2.08 | 3.03 | 0.020 | 0.112 | 0.04 | 0.16 | 0.25 | 0.17 | 86.20 | 0.0021 | 0.0739 | 0.0935 | 0.074 | 4,052 | 1,450 | 5,788 | 6,150 | 76 | 2,673 | 267 | 42.2 |
| 750 | Ditto .. | Reddish-brown loam | Acid | .. | 1.30 | 1.54 | 5.43 | 0.021 | 0.118 | 0.05 | 0.21 | 0.12 | 0.09 | 78.11 | 0.0611 | 0.0902 | 0.1372 | 0.077 | 4,205 | 1,782 | 7,482 | 3,207 | 39 | 3,214 | 274 | 39.8 |
| 751 | Ditto .. | Reddish-brown clayey loam | Acid | .. | 0.44 | 1.91 | 1.78 | 0.018 | 0.073 | 0.03 | 0.11 | 0.13 | 0.12 | 86.22 | 0.0010 | 0.0442 | 0.0217 | 0.066 | 3,078 | 1,265 | 4,638 | 5,060 | 42 | 1,863 | 278 | 41.4 |
| 752 | Ditto .. | Dark-brown loam | Acid | .. | 1.31 | 1.67 | 4.55 | 0.027 | 0.134 | 0.04 | 0.15 | 0.20 | 0.16 | 81.02 | 0.0009 | 0.1090 | 0.0542 | 0.073 | 4,884 | 1,458 | 5,467 | 5,831 | 33 | 3,973 | 266 | 50.8 |
| 753 | Gladstone .. | Light-brown sandy loam | Acid | .. | 1.04 | 0.74 | 2.28 | 0.010 | 0.073 | 0.07 | 0.42 | 0.23 | 0.24 | 86.70 | 0.0055 | 0.0885 | 0.0446 | 0.048 | 3,117 | 2,989 | 17,930 | 10,250 | 235 | 3,779 | 205 | 21.1 |
| 754 | Rockhampton .. | Fine dark loam | Acid | .. | 4.56 | 2.61 | 6.44 | 0.014 | 0.274 | 0.16 | 1.26 | 0.60 | 0.63 | 66.23 | 0.0348 | 0.2880 | 0.0620 | 0.182 | 8,944 | 5,220 | 41,130 | 20,560 | 1,136 | 9,400 | 594 | 17.2 |

NOTE.—Lime in excess in lime requirement column shown in *italics*. * Liming experiment plots.

TABLE III.—ANALYSES OF QUEENSLAND SOILS—continued.

| Laboratory No. | Locality. | Description of Soils. | Reaction. | TOTAL ELEMENTS IN THE SOIL. | | | | | | | | | | 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. | | | Cwt. of Lime required per Acre, 12" Deep. | | |
|----------------|--------------------------|-----------------------------|------------|-----------------------------|--------|---|-----------|-----------|--|------|------|------|-------|---|--------|-----------|---------|---|------------------|--------|-----------|---|-----------|------------------|---|-------|---------|
| | | | | Moisture. | 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. | Magnesia. | Potash. | Nitrogen. | Phosphoric Acid. | | Lime. | Potash. |
| | | | | | | | | | % | % | % | % | % | | | | | | | | | | | | | | |
| 379 | BURNETT— Rawbelle .. | Black clay .. | Sl. acid.. | 4.38 | 2.10 | 4.84 | 0.10 | 0.112 | 0.25 | 1.32 | 1.45 | 0.49 | 69.36 | 0.300 | 0.2422 | 0.0935 | 0.0092 | 3.260 | 7.276 | 38,420 | 14,260 | 873 | 7,049 | 268 | 23.4 | | |
| 380 | Ditto .. | ditto .. | Neutral.. | 4.00 | 1.70 | 4.24 | 0.115 | 0.098 | 0.17 | 1.09 | 1.15 | 0.46 | 72.68 | 0.195 | 0.2587 | 0.0814 | 0.1115 | 3,119 | 5,410 | 34,690 | 14,640 | 621 | 8,234 | 366 | 9.4 | | |
| 381 | Ditto .. | ditto .. | Acid .. | 5.00 | 2.45 | 6.05 | 0.14 | 0.144 | 0.20 | 0.92 | 0.98 | 0.35 | 66.86 | 0.128 | 0.2317 | 0.0950 | 0.0882 | 4,230 | 5,875 | 27,025 | 10,282 | 376 | 6,806 | 241 | 34.4 | | |
| 797 | Ditto .. | Dark alluvial .. | Sl. acid.. | 3.70 | 2.78 | 5.44 | 0.13 | 0.245 | 0.22 | 1.12 | 0.53 | 0.48 | 75.86 | 0.526 | 0.2772 | 0.0639 | 0.2222 | 7,998 | 7,182 | 36,560 | 15,670 | 1,717 | 9,048 | 725 | 35.0 | | |
| 798 | Ditto .. | ditto .. | Sl. acid.. | 2.63 | 1.34 | 3.68 | 0.210 | 0.090 | 0.12 | 0.39 | 0.30 | 0.22 | 81.99 | 0.246 | 0.1431 | 0.0436 | 0.0777 | 3,599 | 4,798 | 15,595 | 8,797 | 984 | 5,723 | 308 | 35.0 | | |
| 13 | WIDE BAY— Childers .. | Red clayey loam .. | Acid .. | 8.18 | 1.63 | 10.05 | 0.50 | 0.174 | 0.05 | 0.08 | 0.17 | 0.02 | 44.67 | 0.021 | 0.0686 | 0.0565 | 0.0888 | 5,490 | 1,577 | 2,524 | 631 | 66 | 2,164 | 278 | 59.4 | | |
| 14 | Ditto .. | ditto .. | Acid .. | 5.87 | 0.60 | 9.68 | 0.06 | 0.073 | 0.10 | 0.06 | 0.08 | 0.02 | 48.32 | .. | .. | .. | .. | 2,402 | 3,291 | 1,975 | 658 | .. | .. | .. | .. | | |
| 64 | Nambour .. | Brown sandy clay .. | Neutral.. | 2.46 | 0.89 | 2.39 | 0.08 | 0.101 | 0.06 | 0.18 | 0.53 | 0.20 | 87.79 | 0.040 | 0.0996 | 0.0156 | 0.161 | 3,846 | 2,286 | 6,854 | 7,615 | 152 | 3,792 | 613 | 8.0 | | |
| 68 | Bundaberg .. | Red loam .. | Sl. acid.. | 2.42 | 0.71 | 3.55 | 0.06 | 0.048 | 0.01 | 0.13 | 0.07 | 0.01 | 84.12 | 0.011 | 0.0773 | 0.0480 | 0.025 | 1,906 | 401 | 5,163 | 401 | 44 | 3,070 | 99 | 22.0 | | |
| 69 | Ditto .. | ditto .. | Sl. acid.. | 2.04 | 0.90 | 3.63 | 0.07 | 0.076 | 0.04 | 0.21 | 0.11 | 0.04 | 82.97 | 0.045 | 0.1243 | 0.0353 | 0.132 | 2,956 | 1,556 | 8,164 | 1,556 | 175 | 4,835 | 513 | 14.0 | | |
| 197 | Pomona .. | Drab clayey loam .. | Acid .. | 7.18 | 1.34 | 4.48 | 0.05 | 0.160 | 0.10 | 0.26 | 0.19 | 0.23 | 74.87 | 0.031 | 0.0896 | 0.0128 | 0.040 | 5,570 | 3,481 | 9,051 | 8,008 | 108 | 3,119 | 139 | 36.0 | | |
| 198 | Ditto .. | ditto .. | Acid .. | 8.87 | 0.76 | 3.51 | 0.06 | 0.073 | 0.07 | 0.12 | 0.32 | 0.21 | 74.50 | .. | .. | .. | .. | 2,680 | 2,570 | 4,406 | 7,710 | .. | .. | .. | .. | | |
| 239 | Nambour .. | Brown loam .. | Acid .. | 9.30 | 0.97 | 8.93 | 0.12 | 0.132 | 0.03 | 0.45 | 1.15 | 0.15 | 60.00 | 0.043 | 0.1330 | 0.0749 | Nil | 4,201 | 954 | 14,320 | 4,773 | 136 | 4,232 | Nil | 51.0 | | |
| 264 | Landsborough .. | Brown sandy loam .. | Sl. acid.. | 2.62 | 1.10 | 1.68 | 0.07 | 0.063 | 0.04 | 0.21 | 0.27 | 0.17 | 88.53 | 0.027 | 0.0700 | 0.0537 | 0.037 | 2,108 | 1,338 | 7,026 | 5,688 | 90 | 2,342 | 124 | 40.6 | | |
| 265 | Ditto .. | ditto .. | Acid .. | 3.40 | 1.20 | 1.78 | 0.03 | 0.077 | 0.04 | 0.24 | 0.35 | 0.33 | 86.89 | 0.024 | 0.0631 | 0.0352 | 0.025 | 2,555 | 1,327 | 7,964 | 10,952 | 80 | 2,094 | 83 | 46.8 | | |
| 279 | Palmwoods .. | Grey sandy .. | Sl. acid.. | 0.78 | 1.50 | 1.54 | 0.05 | 0.057 | 0.01 | 0.15 | 0.07 | 0.05 | 95.05 | 0.016 | 0.0547 | 0.0274 | 0.049 | 2,171 | 381 | 5,712 | 1,904 | 61 | 2,083 | 187 | 45.2 | | |
| 280 | Ditto .. | Reddish-brown sandy loam .. | Acid .. | 4.56 | 1.90 | 4.08 | 0.05 | 0.085 | 0.03 | 0.18 | 0.15 | 0.07 | 79.31 | 0.019 | 0.0481 | 0.0407 | 0.055 | 2,728 | 963 | 5,778 | 2,247 | 61 | 1,544 | 177 | 71.7 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-------------------------|---------------------------|------------|-------|------|-------|------|------|------|------|-------|-----|-------|-------|-------|-------|-------|--------|-------|--------|--------|-----|-------|-----|-------|
| 333 | Moodlu .. | Brown sandy .. | Acid .. | .80 | .85 | 3.33 | .010 | .045 | .02 | .06 | .03 | .01 | 87.00 | .0001 | .0382 | .0077 | .0024 | 1,554 | 622 | 2,073 | 173 | 3 | 1,319 | 83 | 54.0 |
| 334 | Ditto .. | Grey sandy .. | Acid .. | .30 | 1.05 | 1.43 | .005 | .056 | .01 | .03 | trace | .01 | 96.29 | .0001 | .0109 | .0064 | .0026 | 2,133 | 305 | 114 | 305 | 3 | 415 | 99 | 44.5 |
| 386 | Nambour .. | Brown clayey loam | Acid .. | 6.36 | 1.55 | 3.33 | .005 | .126 | .03 | .17 | .05 | .16 | 79.24 | .0013 | .0616 | .0285 | .0036 | 3,805 | 906 | 5,133 | 4,831 | 39 | 1,860 | 109 | 45.3 |
| 595 | Bingera .. | Dark clayey loam | Acid .. | 10.35 | 2.68 | 6.75 | .. | .140 | .11 | .58 | .71 | .29 | 78.21 | .0025 | .1294 | .0197 | .0050 | 4,417 | 3,471 | 18,300 | 9,150 | 79 | 4,083 | 158 | 115.0 |
| 724 | Maroochy .. | ditto .. | Acid .. | 3.62 | 2.60 | 7.65 | .076 | .258 | .03 | .18 | .35 | .15 | 67.66 | .0028 | .0420 | .0444 | .0083 | 7,649 | 889 | 5,337 | 4,447 | 83 | 1,245 | 246 | 120.5 |
| 737 | Cooroy .. | Drab clayey loam | Acid .. | 2.76 | 2.71 | 6.36 | .010 | .260 | .07 | .22 | .11 | .40 | 72.86 | .0016 | .1344 | .0461 | .0121 | 7,640 | 2,057 | 6,460 | 11,755 | 47 | 3,950 | 356 | 62.5 |
| 738 | Ditto .. | ditto .. | Acid .. | 3.32 | 2.55 | 5.84 | .022 | .230 | .09 | .13 | .06 | .46 | 72.02 | .0064 | .0812 | .0151 | .0121 | 6,446 | 2,522 | 3,644 | 12,892 | 179 | 2,276 | 339 | 101.5 |
| 739 | Ditto .. | ditto .. | Acid .. | 2.79 | 3.03 | 5.63 | .019 | .322 | .11 | .12 | .08 | .34 | 71.54 | .0049 | .0630 | .0081 | .0078 | 9,025 | 3,083 | 3,363 | 9,530 | 137 | 1,766 | 219 | 133.0 |
| 740 | Ditto .. | ditto .. | Acid .. | 2.50 | 2.31 | 5.31 | .018 | .245 | .07 | .08 | .03 | .32 | 72.30 | .. | .. | .. | 7,065 | 2,018 | 2,307 | 19,228 | .. | .. | .. | .. | |
| 741 | Ditto .. | ditto .. | Acid .. | 3.58 | 2.95 | 6.63 | .012 | .336 | .12 | .13 | .05 | .56 | 70.68 | .0085 | .0714 | .0063 | .0188 | 9,505 | 3,395 | 3,678 | 15,842 | 240 | 2,020 | 532 | 109.5 |
| 742 | Ditto .. | ditto .. | Acid .. | 2.54 | 2.21 | 5.89 | .014 | .260 | .11 | .11 | .02 | .46 | 72.42 | .. | .. | .. | 7,850 | 3,322 | 3,322 | 13,888 | .. | .. | .. | .. | |
| 743 | Ditto .. | Drab stoney clay | Sl. acid.. | 1.99 | 2.60 | 4.71 | .017 | .313 | .10 | .50 | .16 | .52 | 73.20 | .0078 | .2541 | .0065 | .0483 | 5,114 | 1,634 | 8,168 | 8,496 | 127 | 4,151 | 788 | 4.0 |
| 788 | Nambour .. | Light loam .. | Acid .. | 2.52 | 1.17 | 4.63 | .015 | .080 | .03 | .06 | .11 | .71 | 78.42 | .0025 | .0382 | .0223 | .0029 | 2,677 | 1,004 | 2,008 | 23,755 | 84 | 1,278 | 97 | 104.5 |
| 796 | Bundaberg .. | Sandy .. | Sl. acid.. | .65 | .50 | 1.38 | .006 | .031 | .01 | .04 | .04 | .01 | 94.65 | .0015 | .0162 | .0049 | .0014 | 1,357 | 439 | 1,756 | 439 | 66 | 709 | 61 | 22.5 |
| 850 | Landsborough .. | Brown sandy soil | Acid .. | 2.34 | .99 | 4.49 | .010 | .162 | .03 | .11 | .33 | .36 | 82.55 | .0032 | .0991 | .0319 | .0083 | 5,091 | 955 | 3,501 | 11,455 | 102 | 3,154 | 264 | 39.1 |
| 851 | Ditto .. | Drab fine sandy soil | Acid .. | .56 | .74 | 2.87 | .010 | .084 | .01 | .12 | .14 | .01 | 91.14 | .0008 | .0493 | .0150 | .0011 | 2,992 | 356 | 4,276 | 356 | 28 | 1,757 | 39 | 37.5 |
| 852 | Ditto .. | Drab sandy clay | Acid .. | 2.06 | .28 | 3.72 | .013 | .067 | .001 | .23 | .40 | .44 | 83.70 | .0005 | .0192 | .0379 | .0033 | 2,332 | 35 | 8,008 | 15,320 | 17 | 668 | 115 | 66.4 |
| 853 | Ditto .. | Brown clayey .. | Acid .. | 4.25 | 1.80 | 4.50 | .007 | .190 | .03 | .11 | .42 | .44 | 77.52 | .0053 | .1097 | .0535 | .0129 | 5,685 | 898 | 3,292 | 13,168 | 159 | 3,282 | 386 | 37.5 |
| 854 | Beerburum .. | Brown sandy .. | Acid .. | .02 | .41 | 1.19 | .007 | .045 | .01 | .29 | .04 | .02 | 95.62 | .0007 | .0426 | .0110 | .0003 | 1,897 | 422 | 12,227 | 843 | 29 | 1,796 | 13 | 9.4 |
| 956 | Mount Bauple .. | Brown clayey .. | Acid .. | 1.87 | 1.28 | 4.25 | .010 | .106 | .02 | .18 | .19 | .35 | 83.66 | .0011 | .0802 | .0407 | .0071 | 2,908 | 729 | 6,560 | 758 | 40 | 2,923 | 259 | 41.4 |
| 1026 | Beerwah .. | Black loam .. | Sl. acid.. | 6.40 | 3.91 | 10.03 | .010 | .280 | .01 | 1.06 | .21 | .23 | 55.47 | .0083 | .1568 | .0535 | .0101 | 7,920 | 283 | 29,985 | 6,506 | 235 | 4,432 | 286 | 118.5 |
| 1036 | Childers .. | Red clayey loam | Sl. acid.. | 9.64 | 1.64 | 12.02 | .013 | .232 | .23 | .36 | .21 | .14 | 45.97 | .0054 | .1267 | .0575 | .0137 | 7,888 | 7,809 | 12,240 | 4,760 | 173 | 4,308 | 439 | 29.6 |
| 1076 | Brooloo .. | Brown clayey loam | Sl. acid.. | 11.99 | 3.44 | 6.76 | .063 | .005 | .20 | 2.30 | .66 | .40 | 63.42 | .0164 | .1435 | .0367 | .0198 | 125 | 6,338 | 74,720 | 13,000 | 533 | 4,663 | 643 | 36.7 |
| 1077 | Ditto .. | ditto .. | Sl. acid.. | 7.84 | 1.21 | 7.16 | .021 | .157 | .20 | 1.43 | 1.34 | .36 | 65.76 | .0150 | .1377 | .0626 | .0045 | 5,148 | 6,491 | 46,895 | 11,805 | 464 | 4,515 | 147 | 34.3 |
| 1078 | Maleny .. | Red loam .. | Acid .. | 17.63 | 4.57 | 19.20 | .008 | .386 | .27 | .22 | .29 | .01 | 26.62 | .0033 | .0235 | .0044 | .0034 | 11,007 | 7,784 | 6,274 | 271 | 99 | 709 | 102 | 149.2 |
| 18 | MORRETON— Belmont .. | Reddish-brown clayey loam | Acid .. | 2.09 | 1.14 | 7.25 | .006 | .157 | .09 | .15 | .16 | .05 | 71.00 | .0012 | .0756 | .0237 | .0038 | 4,954 | 2,841 | 4,732 | 1,577 | 38 | 2,385 | 120 | 67.0 |

TABLE III.—ANALYSES OF QUEENSLAND SOILS—continued.

| Laboratory No. | Locality. | Description of Soils. | Reaction. | TOTAL ELEMENTS IN THE SOIL. | | | | | | | | | | 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. | | | Cwts. of Lime required per Acre, 12" Deep. | |
|----------------|---------------------------------|-----------------------|------------|-----------------------------|--------|---|-----------|-----------|--|------|------|-------|-------|---|-------|-----------|---------|---|------------------|--------|---------|---|------------------|-------|--|---------|
| | | | | Moisture. | Humus. | Combined Water and Other Organic Matter | Chlorine. | Nitrogen. | Soluble in Hydrochloric Acid, Sp. Gr. 1.115. | | | | | Phosphoric Acid. | Lime. | Magnesia. | Potash. | Total Insoluble | Phosphoric Acid. | Lime. | Potash. | Nitrogen. | Phosphoric Acid. | Lime. | | Potash. |
| | | | | | | | | | % | % | % | % | % | | | | | | | | | | | | | |
| 41 | MORFETON—continued Coorparoo | Grey sandy clay | Acid | 1.65 | 2.76 | 4.17 | 0.09 | 0.180 | 0.4 | 0.11 | 0.35 | 0.24 | 86.86 | 0.036 | 0.560 | 0.253 | 0.097 | 5.432 | 1,208 | 3,321 | 7,246 | 109 | 1,691 | 293 | 65.5 | |
| 97 | Sandgate | Brown loam | Str. acid | 7.60 | 3.10 | 5.89 | 0.18 | 0.133 | 0.5 | 0.01 | 0.05 | 0.02 | 70.13 | 0.018 | 0.096 | 0.204 | 0.004 | 4.666 | 1,754 | 350 | 701 | 63 | 337 | 14 | 117.0 | |
| 98 | Ditto | Grey loam | Str. acid | 3.00 | 1.60 | 2.89 | 0.07 | 0.084 | 0.2 | 0.04 | 0.06 | 0.03 | 85.46 | 0.006 | 0.095 | 0.122 | 0.021 | 2,947 | 701 | 1,403 | 1,051 | 21 | 322 | 73 | 80.5 | |
| 99 | Ditto | Dark grey loam | Str. acid | 9.09 | 2.05 | 6.81 | 0.09 | 0.120 | 0.4 | 0.06 | 0.16 | 0.19 | 67.97 | 0.003 | 0.241 | 0.145 | 0.027 | 4,209 | 1,403 | 2,105 | 6,665 | 10 | 845 | 95 | 99.0 | |
| 167 | Tallebudgera | Brown loam | Str. acid | 3.16 | 2.28 | 5.28 | 0.19 | 0.160 | 0.8 | 0.25 | 0.09 | 0.33 | 76.83 | 0.044 | 0.219 | 0.164 | 0.040 | 5,091 | 2,545 | 7,956 | 10,501 | 140 | 697 | 127 | 140.0 | |
| 246 | Enoggera | Brown sandy | Acid | 0.68 | 0.54 | 1.52 | 0.06 | 0.049 | 0.2 | 0.11 | 0.10 | 0.04 | 93.46 | 0.007 | 0.314 | 0.115 | 0.039 | 1,905 | 778 | 4,278 | 1,555 | 27 | 1,221 | 152 | 19.0 | |
| 541 | Ashgrove | Black sandy loam | Acid | 1.12 | 1.75 | 2.79 | 0.16 | 0.106 | 0.3 | 0.09 | 0.14 | 0.29 | 88.44 | 0.016 | 0.470 | 0.219 | 0.048 | 3,604 | 1,156 | 3,094 | 9,793 | 54 | 1,598 | 163 | 67.2 | |
| 613 | Wellington Point | Brown sandy | Acid | 0.76 | 2.76 | 2.88 | 0.05 | 0.122 | 0.13 | 0.31 | 0.02 | 0.02 | 83.40 | 0.170 | 0.258 | 0.007 | 0.034 | 4,646 | 4,950 | 11,805 | 838 | 647 | 4,714 | 129 | 52.0 | |
| 614 | Ditto | Dark-brown sandy | Acid | 0.70 | 1.67 | 2.61 | 0.05 | 0.084 | 0.9 | 0.23 | 0.01 | 0.01 | 84.60 | .. | .. | .. | .. | 3,383 | 3,624 | 9,262 | 201 | .. | .. | .. | .. | |
| 615 | Ditto | Dark-brown peaty sand | Acid | 4.43 | 8.63 | 4.85 | 0.08 | 0.308 | 0.24 | 0.18 | 0.01 | 0.07 | 63.12 | 0.189 | 0.622 | 0.018 | 0.164 | 8,880 | 6,920 | 5,190 | 1,932 | 545 | 1,793 | 473 | 101.0 | |
| 616 | Ditto | ditto | Acid | 2.24 | 4.50 | 5.02 | 0.06 | 0.161 | 0.18 | 0.08 | 0.01 | 0.06 | 69.64 | .. | .. | .. | .. | 5,532 | 6,184 | 2,748 | 2,062 | .. | .. | .. | .. | |
| 626 | Runcorn | Brown sandy | Acid | 2.90 | 0.85 | 2.89 | 0.15 | 0.059 | 0.1 | 0.08 | 0.11 | 0.04 | 84.05 | 0.005 | 0.241 | 0.225 | 0.028 | 1,830 | 310 | 2,480 | 1,240 | 15 | 747 | 87 | 56.0 | |
| 627 | Ditto | Grey sandy | Acid | 1.78 | 1.20 | 3.26 | 0.05 | 0.076 | 0.1 | 0.11 | 0.07 | 0.06 | 90.87 | 0.005 | 0.381 | 0.200 | 0.041 | 2,729 | 431 | 3,950 | 2,154 | 18 | 1,368 | 148 | 28.0 | |
| 628 | Ditto | ditto | Acid | 1.30 | 1.25 | 3.59 | 0.08 | 0.070 | 0.1 | 0.11 | 0.09 | 0.05 | 90.06 | 0.005 | 0.453 | 0.203 | 0.039 | 2,380 | 408 | 3,740 | 1,700 | 17 | 1,540 | 133 | 36.0 | |
| 633 | Gatton College | Black clayey | Sl. acid | 7.49 | 1.03 | 7.34 | 0.09 | 0.099 | 0.28 | 0.52 | 0.66 | 67.38 | 0.241 | 0.1729 | 0.109 | 0.125 | 3,447 | 9,748 | 18,105 | 11,837 | 839 | 6,020 | 435 | .. | | |
| 634 | Ditto | ditto | Neutral | 8.86 | 0.59 | 7.89 | 0.12 | 0.053 | 0.24 | 0.52 | 0.30 | 66.80 | .. | .. | .. | .. | 1,788 | 8,095 | 17,540 | 11,131 | .. | .. | .. | .. | | |
| 635 | Ditto | ditto | Sl. alkali | 7.34 | 1.41 | 8.39 | 0.08 | 0.123 | 0.23 | 0.71 | 0.44 | 66.58 | 0.229 | 0.2006 | 0.130 | 0.147 | 3,982 | 7,106 | 22,979 | 11,328 | 741 | 6,493 | 476 | .. | | |
| 636 | Ditto | ditto | Neutral | 7.88 | 0.90 | 8.23 | 0.07 | 0.085 | 0.28 | 0.57 | 0.27 | 65.25 | .. | .. | .. | .. | 2,867 | 9,445 | 19,228 | 10,120 | .. | .. | .. | .. | | |
| 637 | Ditto | ditto | Neutral | 8.76 | 0.92 | 9.12 | 0.08 | 0.099 | 0.24 | 0.53 | 0.35 | 61.63 | 0.146 | 0.2240 | 0.093 | 0.125 | 3,312 | 8,029 | 17,732 | 11,041 | 489 | 7,494 | 418 | .. | | |

TABLE IV.—ANALYSES OF STOCK FOODS.

| Laboratory No. | Description of Sample. | ANALYSIS. | | | | | | |
|----------------|---|-----------|----------------|-----------------|--------------|------------|------------|----------------|
| | | Moisture. | Crude Protein. | Carbo-hydrates. | Crude Fibre. | Crude Fat. | Total Ash. | Insoluble Ash. |
| | | % | % | % | % | % | % | % |
| 762 | Bran (local) | 10.37 | 13.83 | 57.84 | 11.50 | 2.48 | 3.98 | n.d. |
| 770 | Bran (local) | 10.76 | 13.74 | 56.97 | 9.70 | 3.98 | 4.85 | n.d. |
| 855 | Bran | 9.86 | 14.53 | 59.38 | 8.30 | 4.11 | 3.82 | n.d. |
| 868 | Bran (local) | 10.74 | 15.74 | 58.02 | 7.53 | 3.97 | 4.00 | 0.22 |
| 893 | Bran (imported) | 11.45 | 13.09 | 60.51 | 7.97 | 3.47 | 3.51 | 0.28 |
| 894 | Bran (imported) | 11.92 | 14.32 | 57.67 | 8.40 | 3.51 | 4.27 | 0.08 |
| 896 | Bran (imported) | 11.58 | 14.49 | 59.32 | 7.93 | 3.11 | 3.57 | 0.18 |
| 899 | Bran (imported) | 12.52 | 13.53 | 59.24 | 7.60 | 3.46 | 3.65 | 0.24 |
| 1159 | Bran (imported) | 11.39 | 13.44 | 59.27 | 8.20 | 3.40 | 4.30 | 0.41 |
| 11 | Bran (local) | 12.49 | 13.37 | 58.36 | 8.96 | 2.87 | 3.94 | 0.43 |
| 763 | Pollard (local) | 10.58 | 14.26 | 65.87 | 4.03 | 3.35 | 1.91 | n.d. |
| 771 | Pollard (local) | 10.37 | 14.80 | 63.60 | 4.00 | 4.69 | 2.54 | n.d. |
| 867 | Pollard (local) | 10.99 | 15.94 | 58.10 | 7.30 | 4.44 | 3.23 | 0.42 |
| 870 | Pollard | 10.40 | 13.17 | 61.60 | 7.60 | 4.04 | 3.19 | 0.28 |
| 892 | Pollard (imported) | 11.60 | 12.22 | 66.94 | 3.67 | 3.70 | 1.87 | 0.07 |
| 895 | Pollard (imported) | 11.20 | 14.54 | 59.76 | 7.67 | 3.55 | 3.28 | 0.47 |
| 897 | Pollard (imported) | 11.00 | 15.50 | 60.26 | 6.77 | 3.30 | 3.17 | 0.47 |
| 898 | Pollard (imported) | 11.72 | 13.44 | 63.17 | 5.63 | 3.60 | 2.44 | 0.33 |
| 1014 | Pollard (local) | 10.82 | 18.24 | 61.53 | 2.94 | 1.40 | 5.07 | 2.93 |
| 1046 | Pollard | 9.41 | 17.68 | 56.55 | 4.67 | 2.09 | 9.60 | 4.26 |
| 707 | Offal pollard (imported) | 9.67 | 23.25 | 48.88 | 7.37 | 1.83 | 9.00 | 4.05 |
| 964 | *White pollard, pig meal (imported) | 9.56 | 23.82 | 48.47 | 5.93 | 1.72 | 10.50 | 6.06 |
| 803 | *Pollard (imported) | 11.53 | 39.57 | 34.98 | 5.77 | 2.36 | 5.79 | 1.22 |
| 708 | *Pollard (imported) | 9.72 | 27.10 | 53.12 | 4.33 | 1.75 | 3.98 | 0.57 |
| 709 | *Pollard (imported) | 10.53 | 11.60 | 66.57 | 3.50 | 1.38 | 6.42 | 2.76 |
| 710 | Crushed wheat (imported) | 11.23 | 11.77 | 70.07 | 3.23 | 1.18 | 2.52 | 0.62 |
| 804 | Wheat meal | 9.80 | 10.94 | 72.18 | 2.73 | 1.98 | 2.37 | 0.49 |
| 1138 | Crushed wheat | 10.38 | 11.19 | 72.92 | 2.30 | 1.72 | 1.59 | 0.15 |
| 711 | Wheat screenings (imported) | 11.40 | 10.86 | 71.39 | 3.33 | 1.24 | 1.78 | 0.19 |
| 712 | Wheat offal brannings (imported) | 10.50 | 12.52 | 61.16 | 9.57 | 1.83 | 4.42 | 1.26 |
| 713 | Wheat husks (imported) | 10.30 | 13.52 | 62.66 | 8.60 | 1.63 | 3.29 | 0.49 |
| 1047 | Mill sweepings | 10.44 | 10.06 | 69.78 | 1.11 | 5.37 | 3.24 | 1.13 |
| 1160 | Flour offal (imported) | 13.12 | 11.00 | 73.55 | 0.57 | 0.84 | 0.92 | 0.14 |
| 978 | Calf food | 8.37 | 24.18 | 53.32 | 2.87 | 5.94 | 5.32 | 0.72 |
| 1012 | Dried blood (local) | 11.11 | 83.75 | [0.28] | .. | 0.58 | 4.28 | 0.20 |
| 1013 | Poultry meal (local) | 8.80 | 61.25 | [3.31] | 0.87 | 18.50 | 7.27 | 0.28 |
| 1082 | Poultry food (local) | 10.17 | 62.56 | [7.97] | 1.07 | 12.94 | 5.29 | 0.20 |
| 1083 | Poultry food, brisket (local) | 7.92 | 47.00 | [0.06] | 2.80 | 10.84 | 31.38 | 0.09 |
| 1015 | Oil meal (local) | 9.17 | 22.94 | 30.91 | 18.95 | 12.94 | 5.09 | 0.11 |
| 1163 | Copra cake | 11.30 | 16.19 | 33.85 | 15.83 | 17.91 | 4.92 | 0.30 |
| 10 | Crushed linseed meal | 7.31 | 20.06 | 21.31 | 9.20 | 38.45 | 3.67 | 0.50 |
| 878 | †Vulcana stock food | 9.07 | 11.91 | 41.85 | 4.43 | 3.59 | 29.15 | 0.54 |
| 122 | ‡Desiccated butter milk (local) | 6.33 | 38.96 | .. | .. | 5.10 | 8.34 | .. |

* Not a true pollard.

† Salt, 21.16 %.

‡ Lactose, 37.96 %.; Salt, 2.36 %.

CITRUS FRUIT CULTURE AT ROMA.



RED HILL ORANGERY.

WASHINGTON NAVEL ORANGE.

GRAPE FRUIT.

REPORT OF THE DIRECTOR OF FRUIT CULTURE.

It is very satisfactory to note that the weather conditions prevailing throughout Queensland at the end of the financial year are much more favourable than they have been for some years past, and that the outlook is therefore much more promising than it was at the time I wrote my last Annual Report. I am in hopes that the very erratic weather conditions we have experienced for some years now have come to an end, and that regular seasonal weather will follow our exceptionally good winter rainfall. Spring and summer were generally unsatisfactory for fruit and vegetable growing, but the autumn and winter weather has been good. The dry spring was disastrous to the citrus crop, the summer crop of pineapples was undersized on account of the want of rain, the peach crop of the granite belt suffered from late frosts as well as the dry weather, and vegetables of all kinds suffered badly.

The erratic seasons have resulted in abnormal development of fruit trees and vegetable crops generally, trees blossoming out of season and setting off crops of fruit of little value as compared with the regular crops of a normal season. Those growers who were lucky enough to have even a moderate crop of fruit or vegetables realised record prices for everything that was of good quality, but these extreme prices are not good for the general welfare of the community, as, though no doubt a few growers benefited very materially thereby, the majority of producers did not have a good year, and consumers suffered severely on account of the extreme prices they had to pay.

Consumers were not only handicapped by the high price of all local produce, the result of the drought, but the disorganisation of shipping, resulting from the influenza epidemic of 1919 and the shipping strike, prevented them from obtaining a supply from the southern States except at a very high cost. The effect of the shipping disorganisation has been that a very large percentage of the fruits and vegetables imported into or exported from this State have been carried by rail instead of by boat. This has, on the whole, proved an advantage to growers, as despite the delay that occurred in the case of some consignments and the by-no-means-careful handling the goods were subjected to, they reached their destination in the majority of cases in much better order than they would have had they been carried by boat; and with considerably less loss, especially during the warmer weather. The good winter rainfall that has fallen practically over the whole of the State, and which has given the whole of the areas devoted to fruit and vegetable growing a thorough soaking as well as a good supply of surface water, should not be wasted, as, if the moisture that has fallen is conserved in the soil by thorough and systematic cultivation, we should be able to stand a dry spell without experiencing any ill effects to speak of. Unfortunately, however, that is just what the majority of our producers will not do, as they are more inclined to trust to Providence to supply rain when needed than to take every possible step to conserve the moisture when they get it. Our uneven and irregular rainfall is conducive to carelessness, with the result that we

do not take the precautions that are taken in other parts of the world where the rainfall averages much less than it does in our agricultural and horticultural areas, but where it falls during a given period and is retained for months in the soil during hot and rainless weather by deep and systematic cultivation. To retain or conserve moisture whenever it falls is the surest way to prevent the ill effects of drought, and it is to be hoped that the recent very severe lessons we have been taught will not be forgotten now that there is a promise of more normal and better seasons, and that instead of trusting entirely to Providence we will awake to the fact that the heavy losses that result from our recurrent droughts can be prevented to a very large extent by our conserving moisture when we get it, instead of allowing it to be wasted by evaporation.

I have strongly advocated this ever since I came to Australia in 1892, and after twenty-eight years' experience in various parts of the Commonwealth I am satisfied of the correctness of my teaching, as where it has been carried out thoroughly the results have been in every case satisfactory. I have dealt somewhat fully with this very important matter in a pamphlet I have written during the year, on the cultivation of the fruits and vegetables of the temperate parts of the State, but which has so far not been issued, as on it, more than anything else, the future success of these industries depends.

In order to make this report as concise as possible, I will now deal briefly with the principal fruit and vegetable crops.

BANANAS.

The commercial cultivation of this fruit is now confined mainly to the southern half of the State, as the North, which was formerly the great banana-producing centre of the Commonwealth, only grows enough to supply local requirements, and there has been no export from there during the current year. In the South, however, there has been a very keen inquiry for any land suitable for banana culture, and very high prices have been paid for good banana land. Unfortunately, considerable areas of by-no-means-good banana land have been planted during recent years, with the result that most of the plantations thereon have been more or less unsatisfactory. At the same time, many good areas have been planted, and, despite the dry spring, have yielded excellent returns to their owners, as the prices that have been realised for good fruit have been high, both on our local and Southern markets. At the prices that have been realised for good fruit during the year, bananas, when planted on suitable soil and in sheltered positions, free from frost, will pay well for extra attention, such as thorough cultivation and heavy manuring, as, if given such, the life of the plantation can be extended considerably, as there is no reason, provided the plants are healthy, are not allowed to become overcrowded, are kept clean and well worked, and are heavily and regularly manured with complete fertilisers rich in organic matter, why they should not yield payable returns indefinitely, as the question of yield is mainly one of providing the plants with an ample and regular supply of plant food.

The supply of virgin land suitable for banana-growing in the southern parts of the State is rapidly being exhausted, and many areas that were formerly looked upon as too rough and inaccessible have or are being cleared and planted to this crop, and it is only a matter of time when these areas will become exhausted, and the growing of this fruit will depend on intensive cultivation; in other words, on thorough cultivation combined with systematic manuring.

During the year, experiments in the manuring of bananas have been continued, and they bear out the result of previous experiments and prove what I have just stated above, that bananas can be grown to very great perfection on suitable land that has been under crop for years, by thoroughly working and manuring the land.

Experiments have also been continued during the year for the purpose of determining the possibility of so treating the plants prior to planting as to render them resistant to the attack of eel worms or nematodes, and our further experience tends to confirm the advice I have given from time to time, viz., that the removal of all old roots and loose matter from around the bulb, and its immersion for 1½ to 2 hours in a solution of corrosive sublimate, made by dissolving one ounce by weight of this substance in six gallons of water, is likely to be of benefit, as plants so treated have kept remarkably free from this pest, when untreated plants in their immediate neighbourhood have been more or less badly infested.

The beetle-borer of the banana has, I am sorry to say, obtained a wider hold on the southern part of the State than I had anticipated when I wrote my last report, as it has been discovered in several fresh districts. In every case, its introduction has been traced to plants that had been obtained from infested areas, mainly prior to the pest being reported to the Department, and prior to my return to the State, as when only one or two infested plants were sent to a district it was some years before the beetles were numerous enough to cause any serious damage that would be readily seen by growers, and it was not until the late dry spring that their presence was discovered in several districts.

The question of dealing effectively with this pest has received careful consideration, and the matter has been brought prominently before the Hon. the Minister by the North Coast Fruit Growers' Association. Many suggestions have been made, and the advisability of appointing a qualified entomologist to specially investigate the best means of dealing with this pest has been urged. In the meantime, however, every precaution will be taken to prevent the distribution of infested suckers and the destruction of badly infested plantations will be enforced. Unfortunately, the areas devoted to the cultivation of bananas are so scattered and in many cases so difficult of access that their systematic inspection by the present staff of fruit inspectors and instructors is quite impossible, as were the duties of the instructors confined to this particular work they would only be able to systematically inspect a small percentage of the many plantations scattered throughout the coastal area from the Tweed to the Central district. Growers must assist the Department if good results are to be

obtained, and now that the North Coast Fruit Growers' Association is practically in touch with the majority of the banana-growers in the southern part of the State, if the members thereof will act as local inspectors in their own districts for their own protection, and keep the Department posted of all outbreaks and of all infested, particularly badly infested and neglected, plantations, I have no fear that we will be able to keep this pest from doing serious damage to the banana-growing industry; but, on the other hand, if the growers do not give the Department all the assistance they can to enable it to fight the pest, then they must not expect the Department to do impossibilities, but must shoulder the blame for their own neglect.

In order that growers may be enabled to obtain a supply of healthy plants, free from beetle borers, I have recommended the establishment of a nursery in an isolated situation in which to propagate large numbers of healthy plants, such plants to be supplied to growers at a reasonable cost, that will meet the expenditure incurred in their production.

The spread of the beetle is due in practically every instance to the distribution of infested plants, and I am of the opinion that where a new plantation is set out in a clean area, if only healthy plants are planted, there is very little chance of the beetle making its appearance. In conclusion, I am of the opinion that this pest can be kept from doing serious damage, provided it is fought systematically and banana-growers loyally assist the Department in its endeavour to do so.

Another banana pest that has been causing very serious trouble to the growers on the Tweed for some time past, and that is locally known as the "cabbage top" or "bunchy top" disease, is, I am sorry to say, increasing in the Currumbin district, and arrangements have been made to carry out a comprehensive series of experiments on a plantation, close to Currumbin railway station, that has developed the trouble to such an extent that practically every plant is affected and the plantation is valueless. Numerous investigations regarding this "disease" have been made in New South Wales, but so far they fail to throw much light on the matter. Many theories have been advanced to account for its appearance, but none are satisfactory. We therefore purpose making a thorough investigation on our own behalf, and the Government Entomologist and Pathologist, and the Agricultural Chemist will assist in the work, so that I am in hopes our combined efforts will result in our determining the factors that are responsible for the trouble, and of finding a remedy for same.

PINEAPPLES.

A considerable area has been set out in new plantations during the year, particularly in the Beerburrum and other North Coast districts, but the area, though large, is not as great as it would have been had there been an ample supply of suckers available. The dry spring and the dry spells of previous seasons were the cause of the shortage, and in consequence there were not enough suckers to supply the demand and there was a very substantial rise in their price,

CITRUS FRUITS.

Many tops were planted, but, unfortunately, a large number were lost by careless handling, as tops when removed from the fruit should be placed in the sun with the butt upwards so as to dry off the excess of moisture and so prevent the tops from rotting on their journey from the Cannery to the plantation. Tops treated in this manner root readily, and if properly planted and given proper attention eventually make excellent plants. The want of spring rains had the effect of dwarfing the size of the fruit so that much of the crop was too small to be fit for packing 2-lb. cans; although suitable for chunks or cubes, it was not large enough to cut slices free from eyes that would fill a can of this size. On the other hand, the quality of the fruit was very good, the only drawback being that owing to the very warm weather too much of the crop ripened at once and quicker than it could be utilised, with the result that there was a glut for a short time and a fall in price. The market, however, soon recovered and the prices obtained by growers, taking the average throughout the year, both from canneries and from the southern States, have been very satisfactory, record prices having been obtained for high-class fruit.

Since the dry weather broke, there has been a heavy rainfall in most of the pineapple-growing districts, which has resulted in an excellent growth, and wherever plantations have been properly attended to, viz., cultivated and manured, they are looking remarkably well, so that I am in hopes there will be enough suckers available to supply the demand during the coming season.

The experiments initiated a little over a year ago to determine the cause of the so-called pineapple disease have been continued during the year. The dry spring retarded the work to a certain extent, but since there has been an ample supply of moisture the plants have done very well, which tends to prove that the so-called disease is mainly due to the improper preparation of the soil prior to planting, to an insufficiency of plant food, or to the presence of injurious soil toxins, rather than to any specific disease. The coming season should definitely settle the matter, and the results of the work carried out are anxiously awaited, as until we have taken a crop of fruit off the treated area, it is too soon to make any definite statement one way or the other.

With regard to the outlook for a market for our pines, it is very pleasing to note that pineapple conserve is likely to become a favourite on the home market, as the consignments that have been sent from here have been favourably commented upon, and repeat orders have been sent. It is to be hoped that the high standard that has been set in the trial shipments will be maintained, as, if the market is to be profitably developed, it can only be by means of keeping up the quality and of exporting nothing that is not of the highest standard of excellence.

I will not say anything further *re* this matter now, as I am referring to it more fully later on in this report when dealing with the necessity of fixing standards for all fruit, fresh or preserved in any way, that are intended for export.

E

No fruit trees are more susceptible to the vagaries of climate than the various species of the citrus family, as to be grown to perfection they require an adequate and regular supply of moisture during the period that they are setting, growing, and maturing their fruit, and as this supply has been very erratic during the past few seasons in most of our citrus-growing areas, our crops have been erratic, of uneven quality, and very much below average. There was an excellent blossoming last spring, but the subsequent dry weather prevented the fruit from setting, so that there has been a poor main crop. The summer rains, however, produced a second lot of blossom, which set, and has resulted in a second crop of inferior quality, and of comparatively small value when compared with main crop fruit. The good winter rains should, however, tend to bring about a normal growth, which means a blossoming at the right time, in spring, and, if a sufficient supply of moisture is retained or conserved in the soil, or good spring rains occur, a good setting of main crop fruit should result, and the trees thus resume their normal growth. The area under citrus trees is not increasing to any great extent, as the new plantings are doing little more than making good the trees that have been planted in unsuitable soils or situations, or that have died out by neglect or carelessness. When grown under favourable conditions of soil and climate—viz., on free, deep, loamy, fertile soils and with a regular rainfall, citrus trees are very hardy and frequently produce excellent crops of first-class fruit with very little care or attention, but when grown under less favourable conditions, especially if the rainfall is erratic and uneven, there are no fruits that require more care and attention, and none that pay better for such care and attention. Unfortunately, many persons think that all they have to do is to stick a young tree into the ground and that Providence will do the rest, with the result that there are many failures. To obviate these failures, an instructor in fruit culture has been specially detailed to systematically visit every part of the North Coast fruit-growing area, from Caboolture to Gympie, as this area includes the greater part of the citrus orchards of the Southern parts of the State. In this area there has been a great cutting-up of estates and selling of small areas for fruit-growing, largely to returned soldiers, and it is mainly to assist these new beginners and to prevent their making serious mistakes, that the instructor is located in this district.

Other citrus-growing centres have been visited from time to time by the fruit instructors, and, judging from the complimentary letters received by the Department, the work of these officers has been much appreciated, especially by beginners, who were badly in need of instruction.

The good prices that have been obtained for lemons during recent years have had the effect of inducing a number of growers to plant this fruit somewhat extensively in the purely coast districts. I strongly advise caution in this direction, as I believe it can easily be overdone. During the recent dry years some fair lemons have, no doubt, been grown on the Coast, especially in light sandy soils, but I am afraid once our normal wet seasons return, many of the

lemons recently planted will be of very little value, as even where the trees are apparently healthy the fruit will be more or less gummy and useless. This was the general experience some years since, and, given similar seasons to those obtaining then, similar results must be expected. It is only on the Coast that gumming of the fruit is likely to cause serious damage, as excellent lemons can be grown as near the Coast as the Brisbane Valley line and under the Main Range. In the West, where there is an ample supply of water for irrigation, a deep, sandy, loamy soil, and not too severe frosts in winter, lemons grow to perfection; in fact, our western country, under the conditions just mentioned, grows as good a lemon as can be produced in any part of the world—a clean-skinned, bright-coloured fruit, full of juice and of the finest quality; a fruit that, if gathered at the right stage, carefully handled, sweated, and packed, will keep for months and is equal, if not superior, to the finest imported Californian or Italian fruit. I have recently had proof of this, as a number of Lisbon lemons, grown near Wyandra, on the Warrego, that had been allowed to become fully coloured when cut from the tree, were sent to me and kept in excellent condition for over three months without receiving any particular care, other than keeping them in the dark away from the air. Washington navels and round oranges, sent at the same time, kept well up for over two months, though they were fully ripe when gathered. This is interesting, as it shows that there should be no difficulty whatever in sending western-grown navel oranges to the home market, and no necessity for cold storage, as I kept this fruit at a temperature averaging about 60 degrees Fahr. Western fruit has a finer skin than that grown on the Coast, and a better colour, and, if carefully handled, sweated, and wrapped before packing, I am certain it will carry to the home markets with practically no loss, and, further, that its quality is such it will fetch good prices when it reaches there. There has been a shortage of Seville oranges again this year, and fancy prices have been paid, as the supply has not been sufficient to meet the demand of the firms who manufacture marmalade. This is to be regretted, as Queensland is getting quite a good reputation for the quality of the marmalade it turns out, and I believe a satisfactory market can be found for a very much larger quantity than we have so far been able to turn out.

CUSTARD APPLES.

This high class fruit is year by year becoming more popular, both on our local and southern markets, and there is an excellent demand for anything of good quality. So far, the bulk of the fruit is grown in the Redlands area, and a very fine lot has been produced there this season. Its cultivation is, however, extending outside this area, and some fine fruit has been produced in different parts of the North Coast and elsewhere. An interesting pamphlet dealing with the history of the introduction of this fruit into Queensland, the varieties grown here, and the cultivation, pruning, manuring, and propagation of the fruit, was compiled by Mr. Leslie, Assistant Instructor in Fruit Culture, and issued by the Department during the year. This pamphlet is valuable, not only for the advice it

gives to growers, but also for placing on record the early history of the introduction of this fruit into Queensland, and particularly of the variety known as Pink's Mammoth; a custard apple that has no superior in any part of the world.

MANGOES.

The dry spring was favourable for the setting of the flowers, consequently there was a very fair crop of fruit, though much of it was somewhat undersized on account of the dry weather. The mango, however, is such a deep-rooted tree when once established that dry weather conditions do not affect it to anything like the same extent as other fruits, consequently some exceptionally fine-quality fruit was produced, some sent me from the Central district being hard to beat.

Unfortunately, however, as I have stated many times, the percentage of really good mangoes is small, the majority of the fruit being still of the common Batavian type, which, though very hardy and prolific, is always more or less fibrous, and possesses a distinct carrot or turpentine flavour.

DECIDUOUS FRUITS.

The dry weather and late frosts accounted for the small crop in the granite belt. The fruit generally was of good quality; early peaches and nectarines were fair; plums were good, as were also mid-season and late apples, but late peaches suitable for canning, were generally a failure.

Grapes were very fine in this district; in fact, I doubt if better quality fruit was ever grown in the district than that produced this past season, as it would be hard to beat for size, colour, and flavour.

There has been a very large increase in the area devoted to deciduous fruits and grapes in the granite belt during the year, and, judging from the number of trees that have been imported into this district during the present winter, the area to be planted this coming spring will exceed that of last year considerably. There has been a very brisk demand for fruit land in the granite belt, both by returned soldiers and private persons, and values have materially increased in consequence.

COOMINYA EXPERIMENT VINEYARD.

The Coominya district experienced a very dry spring, and also failed to get the January rains. The result was a light crop of clean fruit, free from disease. Many varieties liable to be attacked by black spot were perfectly free from this pest, the greatest damage to the fruit being that some of the varieties were badly scorched by the excessive heat of the sun, so that it is probable that a modification of the present method of pruning will be necessary in the case of these particular varieties.

The resistant vines for the production of cuttings from which to grow resistant stocks have done very well, and the Department has again received many more orders for these cuttings than we have been able to supply. We have also had a greater demand for cuttings of the miscellaneous collection of wine and table grapes grown at the vineyard than we have been able to supply, as the area is small and the supply of individual

varieties is, therefore, very limited. The management of the vineyard has been under the control of Mr. C. Ross, Instructor in Fruit Culture, the work has been well carried out, and the results are satisfactory.

DISEASES IN PLANTS ACT.

The work of administering this Act has proceeded satisfactorily during the year. Unfortunately, however, we are not able to administer the Act in its entirety, but have to confine our efforts mainly to the inspection of all fruits, plants, and vegetables imported into the State from other parts of the Commonwealth, as well as inspecting local fruits sent to our metropolitan and other principal markets. I am glad to say that there has been a general improvement in quality of the fruit examined, as regards disease, though instances of careless handling, grading, and packing are still far too common.

The registration and inspection of nurseries is doing good, as there is no question that our locally grown trees and plants are better and freer from disease now than they were some years since, and some of our nurseries turn out very good quality stuff.

The general inspection of orchards is not, however, as satisfactory as I would like, as it is impossible for the present staff of instructors and inspectors to deal individually with the enormous number of orchards, plantations, gardens, and vineyards that are so widely scattered over such a large part of the State. The only possible solution of the difficulty is for the fruitgrowers in all fruitgrowing districts to organise, and for the various organisations to work in conjunction with the fruit branch of the Department, and to give it every assistance they can in its endeavour to keep down fruit pests and diseases of all kinds. The registration of orchards, as provided for by the Act, is useless without an inspection being made of the orchards so registered, and such inspection cannot be made without the assistance and co-operation of the growers themselves, as it is too much to expect the State to bear the whole cost of such inspection.

FRUIT CASES ACT.

This Act is proving of value, both to producers and consumers, as it has had the effect of materially improving the manner in which fruit and vegetables are exposed for sale, and buyers can now purchase with more confidence. They realise that the shown surface of any case or lot of fruit or vegetables must be a fair sample of the whole of such case or lot, and that if any attempt at topping or facing is made, that the party packing in this manner is liable to prosecution. Several prosecutions under this Act have been made during the year, both for goods exposed for sale in the open market and also for goods exposed for sale in shop windows, and they have undoubtedly had a good effect. Sellers are again warned that the Act must be complied with, and that flagrant breaches thereof will be proceeded against.

VEGETABLES.

Vegetable-growers have experienced a really remarkable year, as prices have been realised for such lines as potatoes, tomatoes, cabbages, and other vegetables, as well as for melons, both rock and water, that had never been dreamt of.

The fluctuation in prices of the various lines was extraordinary; in no instance, however, was the price really low, but it was only comparatively so when compared with the extreme prices realised for similar lines at a different period of the year. Growers who had a good supply of water for irrigation, as well as those who by thorough cultivation were able to produce a crop, have done well, but, as I have already stated in this report, phenomenal prices are not good for the State as a whole, as though a few may benefit, the majority suffer, so that a good fair average price is really better, both for producers and consumers. Extreme prices such as we have experienced during the year limit consumption, as the majority of consumers are unable to pay the extreme prices. The production of potatoes was not nearly enough to meet local requirements; consequently we have had to import no less than 347,019 bags, costing this State over half a million sterling; and even with this large importation the price of potatoes has been such that consumption has been materially reduced, as consumers could not afford to purchase anything like as many as they could consume. The potatoes imported were, on the whole, very free from disease, as it was only towards the end of the year that several consignments forwarded from the Northern Rivers district of New South Wales were condemned for Irish Blight. This disease made its appearance in Coastal Queensland about the same time, both in potatoes and tomatoes. The outbreak was undoubtedly due to the favourable weather conditions then prevailing, viz., mild, showery, and foggy weather, perfect climatic conditions for developing and distributing Irish Blight. In Queensland, Irish Blight, though probably present all the time in a dormant condition, is only sporadic in its outbreak, as it always disappears with the advent of warm, dry weather. Under favourable climatic conditions it, however, spreads very rapidly and is capable of doing a very large amount of damage in a very short time, so that growers have been and are again warned that Irish Blight is a disease that can be prevented if proper precautions are taken, but one that cannot be cured once it has become firmly established. I have gone into the matter fully in my pamphlets dealing with the destruction of fruit and vegetable pests, as well as in the pamphlet dealing with the culture of temperate fruits and vegetables, already referred to. The cultivation of potatoes and onions in this State is worth much more attention than it commonly receives, as it is only very seldom that we have been able to supply our local demand for potatoes, and I do not know of our ever having done so in the case of onions. These crops are by no means the only lines we neglect as industries, such as peanut culture, the growing of haricot, Lima, or Soy beans; tobacco-growing and the growing of vegetable seeds such as beans and peas are well worth considering, as the price we have now to pay for all these goods is such that it should leave a good margin of profit to the producer.

The growing of vegetables is receiving much more attention from white growers now than it did only a few years ago, as not only is it a profitable industry in and around the metropolis and other large cities or towns, but it is the great standby of the new settlers in the granite belt, as it enables them to make a living from their land whilst their trees are growing and before they come into profit.

ORGANISATION AMONGST FRUIT GROWERS.

Steady progress has taken place since the holding of the last Queensland Fruit Growers' Conference, held in Brisbane during April, 1919; as the growers of the North Coast district, the metropolitan district, and the granite belt district realise the advantages to be derived by their organising for their mutual advantage and protection. Delegates from each of those three important fruit centres are to meet in Brisbane early in the coming year to discuss many matters of importance to the fruitgrowing industry and to endeavour to bring about the establishment of a central executive, who will not only watch the interests of the whole of the fruitgrowers of Queensland, but will be the body who will act on their behalf and place their wishes before the proper authorities. Such an executive is badly wanted, as at present the fruitgrowers of the State, as a whole, have no one to represent them or their wants, and a central body representing the whole of the growers would naturally carry infinitely more weight than any individual grower, growers' association, or district association.

The fruit trains that have proved such a boon to the growers of the North and South Coast districts are the outcome of organisation, and show what can be done when growers are united. They also point out what may be accomplished in the way of combating fruit and vegetable pests, marketing and utilising fruit, obtaining manures and other requisites for the orchard or garden, and in many other ways, if growers would only pull together. This is an age in which the best results are only obtained from co-ordinated effort, and in no branch of productive industry is this more evident than in that of fruit culture, as evidenced by the enormous development that has taken place in California and many other great fruit-producing countries.

QUARANTINE ACT.

Officers of the Fruit Branch carry out the work of plant quarantine officers for the State of Queensland as a part of their regular duties. The work is of the greatest importance to the State, as the Act is for the express purpose of preventing the introduction into any part of the Commonwealth of diseases or pests attacking plants. The work of inspection is being well carried out, and our methods of procedure are now very satisfactory.

In one respect we have made a great improvement during the year, and that is with regard to the examination of seeds imported for agricultural or horticultural purposes, whether by post or as cargo by steamer. All such seeds are now examined on arrival and are ordered direct into quarantine, where they are subject to further examination by the Seed Expert of the Department of Agriculture, who is also a quarantine officer for plants. This arrangement is found to work satisfactorily, as if any seeds are not up to standard they are condemned and not allowed entry, and producers are thus protected from purchasing inferior or diseased imported seeds. The examinations under this Act are very numerous.

COMMERCE (TRADE DESCRIPTIONS ACT).

Officers of the Fruit Branch also act as customs officers under the Commerce (Trade

Descriptions Act) and Customs Act, both with respect to the import and export of all plants, seeds, fruit (fresh and preserved), jams, pulp, &c., honey, and many other products. This work has increased enormously during recent years, and latterly, owing to a proclamation issued under the Customs Act in April last, has entailed a much more stringent examination of all fruits (fresh or preserved) exported from this State.

The proclamation in question gives the examining officers very wide powers, as no fruit (fresh or preserved) can be exported without the authority of the chief supervising officer. This proclamation, therefore, places a very heavy responsibility on the examining officers and necessitates their possessing a thorough knowledge of their work. I have been in regular communication with the Acting Collector of Customs, Brisbane, and have arranged the procedure to be followed in the case of all examinations. At the same time I have to point out the disadvantage I am under in not having definite standards of quality by which to work.

This brings up a matter I referred to in the earlier part of this report, where I mentioned the desirability of fixing standards for all fruit (fresh or preserved in any way) to be exported outside the Commonwealth.

The fixing of standards is urgently needed, as already we have received numerous complaints from buyers at home and elsewhere regarding the unsatisfactory and unreliable condition in which many of the lines exported reach the market. We will never gain the confidence of buyers without standardising our pack, as without standards they do not know what they are purchasing.

Australian goods have been compared with Californian goods, very much to our disadvantage, as all Californian goods are graded; and, further than that, the grade can be depended upon and the pack consequently commands the confidence of buyers. Here I have no hesitation in saying that lines such as canned pineapples, pineapple conserve, pineapple pulp, canned fruits of all kinds, marmalade, jam, and honey should all be standardised according to grade, and the grade standards should be at least equal to those of California, Hawaii, or elsewhere, viz., only the very choicest fruit should be packed as "fancy," and only slightly inferior as "choice," or "standard"; any lines below these grades in quality will not, in my opinion, pay for export when the high price of sugar, tinsplate, and labour is taken into consideration. Were grade standards fixed, the work of examination would be a simple matter, as if any line submitted did not come up to the standard it would not be permitted to leave the Commonwealth, and by thus preventing the exportation of inferior lines, unless distinctly marked "inferior," we would establish a reputation for our products that would result in their selling readily in any market to which they may be sent.

I beg to submit herewith a statement showing the quantity of fruit, vegetables, and plants imported into and exported from this State to the other parts of the Commonwealth during the year; by which it will be seen what a large proportion of our imports and exports have been carried by rail instead of by water.

In order to show this more clearly, the following statement which has been prepared by the Senior Fruit Inspector is given:—

IMPORTS INTO BRISBANE.

| | <i>By Sea.</i> | | <i>By Rail.</i> | |
|----------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | For Year ended 30th June, 1920. | For Year ended 30th June, 1916. | For Year ended 30th June, 1920. | For Year ended 30th June, 1916. |
| Fruit | 138,243 cases | 411,418 cases | 340,021 cases | 42,513 cases |
| Potatoes | 136,227 bags | 228,256 bags | 154,652 bags | 52,268 bags |
| Onions | 27,133 bags | 45,276 bags | 26,809 bags | 644 bags |

A statement is also submitted showing the quantity of goods examined under the Quarantine Act, as well as the number of examinations of goods made under the Commerce (Trade Descriptions) Act.

In conclusion, I beg to thank all the officers of the Fruit Branch for the manner in which they have carried out their duties, and for the willing help they have at all times given me.

IMPORTS FOR YEAR ENDED 30TH JUNE, 1920.

| District. | Fruit. | Potatoes. | Onions. | Plants. | Turnips. | Vegetables. |
|-------------|---------|-----------|---------|-----------|----------|-------------|
| | Cases. | Bags. | Bags. | Packages. | Bags. | Packages. |
| Brisbane | 138,243 | 136,227 | 27,133 | 584 | 1,160 | .. |
| Wallangarra | 340,021 | 154,652 | 26,809 | 715 | .. | .. |
| Townsville | 27,942 | 35,540 | 3,188 | 6 | .. | 5,278 |
| Cairns | 4,034 | 10,698 | 827 | 3 | .. | 1,659 |
| Bowen | 735 | 3,842 | 759 | 5 | .. | 1 |
| Rockhampton | 51 | 5,643 | 2,534 | 14 | .. | .. |
| Innisfail | 160 | 416 | 104 | .. | .. | 2 |
| Totals | 511,186 | 347,018 | 61,354 | 1,327 | 1,160 | 6,940 |

EXPORT FOR YEAR ENDED 30TH JUNE, 1920.

| District. | Bananas. | Pineapples. | Oranges. | Tomatoes and Cucumbers. | Vegetables. | Mixed Fruits. | Strawberries. | Potatoes and Pumpkins. | Canned Pines and Jam. |
|-------------|----------|-------------|----------|-------------------------|-------------|---------------|---------------|------------------------|-----------------------|
| | Cases. | Cases. | Cases. | Cases. | Bags. | Cases. | Trays. | Bags. | Cases. |
| Brisbane | 1,483 | 3,792 | 76 | 4,492 | .. | 452 | .. | 716 | 48,543 |
| Wallangarra | 177,338 | 86,878 | 2,746 | 21,586 | 39,129 | 7,000 | 5,218 | 129 | .. |
| Townsville | .. | .. | .. | .. | 6,238 | 6,843 | .. | .. | .. |
| Innisfail | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rockhampton | .. | .. | .. | .. | 60 | 1,260 | .. | .. | .. |
| Bowen | 66 | 500 | 1,303 | 52,334 | 6,174 | 7,566 | .. | .. | .. |
| Cairns | 1,595 | .. | 4,350 | .. | .. | 846 | .. | .. | .. |
| Totals | 180,482 | 91,170 | 8,475 | 78,412 | 51,601 | 23,967 | 5,218 | 845 | 48,543 |

RETURNS SHOWING THE TOTAL IMPORTS UNDER THE QUARANTINE ACT FOR THE YEAR ENDED 30TH JUNE, 1920.

| | Packages. |
|-------------|-----------|
| Brisbane | 47,397 |
| Rockhampton | 1,036 |
| Townsville | 7,633 |
| Cairns | 184 |
| Totals | 56,250 |

RETURNS SHOWING THE TOTAL EXPORTS OVERSEA UNDER THE COMMERCE ACT FOR YEAR ENDED 30TH JUNE, 1920.

| | Cases. |
|---------------------|--------|
| Canned pines | 28,221 |
| Jam | 20,322 |
| Preserved fruits | 1,148 |
| Fruit pulp | 537 |
| Plants | 7 |
| Seeds | 397 |
| Candied peel | 16 |
| Totals | 50,648 |
| Certificates issued | 203 |

ALBERT H. BENSON,
Director of Fruit Culture.

REPORT OF THE DIRECTOR OF AGRICULTURE.

SIR,—I have the honour to submit herewith my Annual Report.

Taking the season for the State as a whole, the early part of it is to be regarded generally as a prolongation of a droughty period which seriously curtailed production; in fact, the conditions were on a parallel with those ruling in the 1901-2 drought.

Unfortunately, the reflection of these conditions is evidenced by the crop statistics, which illustrate the serious decrease in output for the year of agricultural and dairy produce. Winter cereal grains and hay crops, in 1919, were specially affected, and although maize was largely planted later on, in anticipation of summer rains, these proved inadequate in most instances in Southern and Central Queensland to carry on the crops to maturity. The Northern maize areas, however, benefited by ample rains, which commenced at the latter end of December, and although individual crops suffered to some extent from a dry spell later on, the yield generally in the Atherton district proved to be good, and acted as a set off against the failure of crops elsewhere.

Cognisance must be taken of the fact that more ensilage was conserved this year than at any other period in the history of the State. It so happened that the incidence of the drought, and the natural shortage of supplies in the South

forced up fodder prices far in excess of its value, and brought stockowners to a realisation of the fact that prompt action would have to be taken to keep their animals from starvation.

Summer crops failed to make a sufficient growth in many districts, but, in the coastal areas, thousands of acres of maize made a moderate growth and then wilted. Many individual crops were utilised at once, but it was realised that all possible effort must be made to try and cope with the situation. Every available officer in the Department—agricultural instructors, field assistants, and dairy inspectors—was actively engaged in affording instruction and advice and carrying out practical demonstrations on farms, with the result that over 18,000 tons of fodder were conserved, a circumstance which calls for special commendation of those who spared neither time nor effort in accomplishing this result. Expressed in figures (taken at a much lower level than that ruling for chaff often of questionable quality), this fodder represented at least £180,000 in value, quite apart from other obvious aspects of the situation.

The following details, compiled from returns submitted by dairy inspectors, will indicate the particular districts where fodder crops were available. Where the returns are low it can be taken for granted that fodder crops were more often failures than otherwise:—

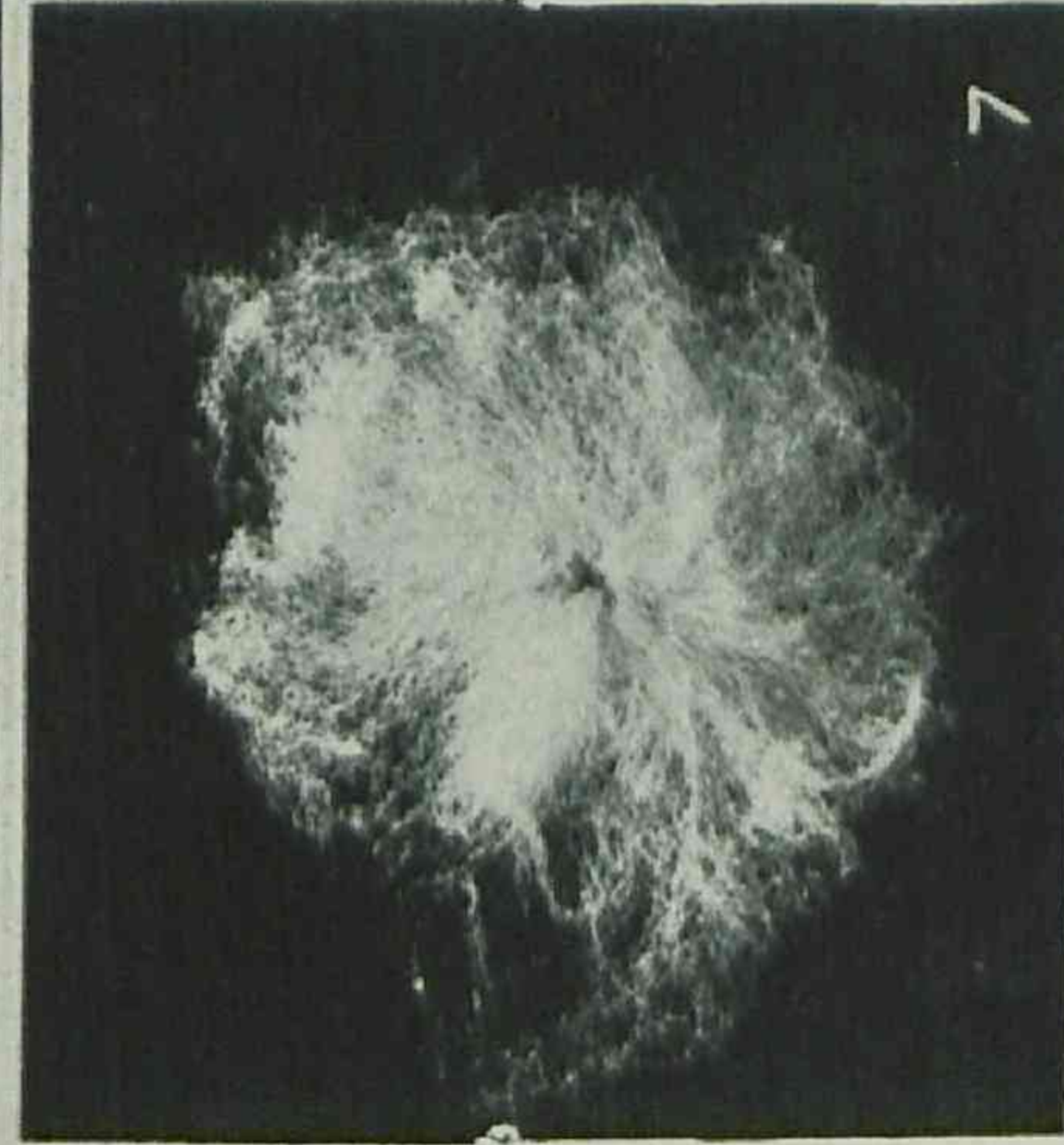
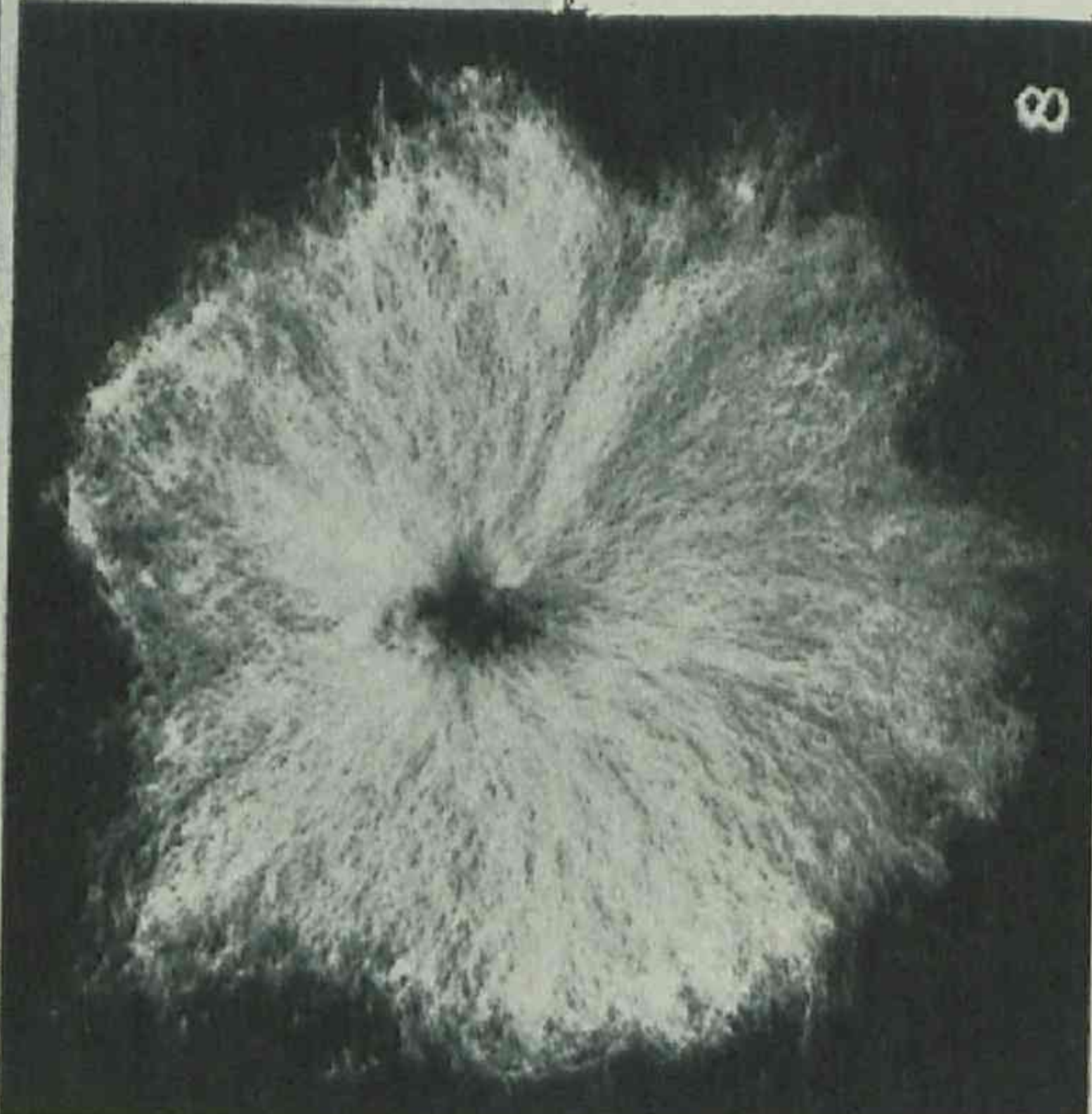
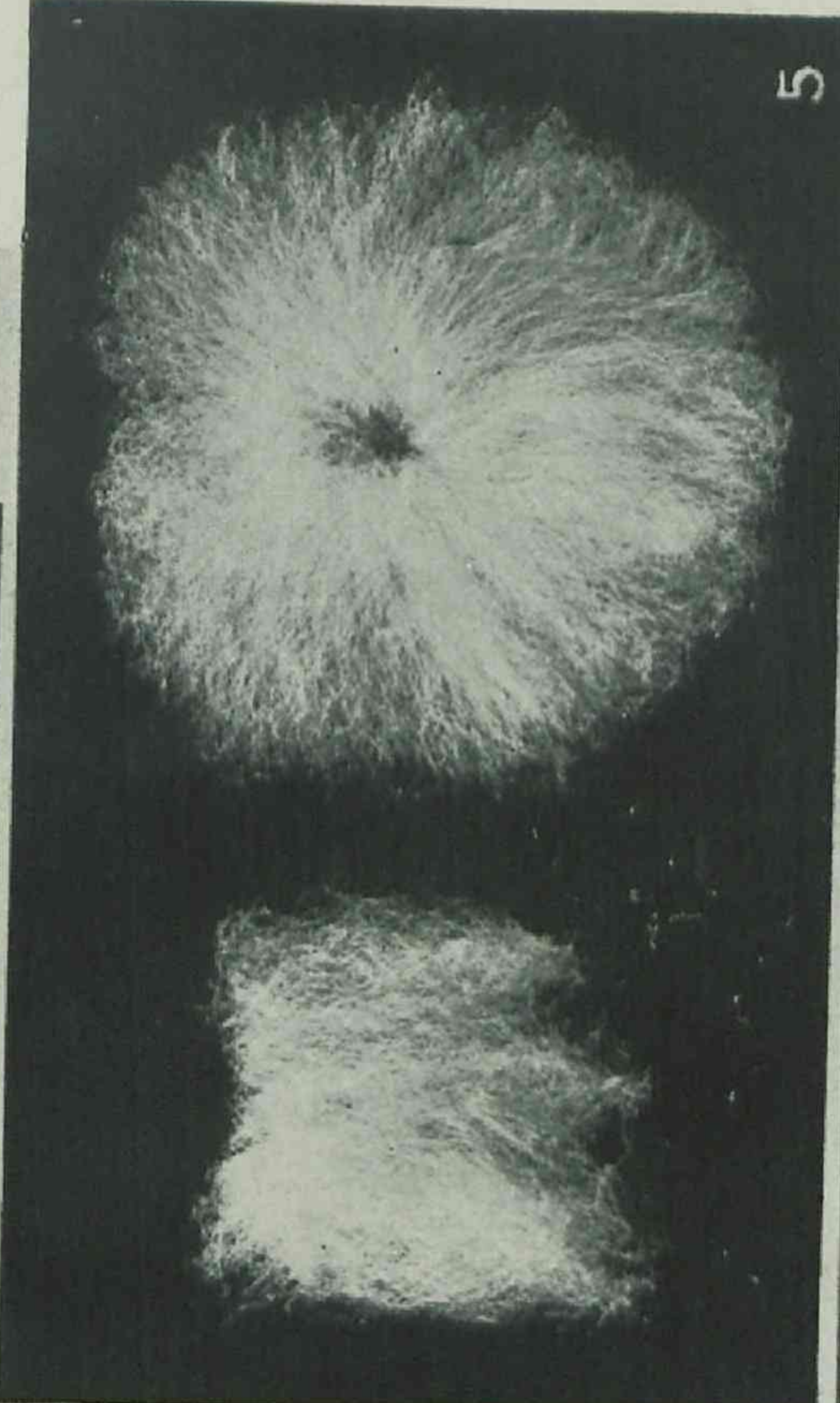
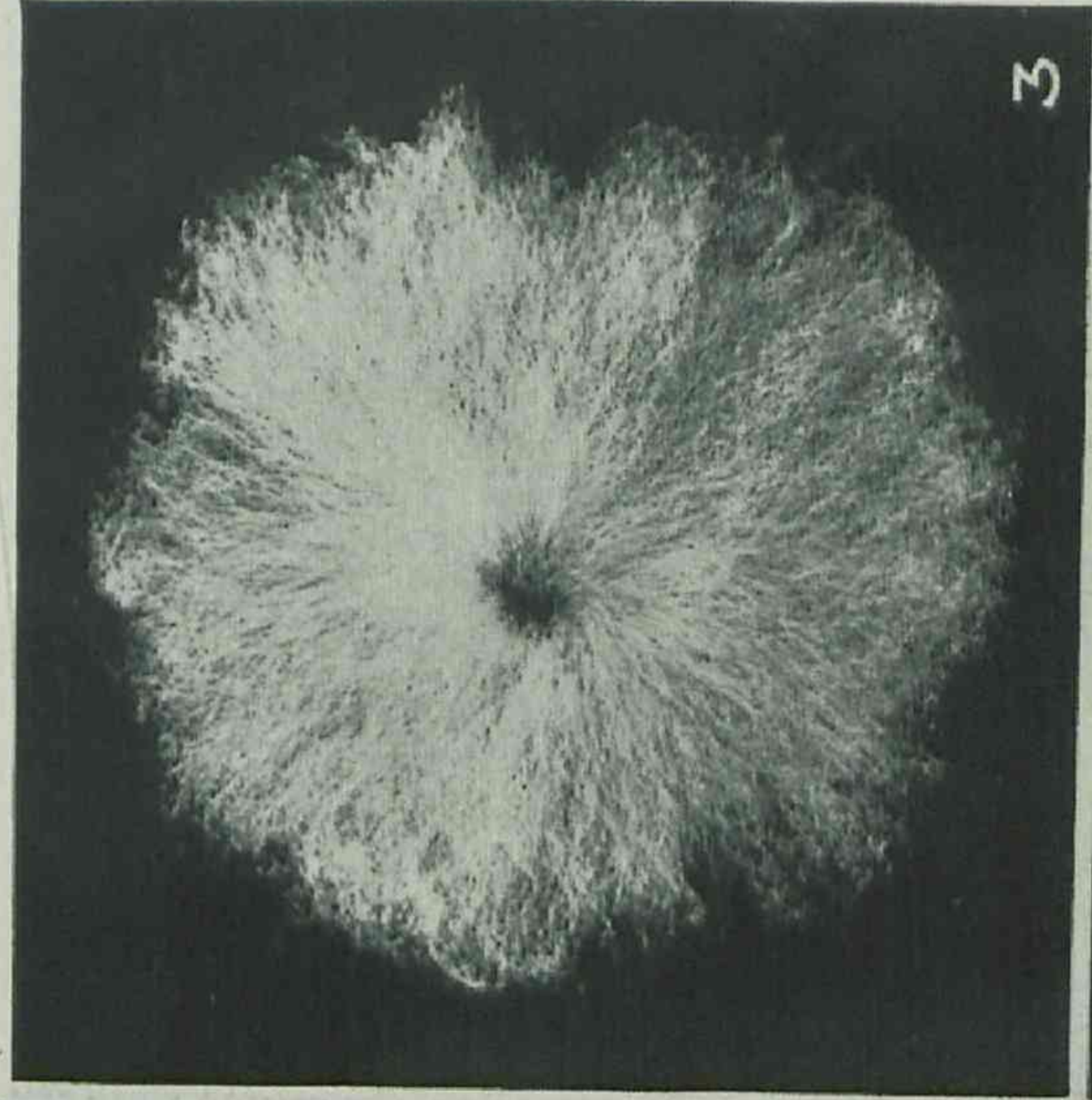
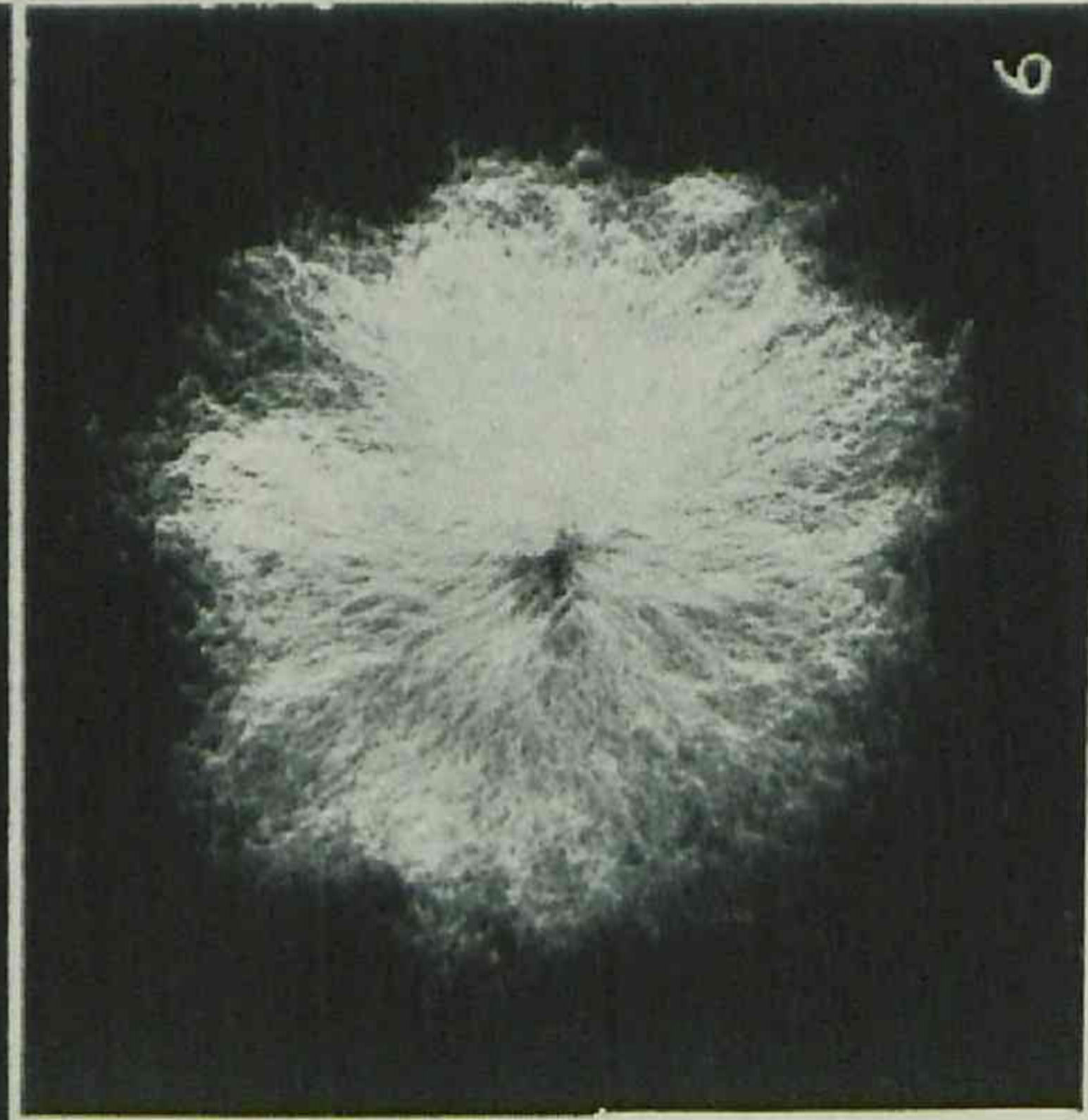
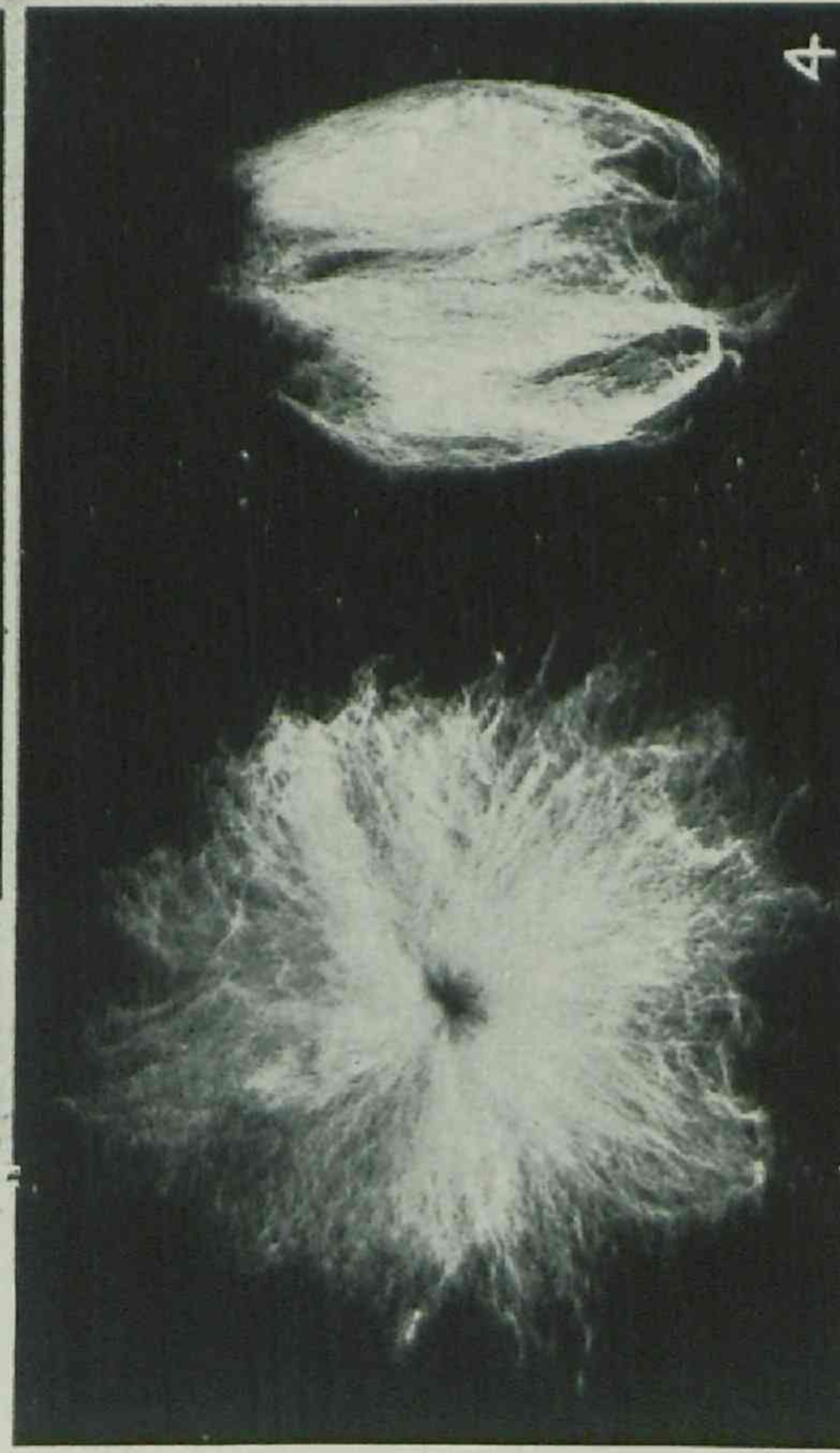
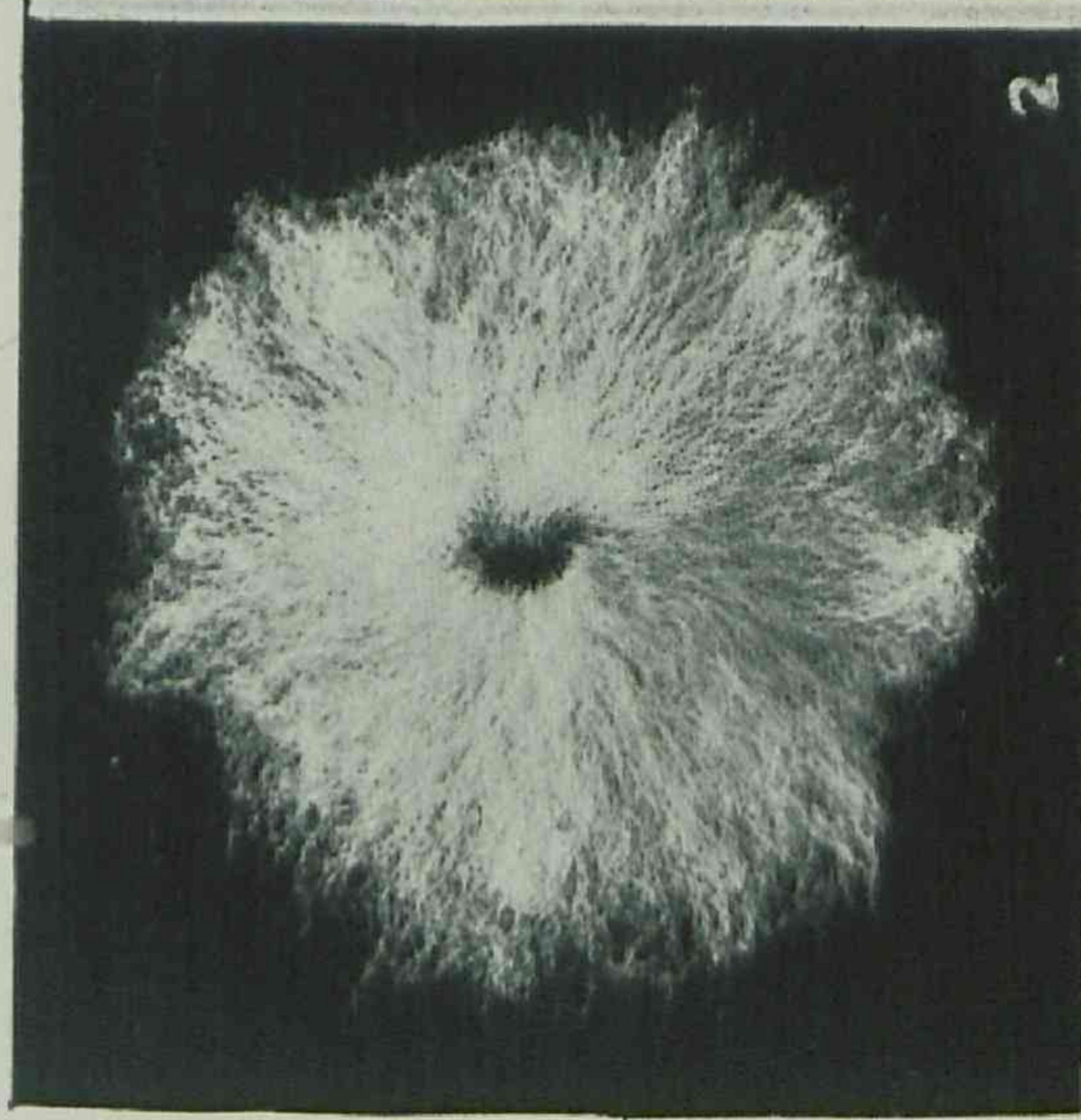
| District. | QUANTITY CONSERVED, IN TONS. | | | | | | Totals for each District. Tons. |
|------------------|------------------------------|--------|-------------------|-------|------------|-------|------------------------------------|
| | Stacks. | | Overground Silos. | | Pit Silos. | | |
| | No. | Tons. | No. | Tons. | No. | Tons. | |
| Atherton | 8 | 450 | .. | .. | 5 | 560 | 1,010 |
| Beenleigh | 6 | 500 | 5 | 400 | .. | .. | 900 |
| Brisbane, South | 5 | 120 | 13 | 1,310 | .. | .. | 1,430 |
| Brisbane (North) | 4 | 130 | 5 | .. | 2 | 70 | 200 |
| Bundaberg | 23 | 965 | .. | .. | 4 | 100 | 1,065 |
| Caboolture | 4 | 190 | 1 | 65 | 1 | 56 | 311 |
| Charters Towers | .. | .. | .. | .. | 3 | 190 | 190 |
| Clifton | 8 | 600 | .. | .. | .. | .. | 600 |
| Crow's Nest | 3 | 170 | .. | .. | 5 | 275 | 445 |
| Dalby | 2 | 100 | 1 | 100 | 3 | 150 | 350 |
| Esk | 42 | 2,280 | 12 | 1,110 | 10 | 470 | 3,860 |
| Gatton | 20 | 1,000 | 3 | 250 | 1 | .. | 1,250 |
| Gayndah | 11 | 430 | 2 | 135 | .. | .. | 565 |
| Gympie | 1 | 50 | 1 | 100 | 4 | 266 | 416 |
| Harrisville | 12 | 700 | 5 | 250 | .. | .. | 950 |
| Kingaroy | 14 | 750 | 7 | 350 | 4 | 200 | 1,300 |
| Pentland | 1 | 20 | .. | .. | 1 | 15 | 35 |
| Rockhampton | 8 | 400 | 3 | 250 | 1 | .. | 650 |
| Rosewood | 62 | 3,324 | .. | .. | 1 | 60 | 3,384 |
| Toowoomba | 8 | 300 | 1 | 50 | .. | .. | 350 |
| Townsville | .. | .. | 1 | 60 | .. | .. | 60 |
| | 242 | 12,479 | 60 | 4,430 | 45 | 2,412 | 19,321 |

The circumstance that Queensland has to depend on southern-grown fodder during a drought is clearly indicative of the necessity of adopting a universal system of fodder conservation on farms, and of water conservation in suitable localities, contiguous to which modern systems of irrigation can be effectively carried on.

A lack of recognition generally of these all-important factors is to be deplored, and stability in agricultural production, and in the output of dairy products and pork, and of flocks and herds, is unattainable so long as matters of such vital moment are neglected.

A subject which calls for more than a passing reference in respect to the introduction of

COTTON-GROWING IN QUEENSLAND, 1920.

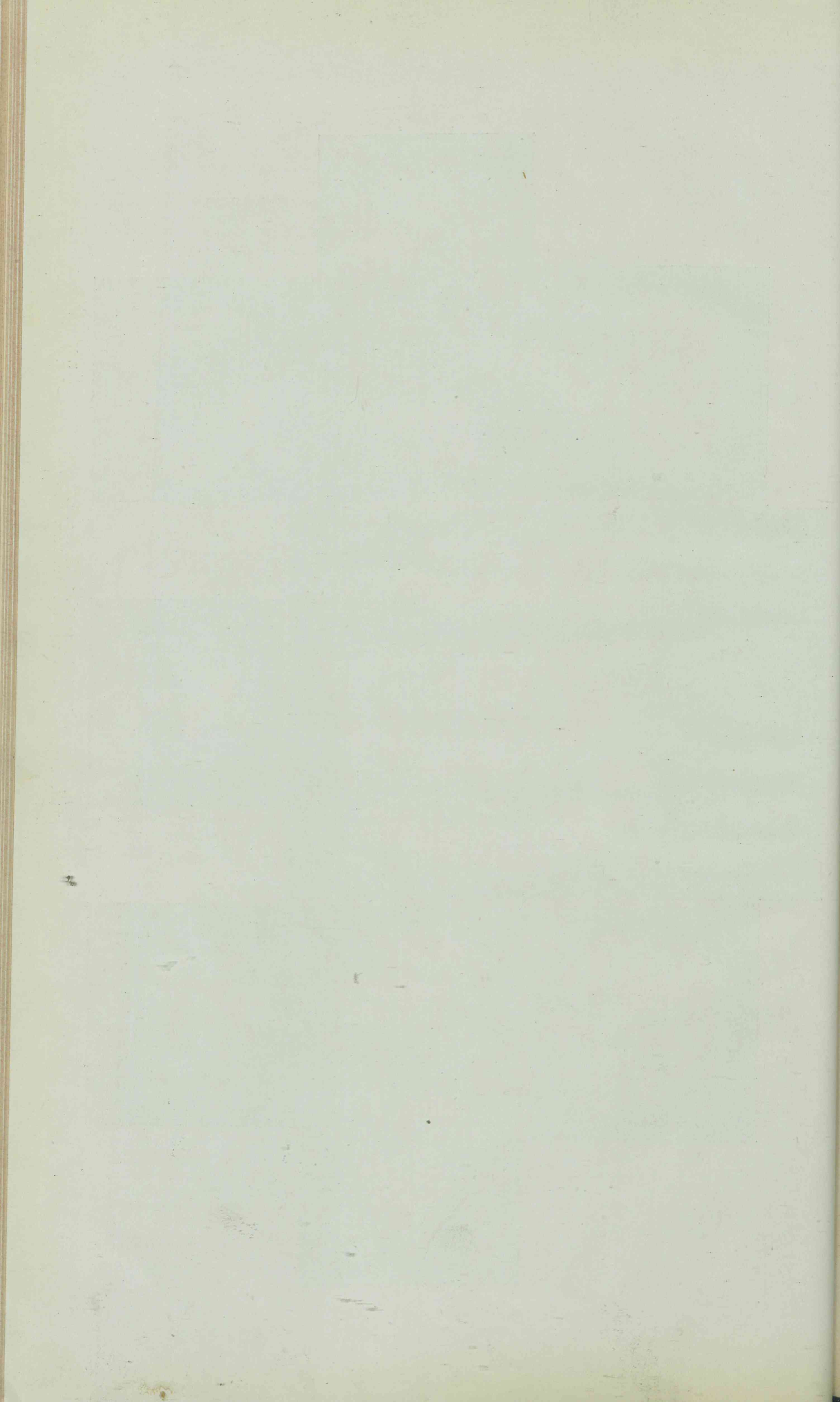


1. RUSSELL'S Big BOLL.
2. EUREKA No. 2 L.S. UPLAND.

3. EUREKA STOCKS, 8321.
4. STOCKS, EUREKA, 1316.

5. EUREKA No. 1, L.S. UPLAND.
6. MASCOT, EGYPTIAN TYPE, MARUBA.

7. NYASSALAND HYBRID.
8. EUREKA, L.S. UPLAND.



fodder from other States, is that of the dissemination of contained noxious weed seeds, many of which exercise a very serious effect on crop yields, and cause a heavy expense also to individual landholders, shire councils, and governing bodies, in trying to keep them in check.

The fillip given to maize-growing in the North by the resumption of several thousand acres of rich scrub land near Tolga, and the displacement of Chinese growers by returned soldiers, has revived interest in the subject of providing adequate storage and drying facilities for the large quantity of grain produced, and for the prospective increase due to the development and expansion of this all-important industry.

Inquiries were made, by direction of the Minister, into the system of bulk handling of wheat now being instituted by the New South Wales Government, with a view to an adaptation being made applicable to maize.

The result of the investigations has been embodied in the scheme submitted for consideration, which it is held will effectively meet requirements, and, if adopted, will place the Northern growers on a more satisfactory basis.

Another matter closely associated with maize production, and one which it is recommended should be taken up in this State (the largest producer of this cereal in the Commonwealth), is that of the manufacture of laundry and culinary starch, glucose, maize oil, &c., and the utilisation of the gluten and other residues for pig-raising purposes.

At the present time, North Queensland growers who sell grain for manufacturing purposes in Melbourne suffer the loss represented by the freight and handling charges, which amounts to fully 2s. per bushel.

Unfavourable weather conditions and cost of seed automatically reduced the acreage sown in 1919. The season generally was not favourable to the development of crops, but, on the whole, the garnered grain proved to be of good quality.

This season, the inducement to grow wheat proved to be greater than on any previous occasion, and has brought about a revival of interest in the crop. Authoritative statements of the world's wheat position showed that a shortage was expected in 1920, and provided that Australia gave delivery of all the stored grain contracted for by the Imperial Government, it would reduce these reserve supplies to a dangerously low level, as they could not be augmented naturally until the latter end of the year. Every encouragement was given in each State to growers; here, the offer of 8s. per bushel by the Government for prime milling wheat harvested this year, and the distribution of "seed wheat" on terms, proved an incentive for farmers to utilise land for cropping, which in all probability would have otherwise remained unproductive.

An appreciable increase is to be noted in the area sown, and as the late autumn rains brought about excellent conditions for the germination of seed, all crops have had an unusually favourable start.

Queensland has not yet attained to the position of being able to supply her own breadstuffs; it is evident that if prices of grain could be maintained on a payable basis from year to year, the industry would attain a greater stability in the future.

Careful work has been continued at the Roma State Farm in the breeding and testing of varieties of wheat to suit existing conditions; evidence of the adaptability of many of these sent out for trial in different districts continues to reach the Department. A recent instance may be quoted where an experienced grower in the Goondiwindi district, Mr. F. C. Luhrs, stated that one of the Roma crossbred varieties, tried as a field crop under the unfavourable conditions ruling last year, was equal to, if not the best, wheat he had ever grown.

COTTON.

A good deal of attention was given last spring to the extension of the area under cotton, as prices for this product in the world's markets had materially advanced, thus making the cultivation of the plant a far more profitable proposition than heretofore. Field Assistants were sent into different districts to make farm-to-farm visits and induce farmers to grow cotton. The direct result of this effort was the despatch of sufficient seed to plant up more than a thousand acres.

The season, unfortunately, proved to be too dry; however, the distribution of seed for the 1920 planting will exceed in quantity that of any previous year, and this increase is largely due to the assurance given by the Department that growers will receive an advance of 5½d. per lb. for their seed cotton grown prior to 30th June, 1923, in accordance with the conditions advertised.

PEANUTS.

This crop is well adapted for growing in many districts throughout the State. Supplies usually reach here from "The Islands," but as both prices and demand for the locally grown article have been good, there is an added inducement for growers to raise crops.

Taking certain places in the North as examples, it is to be noted that where only a few tons of peanuts were grown last season in the Tolga district, probably 50 tons are available this year, as returned soldiers have interested themselves in the crop. At Cooktown, a southern firm has acquired a big interest in land and is now developing a section for peanut-growing on a large scale. Established growers in this locality have built up a reputation for the quality of their product. The soils and climate are exceptionally favourable, and there is room for a big industry, as requirements in the Commonwealth approximate 2,000 tons per annum.

SOUDAN GRASS.

Since the Department introduced this grass several years ago it has been tested under all sorts of conditions, and is to be regarded to-day as one of the most useful plants of its class to withstand dry weather and to respond to limited amounts of moisture. Its cosmopolitan character specially fits it alike for the heavy black soils of the Downs and the sandy soils of the West,

or the more congenial conditions met with in the coastal belt. It has become popular wherever tried, and should find a place on every farm, as it is invaluable as a hay and ensilage crop and can be used also as a cultivated crop for grazing purposes. Being a sorghum, the seed is readily cross-fertilised, if grown in proximity to other members of the same family. Observation has shown the plants to be variable in habit of growth, and steps have been taken by the manager of the Roma State Farm to institute a system of seed selection with a view to propagating certain approved strains which are regarded as specially valuable on account of their fine straw, abundant flag, and ample stooling proclivities. This work has special significance, also, in respect to the crop yields, as a comparison of yields of fodder have disclosed marked differences, pointing to the necessity for work of this description being systematically followed up.

EXPERIMENT FARM AT HOME HILL.

Initial arrangements were made in the latter part of 1919 to commence operations on an area of slightly over 200 acres, reserved for this purpose. The farm is expected to play a useful part in the development of the lands embraced in the Government irrigation scheme at Inkerman, where there is a large sum of money at stake, and is also calculated to serve similar lands along the Townsville-Bowen part of coastal country.

In this, as in all irrigation schemes, the necessity exists for demonstrating methods of applying water to the best advantage, which can only be accomplished by effectively grading the land beforehand. Machinery for this purpose has been purchased.

Sugar is the main crop in the Burdekin Delta area. Productivity of these lands can only be kept up in the future by the application of fertilisers and the use of humus-supplying crops. It is purposed to institute experiments in order to determine the most satisfactory fertilisers to use in conjunction with rotation crops; also to test, raise, and distribute the best classes of cane to local growers, to suit the soils of the district.

Another important object in establishing the farm is to demonstrate the suitability of other crops in order that the North may be less dependent on southern-grown produce, and this applies more particularly to lucerne, hay, potatoes, and food crops generally. It is also desired to encourage the cultivation of commercial crops, such as tobacco, peanuts, and upland rice, in order that farmers may not be altogether dependent on the one crop (sugar) as at present.

Fruitgrowing is also to be taken up; much of the land not suitable for producing heavy crops of sugar is considered adaptable for fruit.

The land was taken over in an unimproved condition and necessitated an outlay for clearing (still unfinished), fencing, and other improvements.

Two small buildings have been erected to date to accommodate the foreman-in-charge, and provide storage space.

One hundred and thirty-five acres of timber land have been dealt with; 75 completely cleared; 60 acres in process of clearing; 35 acres

have been ploughed (20 of these cropped to supply horse feed); 50 cords of firewood have been stacked; fencing timber and wire have been purchased to enclose and subdivide the whole area.

STATE FARMS.

Gindie.—The district in which this farm is situated has passed through a run of dry seasons; for the first six months of the year under review only 160 points of rain fell in six falls, the total for twelve months being 11½ inches, just about half the average rainfall.

The policy of herd improvement has been constantly kept in view. To allow for the retention and expansion of the purebred Beef Short-horn herd, two steps were taken—viz., the sale of 100 head of high-grade females, and of 1,000 sheep. These sales brought relief at a critical time during the drought. Agistment country was rented until the welcome break came in the season, with the result that the stock were maintained in good condition and responded quickly as soon as the green feed was available. Losses amounted to only 1 per cent. during the year.

The purebred herd numbers 250 head of females and 18 bulls, including stud, and young bulls held for sale.

Successful exhibits of farm stock were made at three shows—Springsure, Emerald, and Rockhampton—and an appreciable number of prizes resulted. Young stock were sold at auction after each show. Thirty-five purebred bulls and six heifers were sold during the year, special care being taken to offer animals of good type, colour, and conformation, calculated to improve the herds to which they would be taken. The Gindie herd is now well classed into family groups, and with anything like a satisfactory season should show a good return from sales of purebred bulls.

Cultivation results were disappointing, due to the continuation of dry weather, with the result that each successive sowing of seed practically failed to produce a crop, although a great deal of time and effort were spent in bringing land into good condition.

A number of improvements were made during the year; 100 chains of "give and take" boundary fencing were erected on the Nogoa River frontage, and several additions made to yards to facilitate handling and working of the stock. Eight head of Suffolks, 4 geldings, and 4 fillies were sold to the Home Hill Experiment Farm.

Hermitage.—This area suffered severely from drought. The 1919 winter cereal crops failed. Summer crops were planted in expectation of a change for the better in the season, but, with the exception of Soudan grass, these also failed for want of sufficient moisture, which failed to penetrate the black soil more than a few inches; however, as the time again approached for putting in the 1920 winter crops, the weather changed so much for the better that the newly planted wheat and a field of 20 acres of lucerne are very promising.

The flock of ewes maintained for raising crossbred lambs for market made good use of the drought-stricken crops during the year, and a few small drafts of lambs were auctioned at Newmarket, and brought satisfactory prices.

Kairi.—An area of about 30 acres of land was cleared and broken up in order to provide more land on which fodder could be grown for silage purposes. Field trials were carried out with lime of different kinds and in varying quantities, applied to land sown with maize, as a preparatory crop to lucerne.

Special tests of fodder crops were made for pig-keeping purposes. Improvements were effected during the year in the way of new yards for the stallion, and other fencing. Extra accommodation was completed in the way of buildings and yards for pigs, the timber for buildings being cut up on the place. A great deal of attention was given to fencing repairs occasioned by the last cyclone.

Special attention has been given during the year to the building up of the Berkshire stud, several additions being made of high-class animals. With the prospect of a ready market being available for pork at the new bacon factory at Biboohra, there has been an active enquiry for pigs for breeding purposes, and an appreciable number of sales were effected.

The Jersey herd made good progress, and the demand has been keen for young bulls and females. Successful exhibits of animals have been made at district shows. The purchase of twenty-two milking Shorthorn heifers, and two bulls from the well-known Darbalara stud in New South Wales, to form the nucleus of another dairy herd, should provide the means, later on, of supplying high-class sires for the improvement of district herds.

Roma.—At this farm good progress has been made in wheatbreeding work, and in the evolution of new varieties to suit Queensland conditions. Sufficient time has now elapsed to prove how well the Roma crossbred wheats are adapting themselves to certain localities. Evidence of this, and of a capacity to withstand seasonable exigencies, were noted last year at a time when weather conditions were particularly trying—one experienced grower having expressed himself to the effect that a new variety sent to him for trial from Roma was equal to, if not the best, wheat he had ever grown.

Wheat fertiliser trials and comparative tests under field conditions were continued during the season, in addition to the testing of several hundred strains of wheat in various stages incidental to the production and selection of new varieties. Milling tests carried out by the Agricultural Chemist have demonstrated that the farm-bred wheats conform to a high standard of quality and yield of flour, factors which cannot be overlooked when bringing new varieties into cultivation.

A new branch of seed-selection work was initiated this year, in an attempt to improve the fodder and hay producing proclivities of Soudan

grass, a plant which ordinarily shows a great deal of variation, probably due to the ease with which this variety crosses naturally with other plants of the sorghum family. The citrus orchard suffered to some extent from continued dry weather, and the crop proved to be light and the quality not up to that of a normal year. The grape crop was not affected to any extent by the dry weather, but nothing was of any avail in coping with the depredations of native birds of different kinds, whose natural food supplies were evidently cut off by the prolonged drought.

Warren.—This farm passed through a trying period in the first half of the year, owing to dry weather conditions, and although sowings of a number of fodder crops were made, these failed to materialise; however, the summer crops made better progress, and, although providing a reduced tonnage of fodder and rather below normal yields of grain, there were sufficient green crops available to fill a 100-ton silo.

A number of different varieties of sorghums were tried under field conditions, with the result that the superiority of Red Kaffir corn as a grain crop was most marked. It is quite evident in this district that grain sorghums are destined to play a very important part in cropping arrangements where grain is required for feeding to horses, cattle, pigs, and poultry. Maize produced a very indifferent return, particularly of grain, which failed to set a payable crop, owing to dry weather at tasseling time, but the grain sorghums generally were unaffected to any appreciable degree.

Soudan grass gave evidence also of its extreme hardihood and value for green fodder and hay.

Twenty tons of bush hay were saved.

The Ayrshire stud has made good progress. A good demand exists for young bulls, and district dairy farmers are evidently realising the adaptability of the Ayrshire to local conditions. Continuity in breeding has been provided for at the farm by the purchase of a high-class young sire which secured championship honours at the recent Rockhampton Show, where the Warren animals won most of the prizes in their respective sections.

The Berkshire stud was supplemented by the purchase of some purebred females, and a boar which has the National Show championship to his credit.

Attention was paid during the year to prickly-pear destruction by means of an improved pear poison distributed with an atomiser. This system is the most effective so far, and a distinct advance on any method previously tried.

In April, Mr. W. H. Bechel was appointed manager of the farm in place of Mr. H. C. Colledge, who resumed dairy inspection work at Gayndah.

H. C. QUODLING.

REPORT OF CHIEF DAIRY EXPERT.

SIR,—I have the honour to submit herewith a report upon the dairying industry for the season 1919-20.

The season recently terminated cannot be referred to as one favourable to comparatively large production of dairy foodstuffs. Droughty conditions prevailed throughout the spring and the early months of the summer. The indigenous and introduced grasses were famished because of the lack of moisture, and the grazing areas of the dairy farms were left practically devoid of all pasture of value as food for the dairy herds. Similar unsatisfactory seasonal conditions prohibited fodder crops being raised upon the fields under cultivation. There were no supplies of fodder in reserve to fall back upon, because all stocks of conserved fodder had been previously exhausted as the result of the demand made upon all available feed for the dairy herds during the preceding lean years. The whole of the dairy farmers were extremely desirous of an opportunity to replenish the tonnage of fodder on their individual holdings, but they were destined to encounter another dry season, so general in character, that it embraced at least the three States buttressing on the eastern seaboard of Australia. The outlook continued most gloomy, and for some months it appeared that the annihilation of the dairy herds was certain to occur before the winter had passed by.

Dairy farmers were placed in a perilous position, and they were confronted with a problem of which there appeared to be little or no prospect of solution.

The usual practice of acquiring supplies of fodder from beyond the State, and hand-feeding it to stock, could not be resorted to at this particular juncture, because a succession of indifferent harvests had left the southern States without any appreciable quantity of fodder to draw upon. An existing congestion in the shipping service in no way detracted from the calamitous position in which most owners of dairy stock were situated.

There was only one possible hope of avoiding disaster to the dairying industry, and that rested in the participation of abundant and general rainfalls, followed by a mild drooping winter; otherwise the dairy herds would have been decimated, and the dairy farmers ruined as a consequence. Fortunately Nature was kind, and splendid rains fell late in the season, and the winter so far has been phenomenally mild, and has brought with it more than the customary complement of rain. The timely rainfall completely changed the prospects of the dairy farmers, as incidentally the dairy herds were preserved from starvation, and after the lapse of a short period, many of the dairy farms again became revenue-producing.

The losses of stock consequential to the drought were serious enough, but they were a mere bagatelle to the numbers of dairy animals that must have succumbed had the rain been withheld for another few weeks.

In former reports, attempts have been made to illustrate the insecurity of the position of the dairy farmer individually, and the dairying in-

dustry generally, because of the neglect to provide ample reserves of fodder for the dairy herds. It is desired to make further reference to the omission on the part of dairy farmers in this regard, and to emphasise once more the pressing need that exists for the general adoption of systematic conservation of fodder, on an extensive scale, and under one or another of the approved methods. In the absence of sufficient fodder held in reserve upon the farm immediately the pastures commence to fail the dairy farmer begins to purchase feed for his herd, and in times of severe drought, or a dry spell of any consequence a large proportion of the dairy farmers are found competing in the open market, one against the other, to procure supplies of fodder. Naturally it follows that the market price of all feed suitable for dairy cows rises in harmony with the strong demand that is occasioned. With conspicuous promptitude the market price of all classes of fodders serviceable for cow feed soars so high that these fodders are not to be profitably employed as feed for milch cows. And as long as such a condition continues, it must happen that no profit is to be derived from the sale of the products of the dairy, and until a great change in method is effected, the dairy farmers generally must suffer, in a monetary sense, throughout every drought, because of the compulsion to purchase fodders at prices appreciably above their intrinsic value as feed for cows, also by the diminished revenue to be derived from the sale of milk or cream from the dairy. Fortunate, too, is he under such circumstances, if losses of live stock are not incidentally added to his other difficulties.

In a general sense the stability of the dairy industry is of vital concern to the whole of the community, but the task of placing the industry on such a footing as will be efficacious in removing it beyond the influence of prolonged dry spells rests solely in the hands of the dairy farmers for consummation, excepting, possibly, the monetary aid to that end that may be obtained by loan from existing sources. Amongst other things the conservation of fodder involves the raising of suitable crops, and this is to be accomplished only by those in occupancy of the land essential for that purpose; consequently it follows that the responsibility of conserving fodder automatically is cast upon the shoulders of the dairy farmers.

There are in number some 16,000 farmers engaged in dairying pursuits in this State (either as straightout dairy farmers or by "mixed" farming), and from the information available it is calculated that at least 14,000 of these fail to conserve a sufficiency of fodder to maintain their dairy herds on a profitable basis throughout even a comparatively short period of drought. After making a generous allowance for the relatively few and specially fortunate dairy farmers whose holdings of land are situated in localities ordinarily beyond the influence of a drought, it will be found that more than 75 per cent. of the dairy farmers carry on dairying in an extremely hazardous manner, consequential to their failure to raise and conserve an adequate tonnage of fodder to place them practically in a position of independence to drought-borne influences.

By a study of the measures and practices which have been adopted in other parts of the world for the purpose of placing dairying on a solid foundation, it is revealed that there is only one way by which the objective is to be achieved, and that is by engaging systematically in the raising and conservation of crops on a scale proportionate to the requirements of the dairy herds. Naturally it is to be expected that the practices would differ somewhat, and would require modification to suit the needs of the countries they are intended to serve, both in regard to the character of the crops to be grown, and the means whereby they are to be treated subsequent to harvesting.

It is claimed that in Queensland up to the present the dairy farmers, as a body, have not focussed their attention or bent their energies upon the conservation of supplies of fodder, and their remissness in this direction stands to-day as being positively the weakest link in the chain of dairying operations. Both in Canada and in many of the States of America, dairying has been made secure, permanent, and comparatively more profitable to those engaged in that calling, by the use of the silo. Many reasons have been advanced by dairy farmers here in explanation of their manifest disinclination to follow and benefit by the examples and experiences of other countries, wherein the methods of animal husbandry have been so perfected, that the adverse influences upon stock attendant upon dry spells or snow-clad fields, extending over periods of four to five months, and involving both stabling and hand feeding of dairy stock, have been brought under subjection and control.

By some opponents of ensilage, as a satisfactory form of conserved fodder, it has been stated that it becomes a costly undertaking to provide a silo, and to grow, harvest, and conserve a crop. Freely it is admitted that these things cannot be done for nothing; at the same time, the evidence is that ensilage-making is less costly than the alternative, which in practice is to purchase, usually during a season of scarcity, a poor quality of fodder at a price ranging from £15 to £20 per ton, that in nutrition is not comparable with good ensilage which could be raised on the farm, under normal conditions, at a cost less than £1 5s. per ton.

A further reason that has been instanced as a cause responsible for the relatively small quantity of ensilage that is prepared each year, is that the seasonal conditions are frequently unsatisfactory for the growing of suitable crops. Whilst recognising the importance of favourable weather conditions in the raising of crops, it is considered that full advantage has not been taken of the opportunities that have been on offer from time to time. The possibilities of extension in ensilage-making are indicated in the statistical records bearing on that matter. For instance, during last year, which is to be counted as being amongst the most unfavourable on record for the production of crops, the actual increase in the aggregate tonnage of prepared silage was the greatest so far recorded. Surely such a result plainly shows that the former and more abundant seasons were not utilised to the full by dairy farmers in so far as fodder conservation is concerned. Most other objections advanced against fodder conservation are to be dismissed or so heavily discounted that they

become of minor importance as compared with the great advantages that are to be gained and must follow as a result of making full provision in the fodder requirements of the dairy herds.

A dry season readily results in a comparative decrease in the proceeds to be derived from the dairy farms. The deficiency of revenue on this score has ranged from one-half to one and a-half millions sterling within the year affected, the amount fluctuating in accordance with the severity, extent, and duration of the period of drought. The question is asked as to whether it is not worth while and economically advantageous for those concerned to outlay a considerable amount of capital in the direction of effectively arresting the enormous shrinkage which is now allowed to take place in the earning power of the dairy herds.

Losses of stock, together with the money paid out by dairy farmers in the purchase of fodders in the open market, add considerably to the difference between the actual net receipts of dairy farmers during adverse and good seasons.

When a sum total is made of the whole of the charges imposed by a drought upon the industry, it becomes obviously clear that a severe drought is appreciably more costly to the dairy farmer than a silo. It is in this light that the dairy farmers have to decide whether they are prepared to continue along present lines, or to set out and so perfect their methods of husbandry as to place the industry beyond the ravages of dry spells and droughts. In arriving at a decision on this matter, which is one both of urgency and importance, the dairy farmer must bear in mind that, as a result of the war new values have been created for dairy products, and the ruling prices of all kinds of dairy foodstuffs allow that much more attention can be bestowed profitably upon the dairy herds than was formerly the case.

The services of Departmental officers are always available to assist and supply dairy farmers with information concerning the raising and treatment of crops intended for ensilage purposes. Complete plans and specifications of silos of different type and design are to be obtained upon application. It is also possible to obtain money on loan from the Government to assist in covering the initial cost of a silo in necessitous cases.

It is gratifying to report that within the last twelve months the tonnage of ensilage has been substantially added to, and in one district the increase in the amount of ensilage made, as compared with former years, is no less than 12,000 tons. Although we are far behind other countries in respect to conservation of fodder, the significance of the progress that the figures indicate is to be gauged by noting that ordinarily not more than 7,000 tons of ensilage is prepared annually within the State.

Generally the experience of those who have provided silage is that the silage is readily partaken of and relished by stock, and, in the case of milch cows being fed upon it, the animals have maintained a thrifty appearance, and have yielded comparatively more milk.

No instance has been reported where a dairy farmer, having gone in for ensilage-making, desires to revert to the former improvident methods of reliance entirely upon natural pastures for the sustenance of his dairy herd. It

has followed also that no losses of dairy stock from starvation during the recent drought have been recorded from farms whereon ensilage has been allowed to play a part towards bringing the methods of animal husbandry nearer to perfection.

The adverse weather conditions that prevailed throughout at least six months of the year under review resulted in a comparative decrease in the total production of milk on dairy farms. The following figures show the extent to which the production of milk was affected by the causes indicated as compared with the former year:—

| Year. | Total Production of Milk. Gallons. |
|--------------|--|
| 1918 | 87,580,098 |
| 1919 | 71,856,038 |

A decrease of some 15,724,060 gallons.

Fortunately for those engaged in dairying pursuits, the market price of all lines of dairy produce was higher in the latter season, and this in a degree prevented the monetary returns from the sale of dairy produce from falling as far behind as the figures, as quoted, may indicate at first glance.

The milk raised was utilised for domestic purposes or manufacture of butter, cheese, or condensed milk.

As is usual, the manufacture of butter claimed by far the greater proportion of the total of milk produced.

Several additional butter factories were constructed, and commenced operations during the season, and one butter factory was destroyed as a result of fire. It is noteworthy that few additional companies (either proprietary or co-operative in principle) are engaging in the manufacture of butter. The expansion that is taking place in this direction has been effected by established companies launching out and erecting factories in additional centres. In some instances the development of the industry by this means is very satisfactory, because the newly constructed branch factory enjoys the full benefit of the knowledge and experience that has been gained by the parent factory in the management of the business affairs of a butter factory. The apparent danger of the method seems to be that some companies may become obsessed by a spirit of rivalry, and thereby become tempted to engage in the construction of a factory in every district offering promise of even a comparatively small supply of cream, regardless of the possibility that a multiplicity of factories manufacturing butter does not necessarily stand for economy, in so far as the manufacture of butter is concerned. As a general rule, the construction of an additional factory is only warranted in cases where the quality of a large supply of cream becomes depreciated through transit, or other causes that are to be remedied by providing another factory. In most other instances the cream is to be treated and manufactured into butter more economically by one staff, and under one roof.

All things considered, there has taken place a satisfactory improvement in the quality of the butter manufactured within the year. The neutralisation and pasteurisation of the cream

supplies at factories has been adopted more generally, and in most cases the practice has resulted in the manufacture of a butter with relatively improved keeping qualities. Individual consignments of butter received from factories whereat cream is pasteurised have revealed upon inspection that, on occasion, factories have attempted to utilise and pasteurise cream which was not suitable for the purpose of making a butter of first-class quality, either under pasteurisation, or other conditions of working. No doubt the shortage in the supply of cream during portion of the season, and the attendant difficulty experienced by factories in manufacturing a sufficient quantity of butter of first quality to meet the requirements of their usual customers, helped to accentuate this trouble, but the policy of taking the risk of including with the higher grade of cream even a limited percentage of cream of unsuitable quality, is not to be encouraged under any circumstances, because the ultimate result is that the standard of quality of the whole output of butter becomes detrimentally affected.

A defect in the application of the principles of neutralisation and pasteurisation of cream for butter-making has been evidenced throughout the season. It has been found that the neutralisation of the cream has not been properly carried out by all factories. It is considered that generally the fault is to be attributed to the over-confidence of some manufacturers of butter, who have had considerable experience in the neutralisation and pasteurisation of cream, and because of their intimate knowledge of cream and the treatment of it, they have become encouraged to guess rather than to accurately determine the acidity present in the cream, and to then calculate the quantity of alkali requisite to reduce the acidity present to the prescribed limitations. It may frequently happen, as a result of good fortune, or through the skill and knowledge of the operators, that a relatively high degree of success is to be obtained by following what can only be referred to as haphazard methods of neutralisation of cream, but sooner or later mistakes must occur under such methods, and as a consequence the factory sends forward a consignment of butter which, upon inspection, is discovered to be defective in quality because of the faulty neutralisation of the cream.

The employment of primitive methods in the factory, in cases where the work is of a delicate and exacting nature, cannot be disapproved too strongly. The processes incidental to the neutralisation and pasteurisation of cream are not unduly intricate or involved, and in the main these are generally well understood by those concerned in the actual work of manufacturing butter, but it is their omission to give full attention to what may be described as the details connected with the process that creates the trouble to which reference has been made. It is recognised that the work of the factory can be carried on with accelerated speed by ignoring some of the orthodox tests which should be applied, but there is neither economy nor satisfaction to be achieved by sacrificing the quality of the manufactured product in order to save the labour and time necessary for the performance of tests which ordinarily occupy only a few minutes of time.

Throughout the year the surplus in butter was either exported overseas under a contract with the Imperial Government, or sold to help fill the requirements of other parts of the Commonwealth. The contract entered into with the Imperial Government is due to expire in August next. The basis of the contract is that butter of first-grade quality (90 points) shall be paid for at the rate of 175s. per cwt., with 1s. per cwt. more or less for each point that the butter grades higher or lower than 90 points. All the surplus of butter from Australia is covered in the contract; it is practically an f.o.b. sale, excepting that the vendors are responsible for a proportion of the cold storage and other charges incidental to the shipment of the butter.

Owing to the general character of the drought and the shrinkage thereby occasioned in the production of butter in the southern States, the demand for butter within Australia was considered sufficient to warrant an increase in the price locally to a figure above the price provided for in the Imperial contract. Consequently the price of butter on the local market was first raised to 220s. per cwt., and eventually it was increased to 228s. 4d. per cwt. Reading from the market reports, which provide the wholesale and retail quotations of butter in Great Britain from time to time, it is manifestly clear that there still exists an extravagant difference between the price received here for butter for exportation, and the figure the butter would realise if sold in the open market in Great Britain. The disparity between the respective amounts is far in excess of the sum necessary to cover freights and other charges which may be debited legitimately, and until a drastic adjustment is made in the direction indicated, it cannot be claimed that the producers of dairy products in this State are enjoying the full return for their industry.

CHEESE.

This branch of the industry suffered in sympathy with the reduction in the quantity of milk produced within the year. The abnormally small quantities of milk delivered to cheese factories for treatment lead to a sharp increase in the cost of manufacture of the cheese at all factories. Several of the smaller factories found it impracticable to continue operations. Owing to the cost of manufacture of the article becoming so high, it was thought expedient to temporarily relinquish cheese-making, and to divert the supplies of milk to butter-making purposes, as the milk would realise more if passed through that channel than would have been the case had it been manufactured into cheese under the conditions prevailing at that period. Generally the quality of the cheese produced was quite equal to that of the former year. All cheese that was in excess of the requirements of the local and interstate markets was sold under contract to the Imperial Government. Shipment of the cheese under the contract was long deferred, and as a consequence the cheese was held here in cold storage for many months. This happening, conjoined with an unfortunate hitch that occurred in the arrangements for the handling of the cheese at the boat side, and whereby several thousands of crates of cheese were short shipped, together afforded a splendid opportunity to re-examine a great deal of the cheese that had

been manufactured within the season. Upon re-examination it was found that the cheeses had maintained their quality, and the general excellence of the cheeses redounds to the credit of those engaged in the manufacture of the produce. The grade mark affixed to the packages many months before the date of the re-examination as being indicative of the quality of the cheese, was found to be in absolute agreement with the quality of the cheese when finally examined. This was most satisfactory, and left no doubt but that the cheeses were graded primarily with accuracy and care by the grading officers. Most important of all is the irrefutable evidence that has been provided of the general suitability of Queensland conditions for the manufacture of the cheddar variety of firm cheese. For the greater part, the cheeses held in cold storage were manufactured during the warmer months of the year, when temperatures were naturally high, and comparatively unfavourable for the keeping of milk in a satisfactory condition for cheese purposes. The cheeses were thoroughly representative of the outputs of the factories operating in the State, and few, if any, brands were not comprised in the lists.

Should further evidence be required in substantiation of the suitability of Queensland conditions for cheesemaking, it is only necessary to instance the splendid display of cheese that has been made at the Brisbane Show for some years past, and to review the opinion of the judge concerning the quality of the exhibits. Such opinion is portrayed through the medium of the points awarded to the individual exhibits on the score cards drawn up by him, and these furnished proof of the quality of most of the cheese being at least first class, and the prize-winning cheeses frequently have been scored at from 93 to 95½ points out of a possible maximum of 100 points.

It is considered appropriate that the above reference should be made, because there has been voiced an expression of opinion questioning the wisdom of dairy farmers engaging in the manufacture of cheese in this State through the formation of co-operative companies, of which the dairymen supplying the milk are the principal shareholders, the chief function of the co-operative company being to receive the milk and carry out the manufacture and marketing of the cheese made from it. Amongst other reasons, it was advanced that the prevailing climatic conditions are adverse and present insurmountable difficulties that will militate against a full measure of success being achieved in the manufacture of cheese.

In the light of a close association here with the expansion that has taken place in the cheese industry within the last ten years, it can be confidently claimed, as a result of the observations made, that the manufacture of cheese may be profitably engaged in in many parts of the State. It is freely admitted that the conditions are not ideal for cheesemaking, but this does not infer that the manufacture of cheese is not to be carried on with success commercially. Rather, it means that certain modifications become necessary in the generally recognised methods of manufacture. It is on these lines that the cheese industry has been developed to present proportions.

The cheese factories operating in this State number approximately one hundred, and rank amongst the principal contributors of cheese for exportation from Australian shores. Under normal seasonal conditions the quota of cheese from here has been several times greater in quantity than that submitted for export by the remaining States of the Commonwealth. Should it happen that cheesemaking has to be abandoned, the cause will hinge upon the price of the commodity as compared with butter, for it is patent that should the value of milk for cheese purposes fall relatively below that of milk for utilisation in butter-making, the latter will promptly gain the patronage of dairy farmers.

There exists some uncertainty as to whether the Imperial Government is prepared to again purchase the surplus in cheese at a figure satisfactory to manufacturers here, and, as a consequence, anxiety has entered into the minds of those controlling the business affairs of cheese factories. Until negotiations between the parties concerned are finalised, it is not possible to accurately arrive at a figure that may be regarded as the market value of next season's make of cheese. However, with a continuance of high prices for meat in all countries where meat enters into the dietary of the people, it should automatically follow that cheese, which is recognised as constituting one of the best substitutes for edible flesh, should command a relatively high price in the oversea market.

CONDENSED MILK.

The manufacture of condensed milk is a phase of dairying which Queensland has participated in for many years past, and although the output of condensed milk from factories was less in quantity than is ordinarily manufactured during the season, the decrease is not to be attributed to decadence in the industry, but rather to a temporary reduction in the amount of milk available as a result of the dry season.

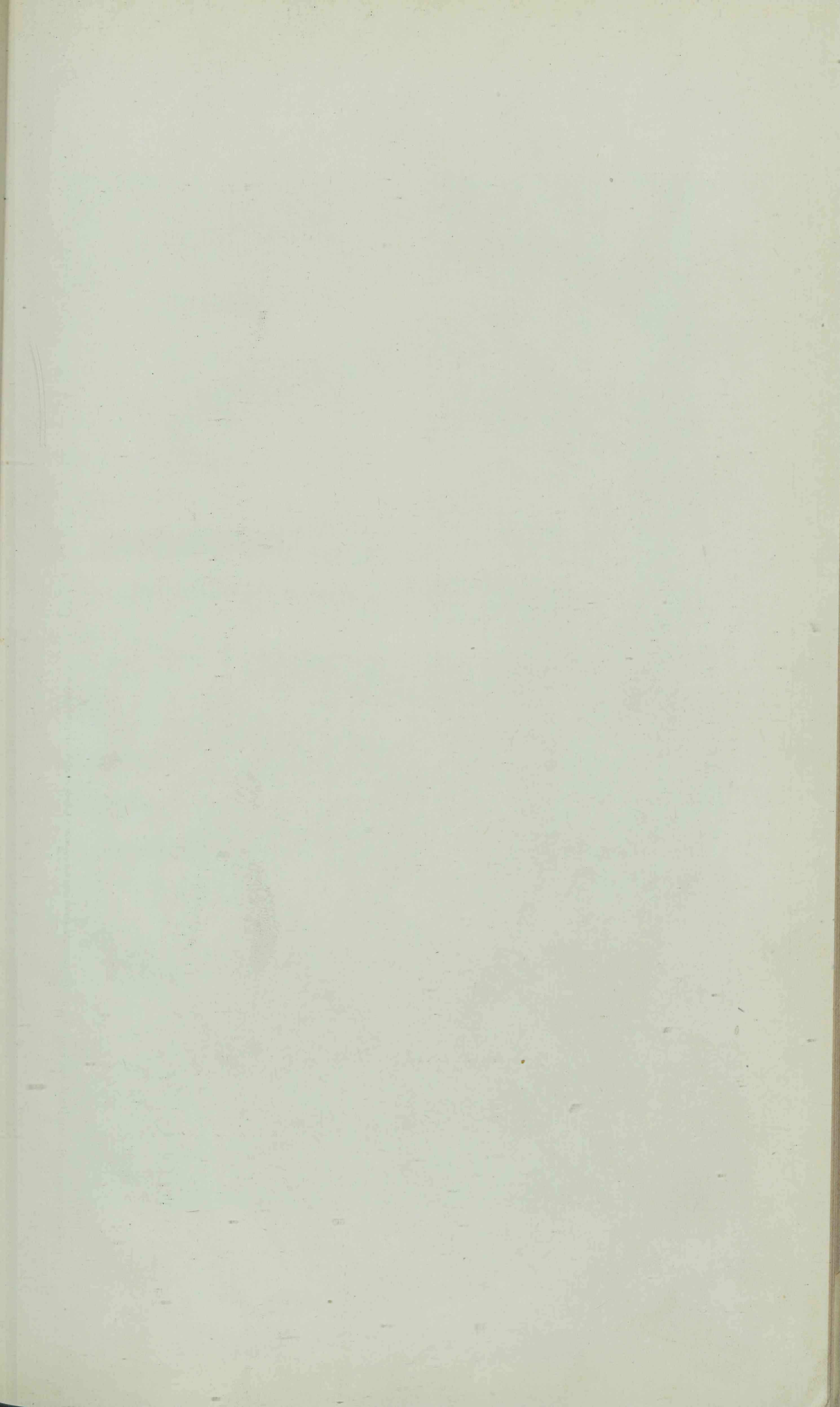
There was no addition made to the number of condensed milk factories within the year. One

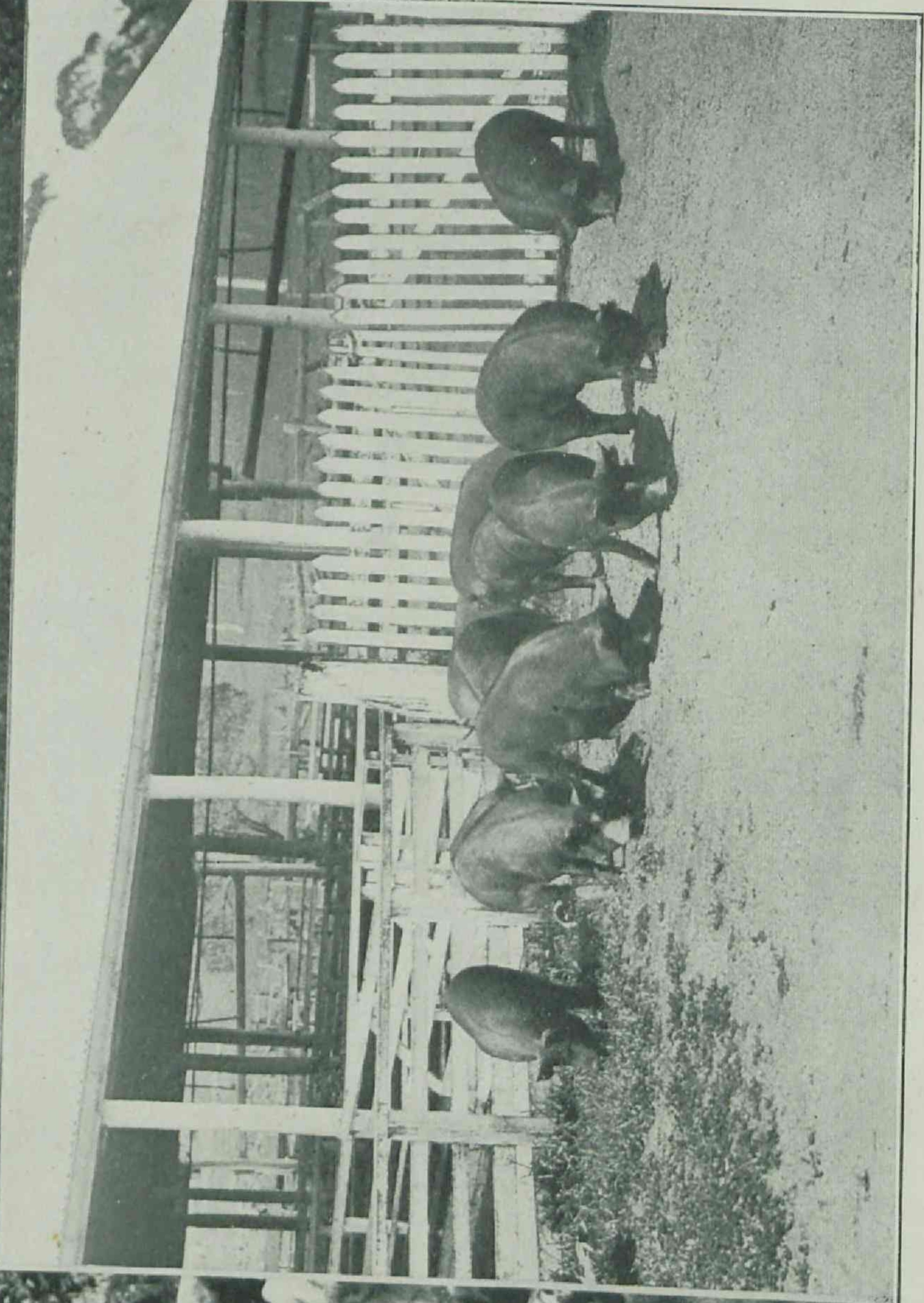
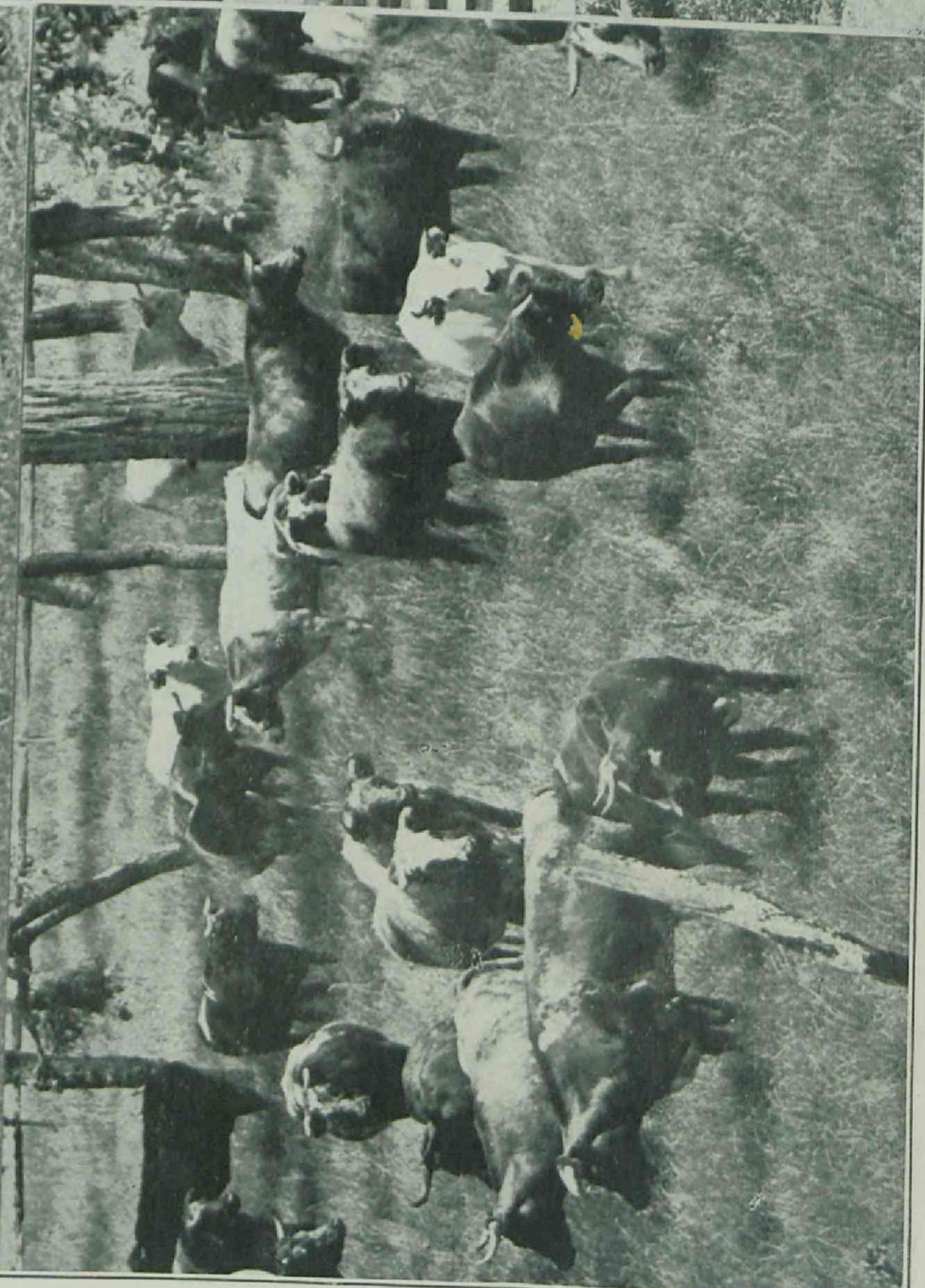
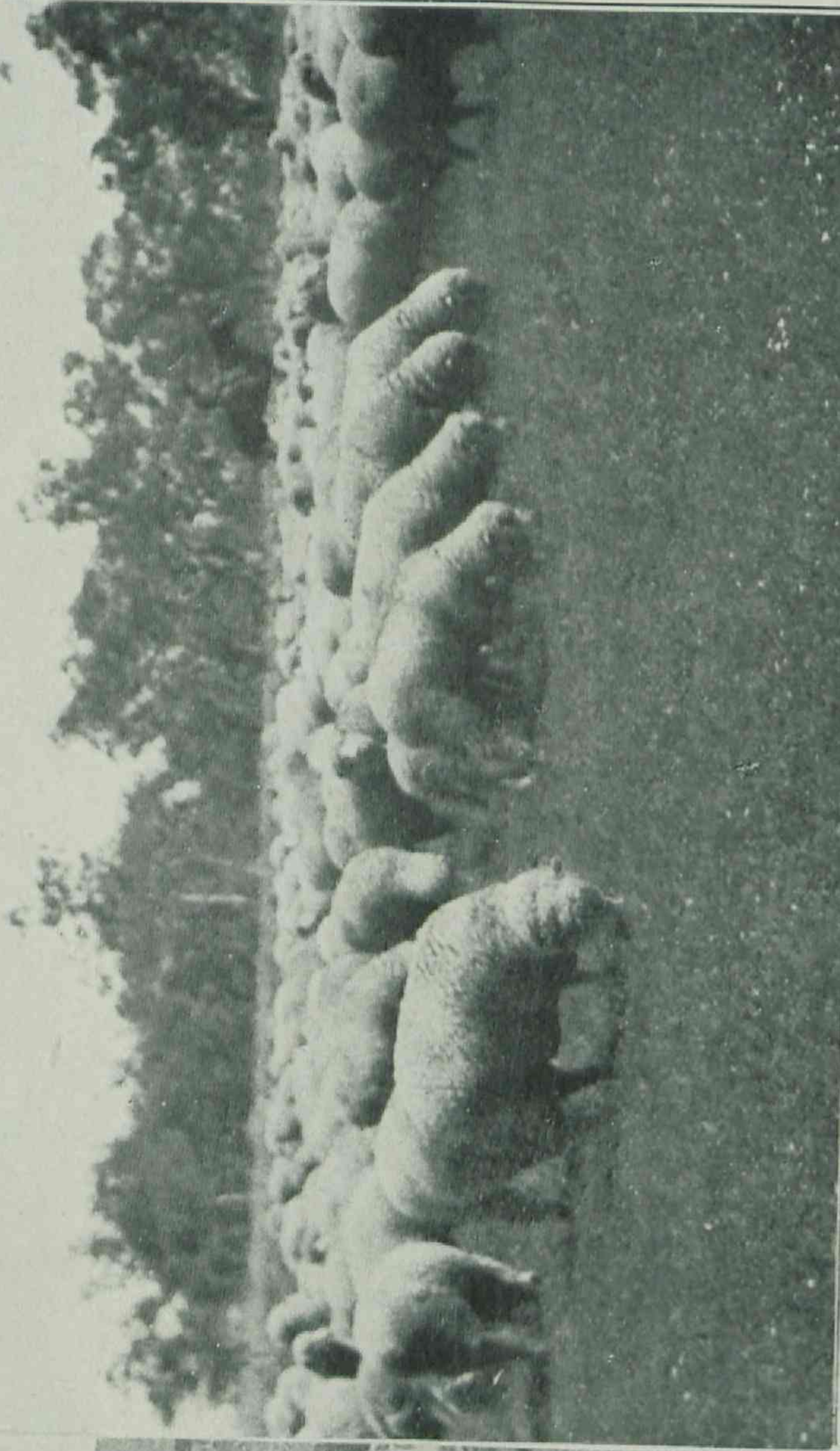
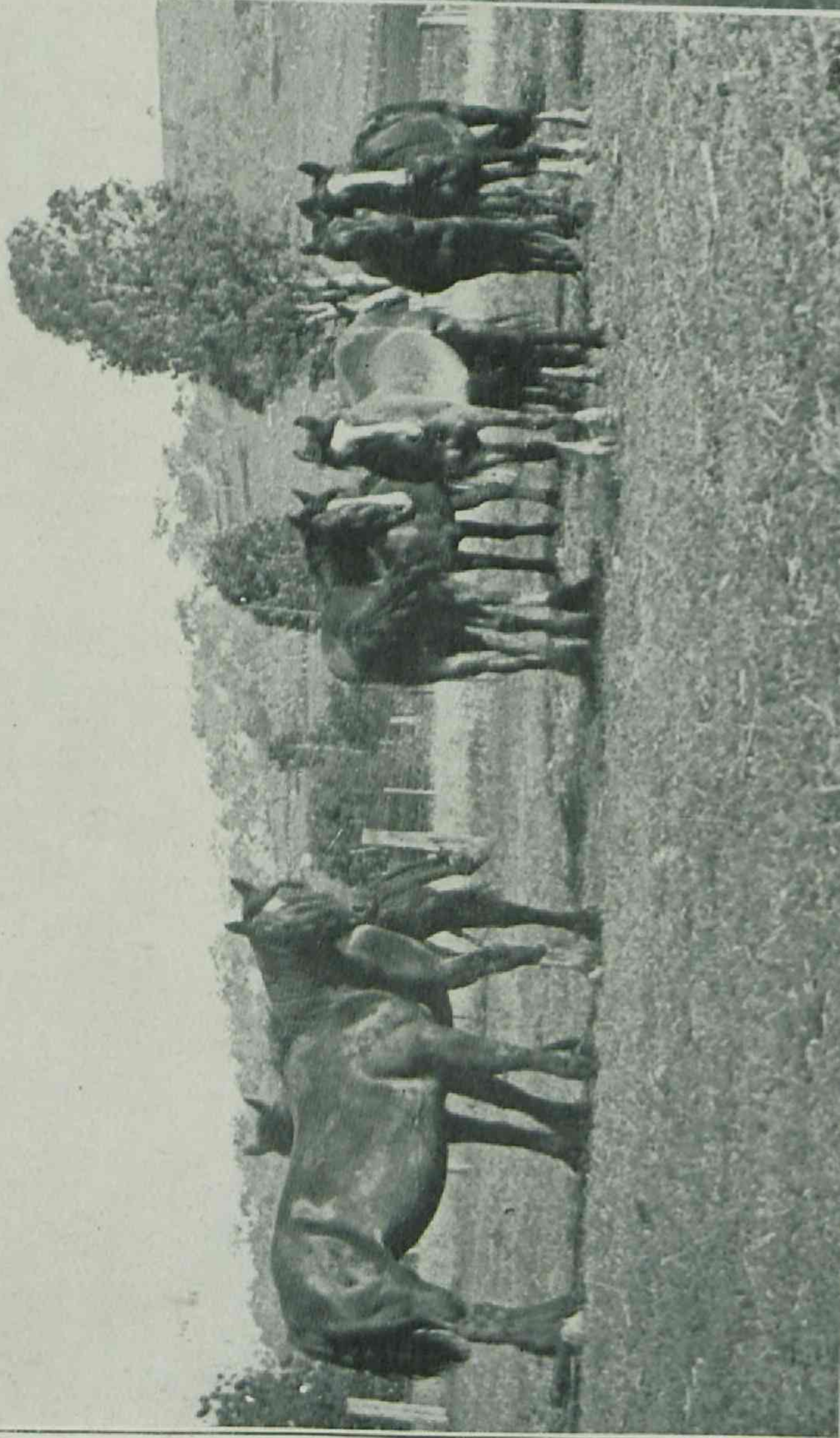
manufacturing centre had been closed down pending the erection of a factory on a larger scale at another centre, whereat it is considered increased supplies of milk will be available for condensing purposes.

HERD TESTING.

Dairy farmers are becoming gradually alive to the importance of submitting their milch cows to a butter-fat test, but the progress made in this direction is slow in comparison with either the benefits to be derived from the adoption of systematic herd-testing, or the facilities which have been provided for the performance of the work. The acceptance of herd-testing, as a means whereby the revenue from the dairy herds may be appreciably enhanced, has become world-wide. The results accruing from the practice have been so substantially beneficial that in some countries it has been suggested that the submission of the dairy herd to a periodical butter-fat test should be made compulsory, and provision made to eliminate from the dairy herds all cows that are discovered to be incapable of producing a prescribed amount of butter-fat within a given lactation. We have in Queensland advocates in favour of similar action being instituted here. No doubt much could be said in support of the proposal, especially as the testing of herds is carried out here without any direct charge being imposed upon those submitting their herds to a butter-fat test. In actual practice there is only one means whereby the worth of a dairy cow as a producer of butter-fat can be determined with accuracy, and that is by the submission of the animal to a series of butter-fat tests at appropriate intervals. The total number of herds which were brought under a butter-fat test during the year was disappointingly small, and represented a very low percentage of the dairy herds contained within the State. The dairymen resident in the Burnett District were again the most ardent supporters of herd-testing.

E. GRAHAM,
Chief Dairy Expert.





STOCK.

HORSES AT WESTBROOK.
BEEF CATTLE, KINGARROY DISTRICT.

SHEEP ON MOUNT ABUNDANCE.
PIGS AT ZILLMERE.

REPORT OF THE CHIEF INSPECTOR OF STOCK.

SIR,—I have the honour to submit the following report for the year ended the 30th June, 1920:—

The interests of farmers and dairymen have received a severe check, owing to the prolonged dry period prior to the recent autumn rains. Farm and dairy stock have largely increased in value in recent years, but costs of production have also increased, more particularly with regard to grazing and hand-feeding requirements. The natural sequence is that farmers and dairymen have suffered much more serious loss in the recent drought years than on any previous occasion. There have been great losses of stock, which can only be replaced by heavy expenditure, and the effort to keep stock alive by hand-feeding has been a heavy strain on the resources of owners, which in very many instances was rendered futile by inability to carry the stock through until rain relieved the situation.

The grazing and pastoral industries have also suffered by reason of the intensely dry spring and summer, more especially in the southern and the south-western districts of the State. Heavy losses of stock have occurred in parts, accentuated by the mortality amongst sheep, occasioned by the increasing ravages by dingoes, which will be noticed in the limitation of the usual increase from lambing. The blow-fly pest has not caused as much trouble as in many previous years, owing to climatic conditions being less favourable for its propagation, but with the advent of moist-warm weather considerable trouble may be anticipated.

The primary industries referred to are not flourishing in a degree which is essential to the welfare of the State. Attention should be given to the promulgation of methods which will tend to limit the continuously recurring drought losses, more particularly in the better conservation of fodder, the control of the dingo pest, and the elimination of the blow-fly. Subject to successful propaganda on the above lines, the outlook for the ensuing year is favourable. It is pleasing to record the success obtained in cleansing certain tick-infested areas, the prevention of the spread of the tick to clean areas, and the reduction of tick worry through periodical

dipping in districts where paucity of settlement will not permit of cleansing operations.

STOCK STATISTICS.

The following figures, supplied by the Government Statistician, show an increase in the number of cattle on the returns of the previous year, and a decrease in the number of horses, sheep, and pigs:—

| Year. | Horses. | Cattle. | Sheep. | Pigs. |
|-------------|---------|-----------|------------|---------|
| 1920 | 731,705 | 5,940,433 | 17,379,332 | 99,593 |
| 1919 | 759,726 | 5,786,744 | 18,220,985 | 140,966 |
| Increase .. | .. | 153,689 | .. | .. |
| Decrease .. | 28,021 | .. | 841,653 | 41,373 |

HORSES EXPORTED.

Two thousand one hundred and fifty-two horses were exported, of which seven hundred and eighteen were mares.

ANALYTICAL EXAMINATIONS.

Forty-two samples of viscera and contents were submitted to the Agricultural Chemist for analysis, and in twenty-one cases poison was detected. The Chemist has drawn attention to the fact that several samples forwarded for analytical purposes were too small for making satisfactory tests. In North Queensland, fifteen samples were analysed, twelve of which gave positive results.

PROSECUTIONS.

| | No. of Prosecutions. | No. of Convictions |
|--------------------------|----------------------|--------------------|
| Diseases in Stock Act .. | 92 | 92 |
| Slaughtering Act | 30 | 28 |

EXAMINATION OF STALLIONS.

Examinations were held at the following places:—Allora, Brisbane, Bundaberg, Beenleigh, Clifton, Caboolture, Chinchilla, Esk, Gayndah, Ipswich, Imbil, Kingaroy, Laidley, Marburg, Maryborough, Mount Laram, Murgon, Pine River, Pittsworth, Rosewood, Roma, Rockhampton, Toowoomba, Warwick, and Wondai. One hundred and five stallions were examined, of which number twenty-two, or 20.8 per cent., were rejected.

Tabulated results of the examinations are as follow:—

| | DRAUGHT HORSES. | | BLOOD HORSES. | | LIGHT HORSES. | | PONIES. | | TOTALS. | |
|----------------------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|
| | Number Examined. | Number Certificated. | Number Examined. | Number Certificated. | Number Examined. | Number Certificated. | Number Examined. | Number Certificated. | Number Examined. | Number Certificated. |
| | 22 | 19 | 36 | 28 | 13 | 7 | 34 | 29 | 105 | 83 |
| Defects. | 3 | 13.63 | 8 | 22.2 | 6 | 46.14 | 5 | 14.7 | 22 | 20.8 |
| Sidebones .. | 2 | 9.09 | .. | .. | .. | .. | .. | .. | 2 | 1.81 |
| Ringbones .. | .. | .. | 2 | 5.5 | 1 | 7.69 | .. | .. | 3 | 2.85 |
| Cataract .. | 1 | 4.54 | .. | .. | .. | .. | .. | .. | 1 | .95 |
| Spavin .. | .. | .. | 4 | 11.1 | 2 | 15.38 | 4 | 11.76 | 10 | 9.52 |
| Curb .. | .. | .. | .. | .. | 1 | 7.69 | .. | .. | 1 | .95 |
| Whistler or roarer .. | .. | .. | 1 | 2.7 | .. | .. | .. | .. | 1 | .95 |
| Want of type and conformation .. | .. | .. | 1 | 2.7 | 2 | 15.38 | 1 | 2.94 | 4 | 3.81 |
| Totals .. | 3 | 13.63 | 8 | 22.2 | 6 | 46.14 | 5 | 14.7 | 22 | 20.8 |

Horses have been particularly free from infectious diseases, strangles and influenza being the chief affections.

Veterinary Surgeon McGown again visited the Gilbert River, Forest Home, Georgetown, and Forsyth districts in May last, to further investigate the so-called "Walk-about disease," but no cases were available, the last having died at Forest Home a fortnight previous to his visit. Arrangements were made with various stock-owners to collect and forward to Townsville quantities of weeds and suspected plants for feeding experiments. As the disease only makes its appearance after rain and during the period of the year from January to April, feeding experiments have not yet been carried out.

Inspector Gallagher reported from Mareeba in December that whilst on patrol he had the opportunity of observing the so-called "Chillagoe disease." He pointed out that the disease is very prevalent throughout the Chillagoe district, thence up the Tate River and through the Georgetown, Percy, and Gilbert River country, and appears almost every year, between the months of September and December, when the mortalities average about 50 per cent. The symptoms noticed were:—Horse isolates himself, if possible in a shady place. Head held low, greenish-coloured discharge from both nostrils, severe cough, refusal of food, difficulty in swallowing when drinking, when water returns by both nostrils. Temperature varies from 102 degrees F. to 105 degrees F. Animal usually survives until about the eleventh day. Owners reported that when horses did recover they were seldom of any use, and that the disease had existed on the Percy River for forty years. Inspector Gallagher stated that after carefully observing some twelve cases he was of opinion that the disease was similar to severe influenza, and that if owners isolated sick animals and disinfected water troughs, &c., the disease would be quickly stamped out.

It is hoped that the veterinary surgeon stationed in Townsville will have the opportunity to further investigate these diseases, as the cause or causes are very obscure at present.

TICK BOARD.

The educative work initiated by the Board at its inception was continued during the year under review, with satisfactory results. The primary objects desired to be achieved by the formation of the Board were the prevention of the incursion of ticks into clean country, and the dissemination amongst stockowners of a general knowledge of the advantages of cleansing their herds of the tick. As a result, a large number of co-operative and private dips have been erected in the heavily infested districts, and these dips have secured marked success, more particularly in the drought-stricken parts.

In the Gulf and Cooktown districts, in response to repeated requests by inspectors for the provision of necessary cleansing facilities on properties where gross infestation was in evidence, owners realised, even if somewhat tardily, that some action was necessary to prevent the depreciation in value of stock through the prevailing tick worry. As a result, a great number of dips have been erected in these areas,

and on some large properties it has been found advisable to have as many as six dips in operation.

The advantage of systematic dipping has been fully demonstrated on Lyndhurst Station, where the herd is in splendid condition as a result of freedom from gross infestation.

Special efforts have been made to ensure the cleanliness of travelling stock from Gulf areas to the Queensland Northern Railway, and, in accordance with the policy adopted, dipping facilities provided by the Government at Donor's Hills and Kajabbi have been utilised. Unfortunately, owing to unforeseen conditions caused by floods, the Donor's Hills dip has been out of commission recently, but during this period the Sedan dip has been available.

There is no doubt that the reduction of the tick pest, and the comparative cleanliness of stock trucking from Northern Railway centres, will be shown in the improved condition when they arrive at the meatworks.

The extension of the tick pest in the Aramac and Muttaborra areas has caused anxiety. Although owners of properties between Hughenden and Prairie on the north and Aramac on the south have provided dips for the cleansing of their own and travelling stock at certain important centres on the main routes, it is a matter for regret that those stockowners most vitally interested in the Muttaborra area have not yet taken steps to erect a dip at that centre. Until dipping facilities are provided at Muttaborra, the movement of travelling stock to southern or western clean areas, *via* that town cannot be permitted. The appearance of ticks on Acacia Downs, Aramac Creek, Crossmore, Mount Cornish, Bowen Downs, and the grazing farms on Tower Hill Creek is an indication that climatic conditions are not unfavourable to this pest in the district. Pending definite official advice, which would indicate the disappearance of ticks from the areas named, it was considered inadvisable to lift the quarantine on the Longreach Common.

Ticks were discovered on properties in the Mackinlay areas in the early part of the present year, and it has been found necessary to detail one officer for patrol and cleansing work in that district.

The Kynuna dip is commissioned for the cleansing of stock travelling from northern areas, *via* Kynuna to Winton, in a south-westerly direction, and the Board is fully alive to the necessity for keeping the Winton area clean. The Winton-Elderslie route is still under suspicion, and, until the restrictions are removed, cattle cannot travel by that direct route to the Diamantina.

In view of the fact that the Boulia area has been maintained clean throughout the year, unremitting vigilance is necessary to continue this satisfactory state of affairs, and until dipping facilities are provided near the Burke rabbit fence gate, direct movements of stock down the Burke route to Boulia are prohibited, but stock, if dipped twice under supervision (with the usual interval) at Cloncurry or other dips on the Northern line, can be railed in disinfected trucks to Butru or Dajarra, thence down the Wills route.

Dipping restrictions still apply in connection with the introduction of cattle from the

Northern Territory. Entry is confined to the crossing place at Lake Nash, and the previous decision to enforce two dippings at recognised intervals prior to entry is adhered to, with the exception of a provision permitting the entry of fat cattle for the meatworks on one dipping, if found clean, on a 10 per cent. crush inspection at Austral Downs.

The Yelvertoft dip is now in commission, and with the Rocklands dip may be utilised for the dipping of stock from the Cloncurry area, travelling in a southerly direction *via* Rocklands, Austral Downs, and the Georgina River route, re-entering Queensland at Lake Nash.

The necessity for supervision of travelling stock entering the Burnett area from the tick-infested Banana and Gladstone areas was recognised, and officers have been recently appointed at Camboon and Cania Stations to supervise dippings at those centres.

In view of the large areas controlled by each inspector, and the necessity for strict supervision of dipping operations in cases where travelling stock are removed from infested or suspected areas to clean districts, the inadequacy of transport by horse has become increasingly evident, and many officers have been supplied

with motor cycles. It is apparent that this mode of transport must be adopted much more generally than hitherto.

CLEANSING AREAS.

Helidon Area.

Cleansing operations have been somewhat retarded owing to drought conditions. During a considerable portion of the period under review, cattle died from poverty in many cases, and others were too weak to be mustered for inspection or dipping. Notwithstanding these disadvantages, good progress has been made, as there are now only seventy-four infested holdings, as compared with 387 last year. It is anticipated, given normal seasons, that the whole of the original area will soon be cleansed. Last year, fifty-seven holdings, comprising about 10,000 acres, were declared free from ticks, and dipping restrictions removed. This year a further area has been released, viz., about 279 holdings, approximating about 60,000 acres, carrying over 9,000 head of stock. Arrangements are now being made to extend the original area by including adjoining tick-infested country.

| | | |
|-------------------|---------|---------|
| Holdings visited | .. .. . | 3,751 |
| Stock inspected | .. .. . | 126,589 |
| Infested holdings | .. .. . | 74 |
| Stock dipped | .. .. . | 13,930 |

STOCK MOVEMENTS.

| 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. |
| 793 | 4,180 | 678 | 1,604 | 9,011 | 130 | 2,999 | 30,973 | 23 | 1,098 | 13,832 | 64 | 318 |

South Burnett Area.

Drought conditions prevailed during the greater portion of the year. Rainfall of a patchy nature was experienced during January, but thorough relief was not obtained until June, when the whole district benefited. Stock losses were few in the cleansing area as compared with those amongst tick-infested stock outside the area. It is recognised by all practical stock-

owners that clean cattle can withstand drought conditions to a greater degree than those tick infested. Only seven holdings were found infested, as compared with twenty-six the previous year.

| | | |
|-------------------|---------|--------|
| Holdings visited | .. .. . | 238 |
| Stock inspected | .. .. . | 29,377 |
| Infested holdings | .. .. . | 7 |
| Stock dipped | .. .. . | 48,527 |

STOCK MOVEMENTS.

| 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. |
| 719 | 10,377 | 3,560 | 2,026 | 33,054 | 25 | 19,448 | 289,601 | 3,833 | 231 | 48,296 | 16 | 53 |

Miles-Chinchilla Area.

Unusually dry conditions were experienced until January. Cleansing operations have been confined to the south-western portion of the area. The low condition and weakness of stock curtailed operations considerably.

| | | |
|-------------------|---------|---------|
| Holdings visited | .. .. . | 1,301 |
| Stock inspected | .. .. . | 105,324 |
| Infested holdings | .. .. . | .. |
| Stock dipped | .. .. . | 8,649 |

Stock movements in this area for the six months ended the 30th June, 1920, are as follows:—

STOCK MOVEMENTS.

| 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. |
| 3,086 | 23,740 | 25,975 | 1,950 | 17,662 | 16,840 | 4,756 | 98,174 | 72,838 | 427 | 10,704 | 45 | 32 |

Tallebudgera Area.

Very dry climatic conditions prevailed. Regular dippings were carried out in the Coolangatta portion of the area. The fence erected to prevent cows straying from the Coolangatta area was again rendered useless, owing to rough weather conditions breaking down that portion running from high-water to low-water mark. Concrete piles are about to be erected, and it is

hoped these will make the fence more permanent. A caretaker has been appointed to supervise the gates and fence.

| | |
|-------------------|--------|
| Holdings visited | 480 |
| Stock inspected | 21,174 |
| Infested holdings | 57 |
| Stock dipped | 18,621 |

STOCK MOVEMENTS.

| 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. |
| 367 | 3,154 | 2,017 | 239 | 3,826 | 30 | 148 | 2,880 | 46 | 747 | 17,874 | 6 | .. |

DIPS.

The number of dips registered in the State totals 3,795, as compared with 3,623 last year. Particulars of dips registered in the various stock districts are as follow:—

| Stock District. | Number. |
|-----------------|--------------|
| Barcaldine | 3 |
| Bowen | 185 |
| Brisbane | 980 |
| Cairns | 174 |
| Clermont | 42 |
| Cloncurry | 27 |
| Cooktown | 34 |
| Gladstone | 294 |
| Hughenden | 29 |
| Maryborough | 1,176 |
| Normanton | 22 |
| Rockhampton | 427 |
| Roma | 41 |
| Springsure | 50 |
| Toowoomba | 81 |
| Townsville | 195 |
| Warwick | 33 |
| Winton | 2 |
| Total | 3,795 |

far below the recognised standard of 8 lb. of active arsenic per 400 gallons of fluid. When dipping stock in cleansing areas, or prior to removal to clean areas, the Department insists upon a dip of the above strength, but in other cases owners often use fluids much below the strength. Particulars of dipping fluids in Southern and Central Queensland, analysed by the Agricultural Chemist, will be found in his report. Those for North Queensland are as follow:—

| | |
|--|-----------------|
| 8 dip samples or 1.3% contained less than 2 lb. | Active arsenic. |
| 19 dip samples or 4.2% contained from 2 to 4 lb. | |
| 86 dip samples or 15.0% contained from 4 to 6 lb. | |
| 74 dip samples or 13.7% contained from 6 to 7 lb. | |
| 103 dip samples or 19.3% contained from 7 to 8 lb. | |
| 96 dip samples or 18.0% contained from 8 to 9 lb. | |
| 63 dip samples or 11.6% contained from 9 to 10 lb. | |
| 90 dip samples or 16.8% contained from 10 lb. and over | |

of which—

| | |
|---|-------------------|
| 28 dip samples or 5.2% contained over 4 lb. | Oxidized arsenic. |
| 16 dip samples or 3.0% contained from 3 to 4 lb. | |
| 16 dip samples or 3.0% contained from 2 to 3 lb. | |
| 12 dip samples or 2.2% contained from 1 to 2 lb. | |
| 10 dip samples or 2.0% contained less than 1 lb. | |
| 451 dip samples or 84.6% that were free or contained only a trace | |

DIPPING FLUIDS.

The portable dip tester has been found of great assistance to stock inspectors and stock-owners.

Analyses made by the Agricultural Chemist of dipping fluids show that the majority are

PLEURO-PNEUMONIA CONTAGIOSA.

Sixty-two outbreaks were reported, as compared with 106 in the previous year. The following tabulated list shows districts and number of outbreaks:—

| District. | 1919. | | | | | | 1920. | | | | | | Total. |
|--|----------|-----------|-----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|-----------|
| | July. | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | March. | April. | May. | June. | |
| Barcaldine | 1 | 6 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 8 |
| Bowen | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Brisbane | 1 | 1 | .. | .. | 1 | .. | .. | 2 | 1 | .. | 1 | 1 | 8 |
| Charleville | 1 | .. | 3 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 5 |
| Clermont | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Cloncurry | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 3 |
| Cunnamulla | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| Gladstone | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | 1 | 3 |
| Hughenden | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| Julia Creek | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Longreach | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 |
| Maryborough | 1 | 1 | 3 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 7 |
| Richmond | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Rockhampton | .. | 2 | 1 | .. | 1 | .. | .. | 1 | 3 | .. | 1 | .. | 9 |
| Roma | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Springsure | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Toowoomba | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Townsville | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | .. | .. | 3 |
| Warwick | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Windsorah | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Winton | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Total | 9 | 12 | 11 | 1 | 7 | 1 | .. | 4 | 6 | 3 | 3 | 5 | .. |
| Total number of outbreaks in Queensland | | | | | | | | | | | | | 62 |

TUBERCULOSIS.

One hundred and sixty animals were subjected to the tuberculin test, of which number only one reacted. Three gave a doubtful reaction, and will be retested at a later period. The condemnation of meat affected with this disease is slightly less than the previous year, but, as pointed out on other occasions, the losses could still be considerably reduced if owners realised the importance of the subject. It is much more profitable to destroy all wasters on runs rather than let them spread the disease to others. Pigs, if properly fed, would not be so frequently diseased, but in many cases owners consider anything is good enough for this animal, uncooked diseased offal, infected milk, or any other contaminated food. Tuberculosis is certainly not so prevalent in this State as it is in some other countries, where severe winters are experienced, which necessitates the housing of stock for practically six months of the year. The ventilation and hygiene in many of the byres is so defective that the housing assists materially in spreading the disease. It is well known that the greatest source of infection with tuberculosis, through cattle, to which man (more particularly children) is exposed, is milk, and in this connection attention is again drawn to the remarks on this subject contained in my report for 1915-1916, page 82.

NATIVE FUCHSIA OR GIDYEA POISONING.

Inspector Comiskey, of Urandangie, was instructed to carry out feeding experiments, but, owing to the scarcity of Gidyea pods this year, these experiments were limited. He visited Roxburgh at the end of October, when two cows were fed exclusively on pods and leaves for five days. The animals, except when being watered, were held in yards. The food apparently caused no ill-effects, although the animals were purposely driven excessively after watering.

In January, Inspector Hardy, who was relieving Inspector Comiskey, forwarded a sample of weed, locally called the "Desert Weed." It grows largely on the Georgina River and in the Gidyea timber during the months of November and December. The Government Botanist, Mr. C. T. White, who examined the specimen, reported that it was the *Euphorbia australis*, and that it was reputed poisonous to sheep in the Northern Territory. Other species of the genus are also supposed to be fatal to stock, the best known of which is probably the *Euphorbia drummondii* (Caustic Creeper), but feeding experiments on sheep yielded only negative results. Inspector Patullo had stated previously that $\frac{1}{2}$ lb. fed to a goat produced fatal results in eight or nine hours; also that a bullock he had noticed feeding on this weed at 3 p.m. died within two hours. It is always considered by stockowners that the "Caustic Creeper" is fatal to stock in moist or wet weather. Before the cause of the deaths, which occur annually, in the Georgina country, can be definitely stated, comprehensive feeding experiments in the district are essential.

SUSPECTED GROUNDSELL TREE POISONING

(*Baccharis halimifolia*).

Owing to this plant having been suspected of poisoning stock, feeding experiments were carried out at the Stock Experiment Station, in November last, but without any detrimental effects to the animals. The following are the reports of Mr. J. A. Rudd, L.V.Sc., and Mr. C. T. White, Government Botanist. Mr. Rudd reports, under date 18th November, 1919, as follows:—

"I have the honour to report for your information that, acting under your instructions, feeding experiments in order to ascertain whether *Baccharis halimifolia* was harmful to stock were carried out at the Yeerongpilly Experimental Station.

"Two heifers (Jersey grade) in store condition were fed continuously for a period of thirteen days.

"Heifer No. 416 during this period was fed on 45 lb. of the chaffed green leaves of *Baccharis halimifolia* plus 59 $\frac{1}{2}$ lb. of mixed chaff and silage. She consumed 35 lb. of *Baccharis* and all the chaff.

"Heifer No. 421 was also fed for thirteen days and consumed 36 lb. of *Baccharis* plus 59 $\frac{1}{2}$ lb. of mixed chaff and silage.

"Neither of these heifers showed any signs of ill-health, and when turned out into a paddock adjoining the stalls, at the end of thirteen days, frisked about the paddock. Ample water was provided, and they were fed three times a day.

"The leaves of *Baccharis halimifolia* were procured by Mr. White, the Government Botanist, who watched the feeding experiment closely.

"It was considered advisable to feed on a ration of mixed chaff and leaves in almost equal proportions, as there was insufficient nutriment in the leaves alone to support life.

"Three guinea-pigs were fed for about twelve days on the leaves of *Baccharis halimifolia*, and ate them with avidity.

"One died, and *post-mortem* examination proved that the internal viscera were normal and full of partially digested food. This animal was greatly emaciated, and, although apparently the food was bulky, it lacked the necessary nutriment material to support life, and death had resulted from malnutrition. The two remaining animals looked healthy, but greatly emaciated and anæmic. These were started again on their normal ration and have since done well.

"From my observation of the feeding of these two heifers on *Baccharis halimifolia*, I am of the opinion—

1. That cattle do not readily feed on *Baccharis halimifolia*.
2. That if they were placed solely on a diet of *Baccharis halimifolia* they would die of malnutrition, as the proportion of nutriment material to bulk is insufficient to support life for any length of time.
3. That cattle will only take to feeding on *Baccharis halimifolia* when there is no other food available.

4. That travelling cattle should not be turned out into a paddock of *Baccharis halimifolia* after having been driven long distances on a waterless stage, bare of food, as, if they gorge on the leaves of *Baccharis halimifolia*, there is a possibility of gastritis resulting, from which they are not likely to recover, unless fed on green succulent food and nursed back to health.
5. That if *Baccharis halimifolia* contains an alkaloid prejudicial to the health of stock, there was no evidence of it during the time these heifers were fed on the green leaves.
6. That if *Baccharis halimifolia* contains an alkaloid injurious to stock, it is present in such small quantities as not to affect cattle to any appreciable extent.
7. There was a tendency to constipation after the first few days, which condition continued right throughout the feeding experiment."

Mr. White reports, under date 14th November, 1919, as follows:—

"In consequence of a report by the Government Entomologist on the supposed poisoning of stock on the property of Mr. J. Raddatz, of Beerwah, by the Groundsel Tree (*Baccharis halimifolia*), feeding experiments were carried out on two calves at the Stock Experiment Station, Yeerongpilly. Fresh supplies of leaves were supplied at least every second day for a fortnight. The calves seemed little or none the worse for the daily supply of leaves, and ate a good deal more of the plant than they would do under ordinary circumstances. At the same time, as a definite alkaloid has been found in another species of the genus (*B. cordifolia*) poisonous to stock in South America, I would further recommend that fresh supplies be handed over to the Agricultural Chemist for examination for the presence or non-presence of an alkaloid. If the latter is the case, this should finally settle the matter. I might point out the genus is a very large one, consisting of several hundred species, and it would not at all follow that a poisonous property contained by one is present in others."

NORTH COAST DISEASE.

During January and February, reports were received that deaths were occurring in cattle from some unknown cause. Losses were reported from the following centres:—Maleny, Landsborough, Glass House Mountains, Caloundra, Buderim, Eudlo, and Maroochy.

The symptoms in all cases were very similar. The first indication was a slight stiffness of movement associated in the majority of cases with incontinence of urine. In other respects the beast appears perfectly healthy, appetite good, eye bright, coat sleek, temperature, respiration, and pulse normal. This motor disturbance gradually increases during the following week or so. By this time a paralysis, involving the large muscles of the back, usually on one side, has become manifest. When standing at rest no disability is noticeable, but on movement, the spinal column, posterior to the withers, is acutely flexed.

The tail is also noticeably raised and carried to one side. The beast can no longer move directly forward, progression being of a sideways nature. In a small percentage of the cases observed the paralysis appeared to involve the muscles on both sides of the backbone. At this stage, when the beast lies down it cannot regain the upright position without assistance.

The general health still remains good, appetite unimpaired; temperature, pulse, and respiration normal. Within the succeeding week or fortnight the complaint has advanced to such a degree that the animal can no longer maintain the upright position, even when assisted to rise, and is either destroyed by the owner or succumbs to exhaustion. Rarely if ever can death be ascribed directly to the complaint.

For many years it has been well known that cattle continuously running on the coastal areas in these localities suffered from *Osteo malachia*, due to an insufficiency of lime salts in the pasturage. The complaint under review cannot be ascribed to this cause. During the late drought numbers of cattle, including the majority of working bullocks in the district, were shifted to the coastal areas between October and December. The first losses occurred in December, prior to the general rains. Early in January the greater number were returned to their original pastures, which, owing to the rains, were growing luxuriantly. Numbers were noticed to be stiff when returning. These developed the disease and were either destroyed or died. Others developed the symptoms even several weeks after their return. *Post mortem* examination revealed no lesions or pathological changes, except in every case distention and paralysis of the urinary bladder.

Microscopic examination of smears from the blood, kidneys, liver, spleen, and spinal cord have to date given negative results. Chemical investigations are now being pursued. So far, medicinal treatment has not been successful.

Many stockowners in the affected districts attribute the cause of sickness to the animals eating one variety of grasstree. This grows extensively on the country where the cattle were running, and, strange to relate, cattle in paddocks in the immediate vicinity in which no grasstree was growing, remained healthy; but a number of these animals, when turned out where grasstree was available, developed the complaint. Although nothing positive at present can be attributed to the particular variety of grasstree, experiments are being carried out as the opportunity arises. As this ailment has only occurred in the summer months, it is possible that the plant may not be injurious during other portions of the year.

Investigations to date point to the following conclusions:—

- (1) Only animals which have been running on the low barren coastal areas have been affected.
- (2) The disease does not appear to be infectious.
- (3) The bulk of evidence shows that death rarely, if ever, results actually from the complaint.

- (4) The length of time which elapses between the arrival of the beast on the coastal pastures and the initiatory stage of the disease is variable. In some cases, death occurred within a few weeks of arrival; in others, several weeks after removal from the area.
- (5) The complaint occurred in stock running on the coastal area between October and February.

INFECTIOUS PNEUMONIA OF CALVES.

This affection has been fairly prevalent, both in North and South Queensland. Strict isolation of infected calves, necessitating the erection of additional yards for animals under three or four months of age, has been recommended, because it is recognised that clean yards and houses, together with suitable food, will do much to prevent the spread of the disease.

SHEEP.

Mr. W. G. Brown, Instructor in Sheep and Wool, reports under date 25th August, 1920:—

“Herewith a summary of work done by my Department in regard to sheep up to 30th June, 1920. The seasonal conditions have been droughty, consequently there has not been any serious parasitical infestations such as stomach-worm, blow-fly, nasal-fly, &c. The occurrence of rain in June, however, must sooner or later lead to a recurrence of these pests.

“I would call your attention to the fact that the nasal-fly (*Oestrus ovis*) is now widespread in Queensland. It first was found in the Darling Downs, being introduced by a shipment of rams from New Zealand in 1906; since then it has been reported from Longreach, Cunnamulla, Mungindi, Goondiwindi, Springsure, Darling Downs, and is probably widespread over all the sheep districts of Queensland. It is difficult to say what harm is being done by it, as there is no evidence that sheep are actually killed by the presence of the fly. A Victorian authority says that the administration of a spoonful of kerosene or petrol in the nostrils of the sheep will remove the grub in the early stages.

“Stomach-worm (*Strongylus contortus*) is now widespread, although not as virulent as it usually is in good seasons. The erroneous idea that this pest cannot live in the dry West is now shattered, for it is to be found almost everywhere in the South-West, on the desert country about Jericho and Alpha, the Roma district, Surat, and St. George. It causes serious losses, especially in the young animals. A campaign against it, such as is being waged against the cattle-tick, is imperative if Queensland flocks are to increase and improve. The life history of this parasite is well known, therefore it should not be a difficult problem. Balanitis or Bad Pizzle is still prevalent, but pastoralists have an easy and certain remedy in the use of the scissors to slit the sheath.

“The blow-fly has not been in serious evidence, owing to the dryness of the year. It is believed, also, that the big proportion of sheep farmers are keeping the yards, camping places, and wells free of carcase, and are also taking more precautions, such as crutching, jetting, and use of good dressings, than when the pest did such damage a few years ago. The experiments

at Dalmally, Roma, have reached an interesting stage, and important results are expected in the near future.

“There is abundance of feed everywhere in the sheep districts, and the pastoral industry should soon be in a flourishing condition.”

SWINE FEVER.

In September an outbreak of Swine Fever occurred in Northern Queensland, in the Malanda District, affecting a herd of about 121. Forty pigs died, and the remainder were slaughtered. Up-to-date sties and yards, which had cost approximately £250, were destroyed. The owner had only been pig-farming about six weeks when the outbreak occurred, and the pigs had been purchased from nine different owners. The country within a 10-mile radius of the infested area was quarantined until the end of February, and a systematic examination of all pigs made. Although several pigs were discovered sick, the cause of outbreak could not be traced. It is considered that some owners failed to report cases of sickness to avoid quarantine, and probably sick pigs were disposed of by sale, or destruction, before the outbreak was reported. In a few instances it was found that all pigs on certain properties had been destroyed, the reason given being shortage of food.

PARASITIC MANGE IN WILD PIGS.

Slaughtering Inspector Rheuben, of Townsville, reported having noticed several pigs, the skins of which after dressing showed numerous small greyish-white tubercles, in size slightly larger than a pin's head. Specimens were examined at the Tropical Institute and found to be due to the *Demodex folliculorum*. Wild pigs only appear to be affected, although, in some local piggeries, young wild pigs were caught and allowed to run with the domestic pig. The area from which affected cases were noted extended from about 10 miles north of Townsville to 30 miles south.

“THE SLAUGHTERING ACT OF 1898.”

Much good work has been accomplished by the various inspectors in bringing the slaughtering yards and shops up to a higher standard, but in many cases there is still room for improvement. From a public health point of view, private slaughter yards are to-day much better than they have ever been, but as each inspector has several yards to supervise, the inspection of meat is fragmentary. Further, meat inspection is of such a nature that frequently a laboratory is essential for microscopical examinations, which cannot be carried out at private yards. Thorough inspection of meat, for the elimination of disease, cannot be perfected until abattoirs are established. Unrestricted competition in the retail sale of meat and by-products cannot obtain until facilities are provided for the slaughtering of animals in properly established abattoirs. The export trade is also restricted to the operations of the large export companies already in possession of suitable slaughtering and freezing works. In the other States of the Commonwealth, the modern conditions necessary for the above purposes are in operation. With the entry of this State into the distribution and retail of meat, the establish-

ment of abattoirs for the proper and economical conduct of its business will become imperative.

The Senior Slaughtering Inspector has continued his inspection of yards and shops in country districts. During the year under review he visited Rockhampton, Emerald, Ruby Vale, Sapphire Town, Jericho, Alpha, Barcardine, Longreach, Springsure, Duaringa, Mount Morgan, Mount Usher, Glenmore, Struck Oil, Styx River, St. Lawrence, Flaggy Rock, Carmilla Creek, Mount Perry, Bundaberg, Wooroolin, Goomeri, Wondai, Kumbia, Kingaroy, Boobie, Murgon, Tara, Warra, Dalby, Brigalow, Wallumbilla, Morven, Charleville, Pittsworth, Millmeran, Southbrook, Goombungee, Haden, Kingsthorpe, Warwick, Allora, Summit, Stanthorpe, Toogoolawah, Esk, Coominya, Nambour, Redcliffe, Numinbah, Currumbin, and Coolangatta.

Thirty new slaughter yards have been erected, and three reconstructed to comply with the regulations. It is noted that the obsolete

insanitary yards are getting fewer year by year, and although the Senior Slaughtering Inspector has not yet been able to visit centres north of Mackay, reports show that the inspectors stationed in the northern towns are bringing the yards and shops up to a much higher standard. Twenty-two new shops have been erected, two of which cost over £1,000 each, including refrigerating plant, but exclusive of land, whilst the cost of others varied from £120 to £600. Many other shops were renovated.

During the last four and a-half years these itinerant inspections have resulted in the erection of no less than 163 new yards, and 30 reconstructed. In addition to this number, 83 new yards were constructed in other districts, making a total of 246 new yards and 30 reconstructed.

There was an increase in the number of cattle, calves, and sheep slaughtered during the year, but a decrease in the number of pigs. Condemnations also show a slight decrease.

TOTAL OF STOCK SLAUGHTERED AND CONDEMNED AT SLAUGHTER-HOUSES AND BACON FACTORIES FOR TWELVE MONTHS ENDED 30TH JUNE, 1920.

| Description of Stock. | Number of Stock Slaughtered. | Carcasses and Portions Condemned. | Disease. | Percentage. |
|-----------------------|------------------------------|-----------------------------------|------------------|-------------|
| Bullocks | 54,775 | 105 carcasses | Tuberculosis | .192 |
| | | 159 forequarters | Tuberculosis | .290 |
| | | 14 hindquarters | Tuberculosis | .025 |
| | | 1,109 heads | Actinomycosis | 2.023 |
| | | 12 carcasses | Poverty | .022 |
| | | 11 carcasses | Actinomycosis | .020 |
| | | 7 carcasses | Emaciation | .012 |
| | | 6 carcasses | Bruised | .011 |
| | | 2 carcasses | Redwater | .004 |
| | | 2 carcasses | Jaundice | .004 |
| | | 1 carcass | Abscess | .002 |
| | | 1 carcass | Malignant growth | .002 |
| | | 12 forequarters | Pleuro-pneumonia | .022 |
| | | 1 forequarter | Bruised | .002 |
| | | 1 hindquarter | Bruised | .002 |
| | | 1 hindquarter | Abscess | .002 |
| | | Cows | 10,986 | 41 heads | Abscesses | .075 |
| 82 carcasses | Tuberculosis | | | .746 |
| 45 forequarters | Tuberculosis | | | .355 |
| 3 hindquarters | Tuberculosis | | | .027 |
| 226 heads | Actinomycosis | | | 2.057 |
| 14 carcasses | Emaciation | | | .127 |
| 7 carcasses | Poverty | | | .063 |
| 5 carcasses | Redwater | | | .045 |
| 3 carcasses | Pleuro | | | .027 |
| 2 carcasses | Bruised | | | .018 |
| 1 carcass | Actinomycosis | | | .009 |
| 1 carcass | Abscess | | | .009 |
| 1 carcass | Jaundice | | | .009 |
| 12 forequarters | Pleuro-pneumonia | | | .108 |
| 1 forequarter | Bruised | | | .009 |
| 1 hindquarter | Bruised | | | .009 |
| 1 hindquarter | Abscess | | | .009 |
| 2 heads | Abscesses | .018 | | |
| Calves | 12,110 | 208 carcasses | Immature | 1.717 |
| Pigs | 147,503 | 1,212 carcasses | Tuberculosis | .822 |
| | | 9,827 heads | Tuberculosis | 6.296 |
| | | 7 carcasses | Abscesses | .005 |
| | | 4 carcasses | Skin disease | .002 |
| | | 4 carcasses | Jaundice | .002 |
| | | 2 carcasses | Pneumonia | .001 |
| | | 1 carcass | Emaciation | .005 |
| | | 97 heads | Abscesses | .065 |
| | | 130 carcasses | Emaciation | .042 |
| | | 6 carcasses | Abscesses | .002 |
| Sheep | 311,765 | | | |

The following is a tabulated list showing the number of pigs slaughtered, condemned, &c., at bacon factories. It does not include pigs slaughtered at slaughter-houses, as is shown in the other list:—

| Description of Stock. | No. of Pigs Slaughtered. | Carcasses and Portions Condemned. | Disease. | Percentage. |
|-----------------------|--------------------------|-----------------------------------|--------------|-------------|
| Pigs | 127,248 | 1,105 carcasses | Tuberculosis | .869 |
| | | 8,591 heads | Tuberculosis | 2.759 |

NEWMARKET SALE YARDS.

| Stock Sold. | | | | Average Prices. | | | |
|-------------|----|----|---------|-----------------|----|----|----------------------|
| Cattle | .. | .. | .. | Bullocks | .. | .. | £14 10s. to £15 10s. |
| Calves | .. | .. | .. | Cows | .. | .. | £10 0s. to £10 10s. |
| Sheep | .. | .. | .. | Sheep | .. | .. | £1 8s. to £1 10s. |
| Lambs | .. | .. | .. | Lambs | .. | .. | £1 3s. to £1 4s. |
| | | | 34,455 | | | | |
| | | | 7,252 | | | | |
| | | | 265,269 | | | | |
| | | | 26,666 | | | | |

The following table shows stock movements for the various stock districts:—

| 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. |
| Barcardine .. | 609 | 878 | 26,290 | 1,134 | 14,063 | 433,786 | 3,303 | 24,809 | 352,976 | 505 | 22,022 | 2,390 | .. |
| Bowen .. | 192 | 8,876 | 370 | 696 | 6,850 | .. | 7,367 | 35,595 | 617 | .. | .. | .. | .. |
| Brisbane .. | 3,521 | 111,393 | 468,639 | 1,891 | 35,097 | .. | 6,940 | 81,725 | 84,319 | 422 | 26,121 | 438 | 137 |
| Cairns .. | 697 | 3,196 | 1,830 | 1,269 | 4,642 | 44,537 | 2,669 | 17,969 | 306 | .. | 13,210 | .. | .. |
| Charleville .. | 867 | 28,099 | 43,544 | 5,183 | 53,529 | 393,126 | 6,041 | 59,887 | 331,194 | .. | .. | .. | .. |
| Clermont .. | 225 | 3,443 | 23,339 | 345 | 34,484 | 50,828 | 4,135 | 24,356 | 65,167 | 40 | 6,171 | 18 | 3,000 |
| Cloncurry .. | 2,643 | 54,421 | 86,747 | 6,991 | 85,853 | 96,432 | 7,727 | 50,231 | 87,782 | 1,858 | 90,355 | .. | .. |
| Cunnamulla .. | 3,093 | 6,667 | 61,889 | 3,149 | 37,527 | 240,208 | 5,521 | 31,900 | 231,229 | .. | .. | .. | .. |
| Gladstone .. | 920 | 9,341 | 8,546 | 1,158 | 27,725 | 6 | 2,681 | 30,534 | .. | 384 | 15,165 | .. | .. |
| Helidon .. | 793 | 4,180 | 678 | 1,604 | 9,011 | 130 | 2,999 | 30,973 | 23 | 1,098 | 12,832 | 164 | 318 |
| Hughenden .. | 1,374 | 14,961 | 176,667 | 1,860 | 35,311 | 124,605 | 3,008 | 23,541 | 329,284 | 62 | 18,972 | 300 | .. |
| Longreach .. | 771 | 11,607 | 91,240 | 3,347 | 18,505 | 881,577 | 7,120 | 5,022 | 712,457 | .. | .. | 4,067 | 294 |
| Maryborough .. | 2,403 | 30,705 | 4,147 | 4,485 | 66,462 | 4,810 | 11,278 | 162,686 | 3,092 | 2,348 | 130,514 | 111 | 150 |
| Normanton .. | 263 | 4,810 | 10 | 1,973 | 27,371 | .. | 1,332 | 6,560 | .. | .. | 22,446 | .. | .. |
| Rockhampton .. | 1,298 | 37,401 | 44,334 | 3,140 | 30,473 | 22,588 | 9,690 | 144,762 | 18,597 | 74 | 2,159 | 69 | 61 |
| Roma .. | 2,469 | 44,420 | 153,178 | 5,002 | 83,350 | 677,782 | 14,496 | 160,420 | 786,675 | 327 | 13,670 | 169 | 272 |
| South Burnett .. | 749 | 10,026 | 3,560 | 2,030 | 34,056 | 25 | 19,409 | 292,484 | 3,833 | 244 | 48,298 | 16 | 63 |
| Springsure .. | 903 | 5,565 | 10,530 | 2,719 | 35,532 | 44,323 | 2,681 | 18,330 | 164,969 | 3,292 | 11,376 | 1,840 | .. |
| Tallebudgera .. | 367 | 3,154 | 2,017 | 239 | 3,826 | 30 | 148 | 2,880 | 46 | .. | .. | 6 | .. |
| Toowoomba .. | 9,527 | 77,304 | 186,885 | 12,840 | 127,934 | 284,904 | 28,182 | 358,598 | 442,687 | 1,407 | 64,308 | 721 | 1,766 |
| Townsville .. | 200 | 16,754 | 18,397 | 4,296 | 15,503 | 13,321 | 5,984 | 47,611 | 509 | 477 | 3,705 | 61 | 23 |
| Winton .. | 913 | 13,441 | 18,440 | 2,474 | 16,661 | 132,811 | 1,589 | 14,883 | 438,624 | .. | 11,071 | .. | .. |

PIGS INTRODUCED AT TWEED HEADS.

Seventeen thousand six hundred and forty-three pigs were inspected at the Border at the time of entry into this State.

ARTHUR H. CORY, M.R.C.V.S.,
Chief Inspector of Stock.

APPENDIX I.

REPORT BY MR. A. MCGOWN, M.R.C.V.S., GOVERNMENT VETERINARY SURGEON,
TOWNSVILLE.

I have the honour to report that during my tenure of office as Veterinary Surgeon, at Townsville, viz., from 9th February until the 17th July, the following places were visited in my official capacity:—Macrossan, Charters Towers, Aitkenvale, Hughenden, Bowen, Proserpine, Ravenswood Junction, Toonpan, Brandon, Cairns, Molloy, Mareeba, Gilbert River, Alma-den, Georgetown, Forsayth, Biboohra, Mackay.

The following diseases were investigated:—Tetanus, tuberculosis, redwater, strangles, walk-about disease, arsenical poisoning in cattle, blight in cattle, pleuro-pneumonia, swamp cancer, paralysis in foals, ophthalmia in horses, filaria in dog, and actinomycesis.

Seventeen visits were paid to the Experimental Station, where a series of experiments were begun regarding the nodules in beef, due to the parasite *Onchercus gibsoni*, with flies caught by Mr. Inspector Rheuben and identified by Mr. J. F. Hill, Entomologist, Tropical Institute, Townsville, as members of the "Tabanidæ" family. I herewith attach copy of letter from Mr. Hill, in which you will notice that two of those flies are so far undescribed. It is interest-

ing to note that Inspector Rheuben found a small worm in the eye of several specimens of those flies, and as a result the experiments above mentioned were begun. One young steer recently purchased from Cameron Downs Station was selected, and after careful examination by Inspector Rheuben and myself, both being satisfied that no nodules were present, a small incision was made in the skin on the right side immediately above the brisket. A small pocket was then made in the subcutaneous tissue, into which the heads of six flies were placed and the external wound closed. The animal was examined periodically, and about the end of two months two distinct nodules could be felt, one at the seat of inoculation and the other two inches further down. This experiment is being closely watched by Mr. J. Legg, M.R.C.V.S., who will report on the further progress.

It is interesting to note that those flies, which have never been identified, have been discovered by an officer of this Department, and it reflects great credit on Mr. Rheuben, who has taken a keen interest in this work. It is also interesting to note that the flies with which the

experiments are being carried out in New South Wales, by Mr. Froggit, were discovered by Mr. Rheuben, and identified by Mr. Hill, five months before Mr. Froggit published his article.

Six eighteen-months-old Shorthorn steers were purchased from Cameron Downs Station for inoculation purposes. Before I left Townsville those animals had been subjected to inoculation, the result of which will be forwarded to you by Mr. Legg.

The following are extracts taken from letters sent to Mr. J. A. Rheuben from the Entomologist, Mr. J. F. Hill:—

“The two ‘*Tabanidæ*’ are: *Silvus australis* distinct, two ‘*Tabanidæ*’ specimens, the latter two being new to me, and almost certainly undescribed.

“It is nearest to the *Tabanus germanicus* from Kuranda and Cairns, but quite a distinct species.

“The *Musca* may be *Musca argenti*, *Squarria*, but it is useless to attempt to determine this definitely until I have a copy of the original description.

“The mosquitoes you forwarded to me are *Culis fatigans*; the other ‘*Muscidæ*’ are *Stomox calcitrans*.

“Other specimens of the ‘*Tabanus*’ would be very acceptable indeed, as it is impossible to describe a new species from a single specimen.

“Any species of ‘*Diptera*’ found in connection with stock or man would be of great

interest to this Institution if you came across such in connection with your duties.”

“Australian Institute of Tropical
Medicine,

“Townsville, 21st March, 1920.

“Mr. J. A. Rheuben,

“Stock Department, Townsville.

“I have to acknowledge the receipt of the following ‘*Diptera*’ collected by you during the month of March:—

“*Tabanidæ*: Thirty-seven specimens, representing four species of the genus *Tabanus*.

“*Sarcophagidæ*: Four specimens.

“*Muscidæ*: Six specimens.

“*Dolichopodidæ*: One specimen.

“The ‘*Tabanids*’ are as follows:—

“Four *Tabanus rufinotatus* Bigot.

“Twenty-nine *Tabanus Obscurilineatus* (Taylor).

“One *Tabanid* (probably a new species).

“Three *Tabanids*, near, but not *Ingritarsis* (Taylor).

“The Male *Tabanus* may prove to be an undescribed male of *Tabanus aprepes* (Taylor), but it is more likely to belong to an undescribed species. The other doubtful species is new to the Institute’s collection, and is almost certainly undescribed.

“More material of both species would be very much appreciated.

“Thanking you for your interest in the work being undertaken at this Institute.”

APPENDIX II.

REPORT BY A. J. MCKENZIE, F.O.V.C., GOVERNMENT VETERINARY SURGEON,
NORTHERN DISTRICT, FOR THE PERIOD 1st JULY TO 31st DECEMBER, 1919.

During the period under review, the greater portion of the district suffered from unusually dry conditions. In a few instances heavy losses of stock resulted.

Outbreaks of disease of a contagious or infectious nature were few. Doubtless this was to some extent due to the dry conditions and the resulting limited movement of stock.

Investigations were made into an unusual form of neurosis affecting foals and yearlings. No history of the earlier symptoms was available, as the animals were running with their mothers on a large holding, and in each case the condition was well advanced when first noticed.

The cases examined had been affected for periods ranging from six months to one year, during which time the owner had carefully watched them, and, so far as he could judge, there had been no improvement.

The animals were well nourished and well grown, and the general health does not appear to have been affected in any way.

The most prominent symptom is loss of control of the muscles of the hindquarters. At a slow walk, the gait is fairly normal, but at a faster pace, and particularly at the trot, the condition becomes pronounced. The hindquarters sway from side to side, and the hind limbs are carried forward with an irregular, laboured action. The condition would appear to be due, not to loss of muscular power, but to loss of co-ordination of muscular movements.

Investigations were also made in the following conditions:—Swine fever, verminous bronchitis, osteo malachia, mammitis, mineral poisonings, dermodex in pig, filaria in dog.

The following centres were visited:—Ayr, Bowen, Charters Towers, Ingham, Cairns, Malanda, Atherton, Einasleigh, and Mount Surprise.

At the Stock Experiment Station, Townsville, immunisation treatment for tick fever was received by a number of stud cattle from southern parts.

REPORT OF THE GOVERNMENT BACTERIOLOGIST.

ADMINISTRATIVE.

The correspondence of this Institution is extensive, and covers a wide range of subjects, and its disposition requires much time. The preparation of careful replies to all letters received, and the personal interviews with stockbreeders, dairy farmers, cheese and butter factory managers, often involve interruption in the constructive work of the Institution, and the routine work, but it seems to be of sufficient importance to justify the time devolved to it.

FEES AND MONIES RECEIVED.

The total amount of money received for work performed, bleeders, blackleg vaccine, pleuro virus, and other laboratory products supplied was as follows:—

| | £ | s. | d. |
|--|--------|----|----|
| Inoculation and stalling of stud animals | 401 | 15 | 10 |
| Bleeders supplied | 336 | 0 | 0 |
| Tick fever blood | 275 | 5 | 0 |
| Blackleg vaccine | 303 | 0 | 0 |
| Pleuro virus | 42 | 12 | 0 |
| Lactic cultures | 29 | 15 | 0 |
| | £1,388 | 7 | 10 |

IMMUNISATION OF STUD CATTLE FOR TICK FEVER.

A total of 140 stud cattle were received during the year to be immunised against tick fever. These animals comprised different breeds of bulls and heifers, as follows:—

| | Bulls. | Heifers. |
|---------------------------|--------|----------|
| Shorthorns | 54 | 26 |
| Hereford | 13 | 17 |
| Aberdeen Angus | 5 | .. |
| Sussex | 1 | .. |
| South Devon | 2 | .. |
| Milking Shorthorn | 5 | 5 |
| Ayrshire | 1 | .. |
| Friesian | 7 | 4 |
| | 88 | 52 |

All the animals recovered from the inoculation fever, but many of them, for several months, were detained at the station owing to the shipping strike, and during this time four animals died.

In three animals, the *post mortem* examination revealed pneumonia with tick fever complications, while the other had general sepsis resulting from wounds on the hind leg.

Arrangements were made for the successful inoculation, by members of the staff, of stud and herd bulls at the following places:—Canning Downs, Gunyan, Jandowae, Moggil, Toowoomba, Beenleigh, Samson Vale, Caboolture, Goodna, Petrie, Rosewood, Cooyar, Nambour, Clifton, Redbank, and Riverview.

Altogether, 1,472 cattle, many of which were stud animals, were inoculated, with a very small percentage of losses, and several of these animals were brought to Brisbane for the annual stud stock sales, and have now been distributed throughout the various tick districts.

The quantity of blood drawn from specially prepared bleeders amounted to 11,010 doses, and was largely used for the inoculation of ordinary station and farmers' cattle.

SUPPLY OF BLEEDERS.

During the past year twenty-four bleeders have been disposed of to meet the requirements of stock breeders. Each of these animals is so carefully tested that its blood, which contains the piroplasma organisms of tick fever, can always be guaranteed to produce a reaction when injected into any susceptible cattle.

These bleeders are all tested for tuberculosis, inoculated for pleuro-pneumonia, and vaccinated against blackleg.

PLEURO-PNEUMONIA VIRUS.

The prevailing dry weather condition had a very marked effect in reducing the number of outbreaks of pleuro-pneumonia, more especially in the Western districts; consequently this necessitated a reduced supply of pleuro virus. Altogether, 10,672 doses of pleuro virus were supplied to thirty-seven applicants, distributed in the following districts:—Cunnamulla, Yeulba, Charleville, Morven, Killarney, Chinchilla, Bell, Esk, Pittsworth, Toogoolawah, Lowmead, Wondai, Goomeri, Richmond, Bowen, Rockhampton, and Logan.

This virus is from natural cases of pleuro-pneumonia, and is guaranteed free from the taint of tuberculosis, septic, and other contaminating organisms, as a result of the very crucial microscopical examination and culture tests which it undergoes.

BLACKLEG VACCINE.

Owing to the drought condition, there was a considerable loss among calves, while, with the survivors, many stockbreeders expressed the opinion that they were far too weak to vaccinate, consequently there was a smaller demand for vaccine than in the previous year. However, our returns show that 15,758 calves were vaccinated against blackleg disease.

LECTURES AND DEMONSTRATIONS.

During the month of June, I attended the Agricultural College, Gatton, to deliver lectures and give some demonstrations to the members of the Farmers' Winter Course. The subjects dealt with were tick fever and preventive inoculation, tuberculosis among farm animals, the practical application of the tuberculin test, blackleg and protective vaccination, the nature and uses of various disinfectants, and the application of acquired knowledge of practical bacteriology to the manufacture of dairy products.

INSTRUCTIONS TO RETURNED SOLDIERS.

On the recommendation of the Principal of the Agricultural College, Mr. Herbert, a returned soldier, attended this laboratory and undertook a course of special instruction in dairy bacteriology, with special reference to the bacteriological examination of various waters intended for the washing of dairy products and utensils.

Mr. E. G. Stewart, also a returned soldier, was recommended by the Repatriation Depart-

ment, and attended this Institution every day during the month of January for the purpose of obtaining information on stock diseases and studying the various methods for their prevention, including vaccination for blackleg and contagious mammitis, protection inoculation for pleuro-pneumonia and tick fever, the tuberculin test, &c.

RESULTS WITH FEEDING EXPERIMENTS WITH SUSPECTED POISONOUS PLANTS.

In conjunction with Mr. C. T. White, Government Botanist, a series of experiments in feeding cattle and guinea pigs with a number of plants that are suspected to possess marked poisonous properties and cause losses when fed to stock, were carried out with the following plants:—Elderberry, Russian thistle (*Salsola Kali*), Groundsel tree, Dutchman's pipe (*Aristolochia elegans*), *Cassia occidentalis*, Tie bush (*Wikstroemia indica*), and *Clematis glycinoides*.

The experiments were commenced in January, 1919, and completed on the 16th March, 1920. The animals were fed three times a day with the chaffed-up alleged poisonous plants, with a proportionate small amount of natural feed, consequently the animals were compelled to eat more than they would under ordinary conditions. The most noticeable effects were scouring and malnutrition, which, had the feeding continued, would probably have resulted in the death of the animal. However, in no single case could it be affirmed that the animal suffered from poisoning. Some of these experiments have been published in the *Agricultural Journal*.

In February last, I accompanied Mr. McKenzie, Government Veterinary Surgeon, to Landsborough, Maleny, and Glasshouse Mountains to examine microscopically specimens from the blood, lymphatic glands, and the various internal organs of cattle that were affected with some peculiar trouble after running, during the drought, on the coastal wallum bush country. The result of these examinations did not very materially assist in elucidating the cause of the complaint. A report on these investigations, including the history, symptoms, and *post mortem* appearances, has already been submitted by Mr. McKenzie.

IMPROVEMENTS IN THE METHOD OF TESTING BLEEDERS.

The method of testing an animal's (bleeder's) blood by injecting it into a clean, susceptible animal, followed by a daily microscopical examination of the blood, and recording morning and evening the temperature takes, as a rule, from two to three weeks, and sometimes longer, requiring very considerable patience in preparing and examining the blood smears.

Recently I have been preparing specially stained blood smears from animals long recovered from natural tick fever. These investigations have resulted in detecting the presence of the piroplasma organisms within the red blood corpuscles. The types so far met with are as follows:—Pear-shaped bodies, with a mass of chromatin varying in size and usually situated at one side of the broad end, and ringed-shaped bodies with the chromatin as a thin layer one side, or entirely peripheral, with the centre clear and refractile. In each case in which the piro-

plasma have been detected, the animal's blood has never failed to produce a satisfactory reaction when injected into healthy, susceptible cattle.

Repeated and persistent examinations of the blood in some recovered animals fail to reveal the presence of the intra-corpuscular bodies, notwithstanding that such animal's blood will cause a decided reaction when injected into healthy, susceptible cattle, but, as previously pointed out, a considerable number of days, and even weeks in some cases, have to elapse before a definite inoculation result can be arrived at.

Therefore the newer method is not only reliable, but has effected a saving of very considerable time and work, and greatly facilitates the dispatch of bleeders when they are urgently required.

INVESTIGATION WITH REGARD TO THE DEVELOPMENT OF MOULD FUNGI ON BUTTER PAPER WRAPPERS.

Complaints have been received with regard to a blackish-coloured mildew developing on paper wrappers after being placed around the butter, and when the latter is kept in cold storage.

Investigations have shown the growth to be a variety of the penicillium, also that the spores of this micro-fungi are apparently in the interstices of the paper wrapper before it is placed around the butter, and when conditions of environment are favourable they readily develop, forming dark greenish-coloured colonies so frequently met with during the wet season on various foodstuffs, and even on such articles as boots, clothes, furniture, &c., many of which contain very little material of food value.

It has been demonstrated that the contaminated paper will remain free from naked-eye appearances of mould fungi only so long as it is kept in a dry condition, but should the paper become moist, which is imperative when it is wrapped around the butter, there is always a considerable risk of the mould fungi developing, unless the temperature of the cold storage is kept below 46 degrees Fahr.

It is important to remember that there are four essential necessary requirements for the development and propagation of micro-organisms, viz., a suitable nutrient media, moisture, oxygen or other gases, and a favourable temperature.

The methods adopted in the preservation of butter are based on a consideration of these facts. In the case of the paper wrapper, the first three of these requirements are invariably present from the time the butter is wrapped in the paper, while the other, a suitable temperature, between 60 degrees and 100 degrees Fahr., is the one to be avoided by maintaining the cold storage below 46 degrees Fahr.

I have demonstrated by several experiments that this class of paper used as wrappers for butter is readily liable to become contaminated with mould fungi, and the only reasonable method recommended to obviate the trouble is to either sterilise the paper wrappers by subjecting them to a dry heat temperature of 170 degrees Fahr. for two hours, or treat them with an antiseptic solution, as boric acid (1-200).

A still better, and probably no more expensive method would be to have the wrappers made of paraffin paper, on which no mould fungi will grow.

INVESTIGATIONS CONCERNING THE NATURE OF THE BACTERIAL FLORA OF ENSILAGE.

Last year the silo, which held about 120 tons, was filled with ensilage, principally composed of imphee, with a small quantity of maize. This, properly matured, makes an excellent ration, mixed with lucerne, oaten and ordinary chaff, for cattle during the inoculation fever period.

As the ensilage possesses certain laxative properties, it can be proportionately increased or decreased according to the requirements of the animal under treatment.

On several occasions, during the removal of the ensilage from the silo, it has been apparent that there are distinct variations in the aroma emitted, and in the taste in different parts of the ensilage compact. Some of these are undoubtedly due to the fact that in places, particularly against the walls of the silo, the material is not sufficiently rammed down, which allows air to permeate from around the sides, and thus facilitates the growth of the mycelium, a special form of mould fungi. But even in the lower parts, where the material is well compressed and where no fungi can possibly exist, variations have been observed.

With regard to the fermentation of the freshly cut green fodder, such as imphee and corn; it is obvious that under ordinary conditions this process is brought about by the presence of micro-organisms which are on the plants brought in from the paddock.

In some cases the so-called "ripening" is hastened, and at other times delayed, evidently depending upon the nature and character of the bacteria present.

As in the manufacture of a standard cheese by the use of specially selected pure culture of *Bacillus acidi lacti*, so the control, to a very great extent, of the preparation of ensilage should be sought, and investigations have been commenced by isolating and studying the various bacteria found in ensilage, with the object of finally utilising pure cultures and inoculating the freshly cut material as it falls from the elevator into the silo.

NATURE OF VARIOUS SPECIMENS SUBMITTED FOR BACTERIOLOGICAL OR OTHER EXAMINATION.

Milk.

Submitted by Dairy Inspector.—No tubercle bacilli or pus organisms detected.

From case of suspected contagious mammitis.—Streptococci found.

Seven samples from four owners.—Suspected contagious mammitis. Streptococci detected in each sample.

From suspected case of mammitis.—Result: No streptococci detected.

Two samples from suspected mammitis or tubercle bacilli.—No micro-organisms detected.

For examination.—To T.B. or *Bac. coli* detected; negative for gas and indol.

Samples from three cows for suspected contagious mammitis submitted by Government Veterinary Surgeon.—One sample contained

streptococci and pus cells, while the other two were negative.

Sample from cow with swollen udder.—Streptococci and pus cells detected.

One sample to be examined for tubercle bacilli.—Result negative.

Sample of ropery cream, caused by a specific bacillus.

Note.—In those cases where streptococci were detected, the organisms were isolated, artificially cultivated, and an autogeneous standardised vaccine prepared, which was successfully used for curative treatment of the affected cows, and as a preventive for the contact animals.

SAMPLE OF WATER FROM VARIOUS BUTTER AND CHEESE COMPANIES.

Water.

Contained numerous micro-organisms, including *Bacilli coli*. Indol and gas detected in cultures.

Three samples, all found to be contaminated with *Bacilli coli*. Gas and indol present in the cultures.

Sample from a dairy farm, found practically free from contaminating bacteria. No gas or indol detected.

Sample from butter factory.—*Bacilli coli* present. Gas and indol detected.

From butter factory.—Result: *Bacilli coli* detected. Gas and indol present in cultures. Water unsatisfactory for butter-washing purposes.

To be examined as to its suitability for butter factory purposes. Result: No *bacilli coli*, gas, or indol detected.

Sample from tank of Q.G.S. "Lucinda."—No *Bacilli coli*, gas, or indol detected.

Two samples for examination.—Result: No *Bacilli coli*, gas, or indol detected.

BLOOD SPECIMENS.

Specimens of blood were received for microscopical examination from forty-three animals suspected to be either suffering from tick fever or having recovered from same.

In only six cases were the tick fever organisms detected. This small percentage of positive results is largely accounted for by the crude manner in which the specimen is taken.

In several cases the blood was spread on a piece of glass too thick to be used as a microscopic slide, while to redissolve the dried blood on a fresh slide would so disintegrate the red cells as to render the specimen useless for examination.

Some specimens of dried blood have been received on the outside of a portion of a glass bottle, which cannot be examined under a high-power lens.

Even when special micro-slides are supplied from the laboratory, considerable difficulty is experienced in getting a sufficiently thin film of blood on the slide.

For future guidance in all these cases, the fullest information is furnished as to the correct method of preparing and sending specimens.

EXAMINATION OF PLEURO VIRUS.

Twenty-two specimens of pleuro virus were submitted, and on microscopical examination sixteen specimens were found free from tubercle bacilli, septic and other contaminating organisms. Two specimens contained streptococci, an organism which causes acute abscesses, while four specimens were contaminated with putrefactive bacteria.

Although these six lots of virus were, from naked eye appearances, quite clear, viscid, and apparently fresh, the result of bacteriological tests was sufficient to condemn each of these lots of virus as risky and unsuitable for protective inoculation purposes.

MISCELLANEOUS EXAMINATIONS.

Goat's blood.—Result: Septic organisms detected.

Salted shin of beef, showing portion of an abscess attached, which contained staphylococci.

Pus from horse with strangles.—Streptococci detected. In this case the micro-organisms were isolated, grown in bouillon, and an auto-genous vaccine prepared for treatment.

Tumour from jaw of a stud bull.—Microscopical examination revealed the presence of the actinomyces fungus.

Spinal cord from steer examined for paralysis.

Liver of sheep.—Result: Septicemia organisms.

Muscle from leg of calf, suspected blackleg.—Result of examination: No bacilli detected; guinea pig inoculated and remained unaffected.

Blood smears from case of suspected malignant oedema in a cow.—Result negative.

Mammary gland.—Case from cow suspected tuberculosis—*Post mortem* result: No tubercle bacilli detected.

Abnormal growth from abdomen of bull.—Result: Fibroma.

Lung of fowl.—Result: Septic bacteria detected.

Sample of viscid cream.—Result: Rope-forming bacilli detected.

Specimen of blood.—Microscopical examination revealed abundance of white cells.

Specimen of urine from cow.—Result: Excessive amount of albumin present.

Liver sheep.—Result: Bacterial necrosis.

Muscle from steer, suspected blackleg.—Result: Negative.

Muscle from heifer calf, suspected blackleg.—Result: Blackleg bacilli and spores detected.

Guinea pig inoculated, and died in three days from blackleg.

TICK-INFESTED CATTLE STRAYING ON ROADS AROUND THE STOCK EXPERIMENT STATION PADDOCKS.

Some time ago, after the wet season, by systematically spraying with a standard arsenical solution every fourteen days, all the cattle

running in the various paddocks for a period extending over twenty-six weeks, the ticks that were on the cattle and on the pastures were completely eradicated and remained free until the following wet season, when they became reinfested through the agency of stormwater carrying into the paddocks the eggs and progeny of ticks that had fallen from infested cattle that are daily straying along the public roads.

These cattle belong mostly to farmers residing around Yeerongpilly, Tennyson, and Moorooka, and judging by appearances they are never treated in any way to even prevent gross tick infestation. I have frequently drawn the attention of the local authorities to this condition of affairs, but this menace to the district still exists, resulting in a very serious and dangerous risk to this institution, for we find it impossible to unload stud animals at the railway station or at our own siding without the animals becoming infested with larval ticks, which necessitates the animals being carefully sprayed before placing them in their respective stalls.

The contour of the Experiment Station paddock is in the form of a basin, into which, on the eastern side, drains the greater proportion of the surface water of the western slopes of Yeronga heights, while the southern side takes in the surface water from part of the Tennyson road and the highlands near the Golf Links. These sources of supply are diverted to culverts under the railway line and the main road, into two creeks which run through several paddocks, finally emptying into the Brisbane River. From this it will be seen how readily and consistently our paddocks are being reinfested with ticks.

EXTRA PADDOCK ACCOMMODATION REQUIRED.

The increasing demand for stall accommodation for stud animals to be immunised against tick fever require better facilities than we have at present for isolating these animals in small paddocks when they are removed from the stalls after recovery from the inoculation fever and while awaiting shipment for their destination.

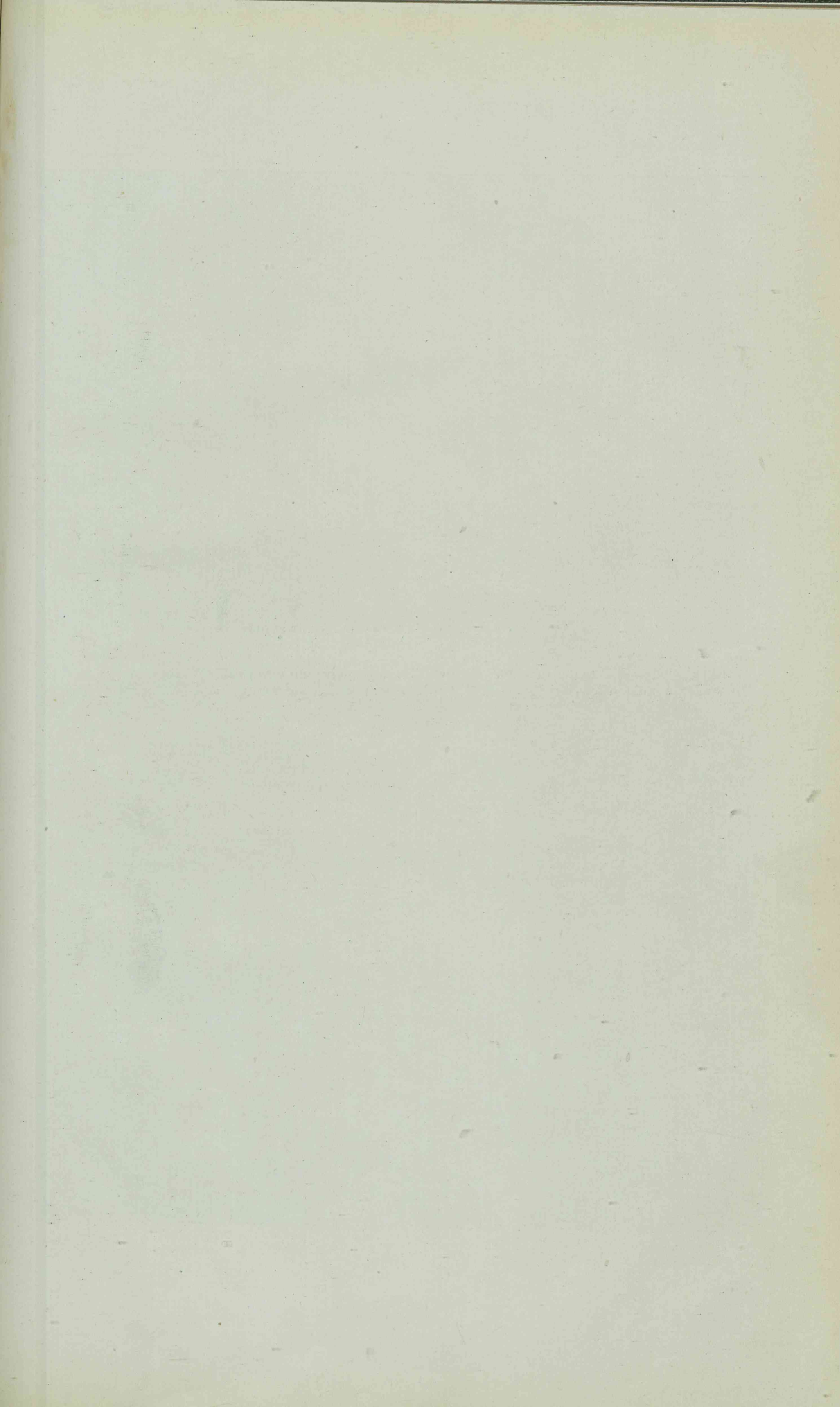
While the bulls of some breeds will live sociably together, there are others, particularly the Aberdeen Angus (black polled cattle) that are determined fighters, and it is absolutely necessary that such animals must be so isolated that they cannot do themselves or other animals injury.

To meet this necessary extra paddock accommodation, I would suggest that arrangements be made either for the leasing or purchasing of the parallel piece of land which adjoins this property between the main Fairfield road and the river.

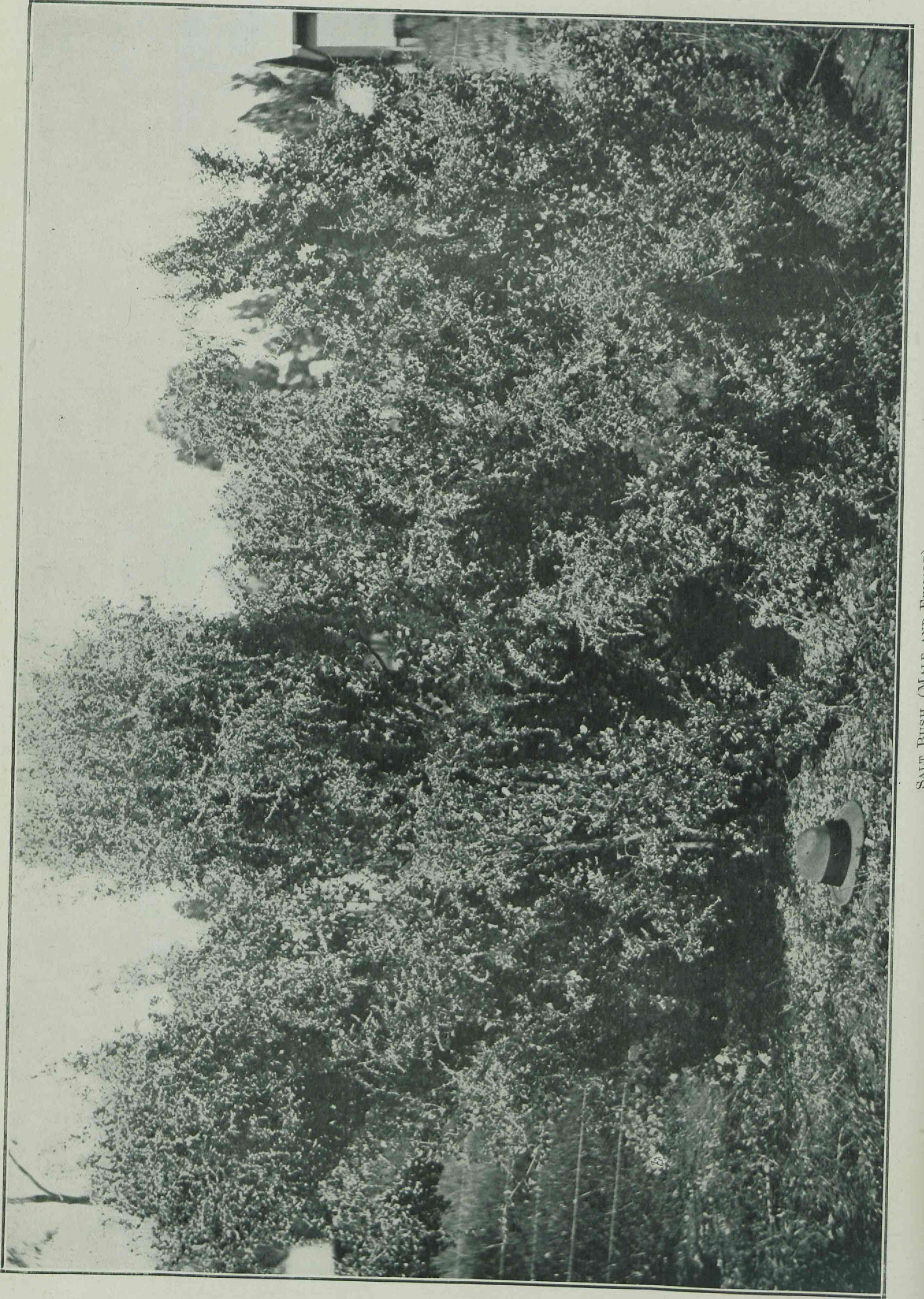
If this is unobtainable, a suitable piece of land might be secured alongside the Corinda branch line.

C. J. POUND,

Government Bacteriologist.



ROMA STATE FARM.



SALT BUSH (MALE AND FEMALE).

REPORT OF THE GOVERNMENT BOTANIST.

SIR,—I have the honour to present herewith a report on the work of the Botanical Division for the year ended 30th June, 1920.

FIELD WORK.

A considerable amount of field collecting was accomplished during the year.

In September, 1919, I spent a week on the Bunya Mountains with the visiting members of the Royal Australian Ornithologists' Union, and an account of the flora of the locality, based on collections made, was published in the *Queensland Agricultural Journal* for January, 1920.

During February, 1920, I visited the Lamington National Park and made large collections of specimens, also seeds of rare plants for the Botanic Gardens; the visit was made in conjunction with the Government Entomologist (Mr. H. Tryon), and, as insects seemed scarce, he devoted a large part of his time to securing botanical specimens. Several of the plants collected, including a fern, an orchid, and several trees, were apparently quite new and have not yet been described. Through the kindness of the Director of Forests (Mr. E. H. F. Swain) the services of the Park Ranger (Mr. E. M. O'Reilly) were placed at our disposal. A collection of wood specimens was made by the Ranger and, after naming by me, handed over to the Forestry Department.

During March my assistant (Mr. W. D. Francis) visited the Central District for the purpose of collecting grasses and other material for exhibition purposes, but the opportunity was also taken of collecting general botanical specimens for the herbarium and for exchanges. The localities visited were Barcaldine, Jericho, Gindie, Blackwater, Woodend, Rockhampton, and Marmor.

Three trips were made to the Glass House Mountains area, one by myself and two by my assistant. These were undertaken for the purpose of obtaining undescribed or imperfectly known species, accounts of which have now been prepared for printing.

In addition to the places already mentioned, the following were visited for the purpose of general botanical collecting and making representative collections of their respective floras:—Kin Kin, Cootharaba Lakes, Southport, Rosedale, Mount Glorious (D'Aguilar Range), and Bribie Island. In addition, on visiting localities on account of deaths of stock through eating poisonous plants, the opportunity was taken in most cases of doing some general botanical collecting, which, in the case of the visit to the Goondiwindi district, yielded one undescribed species and one (a eucalypt) previously unrecorded for the State.

Two visits were made to the Beaudesert and one to the Beenleigh district with the local Stock Inspector (Mr. J. H. McCarthy) for the purpose of inspecting areas where losses of stock had occurred through eating poisonous plants. The various scrub plants and weeds known to be poisonous or injurious to stock were pointed out to the Inspector for his future guidance; the

subject is one in which Mr. McCarthy is very interested, and one in which he is now able to give considerable information to local farmers.

In September, 1919, accompanied by the local Stock Inspector (Mr. P. J. Short), I visited Wyaga Station, Goondiwindi district. Mr. Turner, of Wyaga, stated that for some years past losses had occurred on the station, and as the trouble occurred after early spring rains, he put it down to some weed that sprung up or into growth following this condition. However, I made a careful examination of the paddocks, but could find nothing that one could definitely blame as the cause. There was, it is true, large areas on the station of Fuchsia Bush (*Eremophila maculata*), and a test (Guignard test) made on the station at the time showed the leaves and twigs to be cyanophoric (prussic acid yielding). Mr. Turner, however, said that no losses had occurred in the paddocks in which the Fuchsia grew in greatest abundance, and that Fuchsia in those particular paddocks during the dry spells was the principal fodder of the cattle grazing therein, and yet no losses had occurred among them. The Chief Inspector of Stock (Major A. J. Cory, M.R.C.V.S.) later visited the station, but no losses occurred during his stay there, and in the absence of other known poisonous plants he was inclined to blame the Fuchsia. It is quite possible that the Fuchsia represents one of those plants—like the Peach-leaved Poison Bush (*Trema*)—in which the occurrence of a prussic acid yielding glucoside is transitory and very erratic, probably in many localities and under certain circumstances, the glucoside not being developed, the shrub then being a most useful fodder. Though a few cattle died directly after my visit, a most careful examination of the paddocks failed to reveal any plants present in abundance other than the Fuchsia that were known definitely to be poisonous. It is one of those cases which is well worth following up more closely and reaching some finality, as Wyaga is not alone in the district in the respect of losses.

In January, 1920, accompanied by the Chief Inspector of Stock (Major A. J. Cory), I paid a visit to Tewantin to examine country where losses of stock annually occur, supposed to have been through eating poisonous plants. A careful examination, however, failed to reveal any plants known definitely to be poisonous to stock, and the trouble is now generally supposed to be due to malnutrition, the grasses and herbage growing in this poor country lacking certain nutritive qualities.

LIBRARY.

With the exception of keeping up to date our set of certain periodicals and "Florals" in course of publication, the only additions made by purchase were:—"Report on the Botany of the Wollaston Expedition to Dutch New Guinea" (Trans. Linn. Soc., Botany, 2nd ser., vol. IX., pt. I.) and vols. VIII. and XII. (Botany) of "Nova Guinea."—Resultats de L'Expedition Scientifique Neerlandaise a la Nouvelle-Guinee."

The following were the most important additions made by exchanges:—From the Bureau of Science, Manila, Philippine Islands.—"An

Interpretation of Rumphius's Herbarium Amboinense," by E. D. Merrill; "Species Blancoanae," by E. D. Merrill; "Indo-Malayan Woods," by F. W. Foxworthy; and "Philippine Dipterocarp Forests," by W. H. Brown and D. M. Matthews.

From Department of Agriculture, Industries, and Commerce, Wellington, N.Z.—A set up to date of the "New Zealand Journal of Agriculture."

From the Conservator of Forests, Perth, Western Australia.—"A Discussion of Australian Forestry," by D. E. Hutchins, and several miscellaneous pamphlets and reports.

HERBARIUM.

As in previous years, many of the most valuable additions to the herbarium have been from correspondents in various parts of the State forwarding specimens for determination.

Two valuable donations were made to the collections—(1) By the Rev. W. W. Watts.—Almost a complete set of specimens of the mosses collected by him in North Queensland during July and August, 1913, and referred to in the paper by Dr. Brotherus and himself on "The Mosses of North Queensland" (Proc. Lin. Soc., N.S.W., Vol. 43, pp. 544-567, 1918; (2) By Mr. H. Tryon.—The whole of his private herbarium of New Zealand and Queensland plants. The former are the more valuable and amounted to about 600 sheets, which have been placed away in the herbarium cabinets.

Exchanges of material were carried out as follows:—

Received.—From Botanic Gardens, Sydney. 100 sheets of New South Wales and West Australian plants. From National Herbarium, Melbourne.—50 sheets of Northern Territory plants. From Botanic Gardens, Singapore, S.S.—7 sheets of Malayan plants and one timber specimen. From Forest Laboratory, Spokane, U.S.A.—19 sheets of Loranthaceae and 17 specimens of fungi. From University of California.—100 sheets of Californian and Mexican plants.

Dispatched.—To Botanic Gardens, Sydney.—200 sheets of Queensland and Papuan plants. To National Herbarium, Melbourne.—22 sheets of rare Queensland plants. To Botanic Gardens, Singapore, S.S.—30 specimens of Queensland plants. To Forest Laboratory, Spokane, Washington, U.S.A.—24 sheets of Loranthaceae, with host records, and 24 specimens of wood-destroying fungi. To University of California, U.S.A.—100 specimens of Queensland plants. To Bureau of Science, Manila, P.I.—394 specimens of Queensland, Papuan, and Fijian plants.

The present herbarium cases are now stocked to their fullest capacity, and additional space is urgently required.

BOTANICAL MUSEUM.

Additions to the Botanical Museum have not been numerous. The carpological section has been added to from time to time, and a few timber specimens added. It is hoped during the coming year to improve the Museum in several ways, and to make it considerably more attractive and of more educational value. Pressure of other more urgent matters has hitherto prevented this being done.

EDUCATIONAL.

In January I visited the schoolboys' camp at Toowoomba, conducted by the Children's Welfare Society, and gave the boys instruction in plant life by a day spent in the field and an evening lantern lecture. In April I visited the seaside camp of the Geham State School, held at Redcliffe, and gave the children instruction on Australian Plant Life by means of a lantern lecture in the evening, followed by a couple of hours in the bush the following morning. On Bird Day, 24th October, I delivered a popular talk before the pupils of the Kelvin Grove State School on the relationship between birds and plants. In March I delivered a lantern lecture before the Field Naturalists' Club on "The Vegetation of South-Eastern Queensland."

It may not be out of place to mention here that for the past couple of years, during my spare time I have been engaged jointly with Mr. N. W. Jolly, B.A., B.S., Forestry Commissioner, New South Wales, on the compilation of a "Text of Forest Botany" for Australian forestry students. The first volume of this work is now nearly completed. It should fill a distinct want in Australian botanical literature, and should command a ready sale. It is being published by the New South Wales Government.

The compilation of an illustrated forest flora of Queensland is a matter that is receiving attention, and it is hoped to bring out a work under the auspices of this Department early in 1921.

The educational side of the work of this office is one that I hope to stress a good deal more in the future.

PUBLICATIONS.

The following papers were issued during the year:—

White, C. T.: The following in the "Queensland Agricultural Journal":—Luminous Fungi (July); Miscellaneous Botanical Notes (August and February); Illustrated Notes on the Weeds of Queensland, Nos. 15 and 16 (September and October); Records of Poisoning of Birds by Two Species of Cassia (December); Flora of the Bunya Mountains (January); Two Native Drought-resistant Plants (March); The Red Ash (*Alphitonia excelsa*), a Valuable Fodder Tree (May); The Weir Vine (*Ipomaea Calobra*) (June); and also A Revised Account of the Queensland Lecythidaceae. (Proceedings of the Linnean Society of New South Wales, Vol. 44, 1919, pp. 822-825. *Pound, C. J.* and *White, C. T.*: Results of Feeding Experiment with a Suspected Poisonous Plant (*Wickstroemia indica*) ("Queensland Agricultural Journal," April, 1920). *Smith, F.* and *White, C. T.*: On the Occurrence of Cyanophoric Glucosides in the Flowers of Some Proteaceae (Proceedings of the Royal Society of Queensland, vol. 32, pp. 89-91). *Francis, W. D.*: Some Observations on Weeds and Scrub Undergrowth Eaten by Stock ("Queensland Agricultural Journal," February, 1920).

POISONOUS PLANTS.

Owing to the drought that prevailed during the latter half of 1919 driving stock to eat various weeds and undergrowth otherwise untouched by them, the number of plants sent in as suspected

of poisoning animals was very large. An account of those sent in follows herewith. The list is compiled not only as a record but also as a slight contribution to our knowledge of a subject which, though of the greatest importance to the stock industry, is one in which definite knowledge in many cases is quite lacking.

RANUNCULACEÆ.

Clematis glycinoides.—Received from Christmas Creek (Beaudesert District) as a plant dangerous to stock. The following may also be worth noting here. In forwarding a specimen of this plant, J. Halpin, Yandaran, *viâ* Bundaberg, wrote under date 15th April, 1918:—"I have just found one of my cows and a heifer which appear to have died from eating some poison plant. The heifer was in the yard at 5 o'clock on the 13th, and was found swollen up 36 hours afterwards. Both the cow and the heifer were lying about 100 yards apart and appear to have died without struggling. They were grazing with a mob of about 40 head, and the only plant growing near is the one I am enclosing. It runs along the ground like a vine, and I found a large piece that had been torn off and partly eaten."

DILLENIACEÆ.

Hibbertia longifolia.—Sent in from Ravenshoe, North Queensland, as a plant very poisonous to stock.

MENISPERMACEÆ.

Stephania hernandiaefolia (Tape Vine).—This plant was sent in twice from the Gympie district as suspected of poisoning stock. Stock Inspector J. H. McCarthy forwarded specimens from several farms and from Clune station, in the Beaudesert district. Leaves of it, taken from the stomachs of dead beasts from Tallebudgera, were sent in by the Chief Inspector of Stock. In July I paid a visit to the farm of Messrs. J. C. Hutton and Company adjoining their bacon factory, and went over a large paddock where several heifers had died, due to poisoning, and found small quantities of Tape Vine along the creek; these were dug out, and I believe no further losses have occurred. Fresh specimens of this plant were obtained in the neighbourhood of Brisbane and handed over to the Government Bacteriologist (Mr. C. J. Pound) for experimental feeding on guinea pigs, and under date 22nd July, 1919, he reported:—"I had very great difficulty in getting the guinea pigs to eat this vine. One guinea pig ate a small portion and died the following day. The *post-mortem* examination revealed marked inflammation of the mucous membrane of the stomach and intestines. The liver was enlarged and congested, and the gall bladder distended, with light coloured contents. Of three other guinea pigs experimented with, one ate a little of the vine and showed symptoms of illness and recovered, while the other two refused to eat any of the vine."

Fawcettia tinosporoides.—Received from Cedar Grove, *viâ* Beenleigh, as a plant probably poisonous to cattle.

Tinospora smilacina.—Received from Stock Inspector J. H. McCarthy (Beaudesert) as the probable cause of death of stock on farms.

PAPAVERACEÆ.

Argemone mexicana var. *ochroleuca*.—Received from Stock Inspector Short (Goondiwindi) and Dairy Inspector Carew (Gatton), as causing death of cows and calves that had eaten it. In the latter case the calves had been noticed eating the plant after it had been cut and wilted.

ZYGOPHYLLLEÆ.

Zygophyllum apiculatum.—Sent in from Helidon as suspected of causing the death of horses. This plant is very abundant in some localities, and has several times been received by this office as a suspected poison weed. When on Wyaga Station (Goondiwindi district) I gathered a bag of this plant and handed it over to the Government Bacteriologist for experimental feeding to guinea pigs. It was fed to two animals and neither showed any symptoms of poisoning. The weed is one generally left untouched by stock.

MELIACEÆ.

Melia azedarach var. *australasica* (White Cedar).—Fruits of this plant were sent in from Beaudesert, Deeford, and Rockhampton to the effect that they had caused the deaths of pigs who had eaten of them.

LEGUMINOSÆ.

Gastrolobium grandiflorum (Heart-leaf or Desert Poison Bush).—Sent in from Yalleroi, Central Queensland.

Crotalaria Mitchellii.—The following reports were received from the Esk district accompanying specimens of this plant:—From Alex. Kunth, Acting Stock Inspector.—"Recently since the rain which we have had, there has been losses in calves and pigs in this district. The symptoms point to poisoning. Where the losses have occurred, there is a shrub bearing a yellow flower developing a pod as per the enclosed sample. Can you inform me if they are of a poisonous nature and likely to cause the trouble. This plant is plentiful where the losses have occurred, and is now coming into pod. The pigs have access to nut-grass, and after rain is it injurious and likely to cause the trouble." From W. S. Harding, Dairy Inspector.—"Mr. Alex. Smith, of Esk, has lost several pigs from some sickness. The pigs are about three months old and are in fair condition, they being fed on butter-milk. The symptoms somewhat resemble poisoning. Mr. Smith thinks they may have eaten some weeds which have sprung up since the rain. There is a weed with a yellow flower and a bean pod growing about the paddocks, which he thinks may be the cause."

Crotalaria incana.—In forwarding specimens of this plant for identification, A. H. Birley, of Tambourine, under date 10th May, 1920, wrote:—"We have been losing calves in the paddock where it is growing, and so far calves in another paddock have escaped. We found a lot of the pods in a calf's stomach. The calves were scoured badly."

Also received from Beaudesert as a plant possibly poisonous to stock. This plant has been suspected of causing "redwater" in stock in New South Wales (*see* Turner, Proc. Linn. Soc. N.S.W., vol. 23, p. 76).

Indigofera australis and *I. hirsuta*.—Included among a collection of weeds sent in from Tambourine as suspected of possessing poisonous properties.

Swainsona galegifolia (Indigo).—Sent in from Kerry and from Bowen as probable cause of death of cattle.

Castanospermum australe (Bean Tree).—Recorded as causing the deaths of stock in the Helidon district.

Writing from Hampton under date 20th December, 1919, the local Stock Inspector (Mr. J. Garner) stated that "Affected cattle scoured badly and others got blown and swollen. The muzzle and jaws were swollen, and the muscles of the jowl stiff. The animals gasp painfully and are apparently not able to ruminate."

Cassia occidentalis (Coffee Senna).—This plant has several times been sent in from North Queensland as one reputed poisonous to stock. During the year supplies were gathered and forwarded daily for about a fortnight to the Stock Experiment Station, Yeerongpilly, for a feeding experiment. Heifers fed a liberal ration of the plant evinced bad diarrhoea and scouring naturally followed by weakness, as might be anticipated from the close relationship of the plant to the sennas of commerce. It is not likely, however, that the plant is one which would be eaten by stock to any extent in a natural state.

Cassia sophera var. *schinifolia* (Arsenic Bush).—C. R. Bird, Dundarra, viâ Biggenden, under date 30th December, 1919, wrote as follows:—"I am posting a sample of a plant that is growing in my paddock, of which I would like you to let me know if it is injurious to stock. I have lost several head of cattle during these last two years, especially these last couple of months, which I am sure have been poisoned by eating some weed or other, and as this weed is the only green herbage in the paddock now during the drought, I am sure it is this that must be killing my stock."

Reference to this plant as one poisonous to fowls was made in the "Queensland Agricultural Journal" for December, 1919 (vol. 12, n.s., 306).

Cassia bicapsularis.—This tropical American plant was brought under notice as having killed caged birds. (See reference in "Queensland Agricultural Journal," vol. 12, n.s., p. 306.)

FICOIDEÆ.

Trianthema decandra (Hog Weed).—Sent in from Condamine as a suspected poison plant.

PASSIFLOREÆ.

Passiflora alba (White Passion Vine).—Was included among collections of plants sent in from Numinbah. Also noted by Stock Inspector McCarthy as occurring on several properties in the Beaudesert district where losses had occurred through eating poisonous plants.

Passiflora aurantiaca and *P. Herbertiana*.—These plants, both strongly cyanophoric, were noted or sent in from several localities where losses among stock had occurred.

CAPRIFOLIACEÆ.

Sambucus xanthocarpa (Elderberry).—Was forwarded among other plants from Birnum, Beaudesert district, from a property on which

losses had occurred. As the symptoms described (acute diarrhoea) were similar to those recorded for the European Elders (*Sambucus nigra* and *S. Ebulis*), it was decided to carry out a feeding experiment with the common native species. Material was forwarded to the Stock Experiment Station, Yeerongpilly, and fed, daily for ten days to two heifers. The amount fed comprised about one-third of the daily ration, the other two-thirds being made up of silage chaff. At the end of the experiment the animals showed emaciation, but no other ill-effects.

RUBACEÆ.

Canthium lucidum.—Reporting on sickness of cattle on the property of Mr. A. Modrynski, Boyne River, Inspector Ferguson, Kingaroy, wrote:—"I have no doubt that poisonous vegetation has caused fatal sickness among these cattle. They had been depasturing in a scrub paddock which I searched and found that these cattle had been devouring the shrubs. I found animals stricken down right in amongst a group of shrubs, all of which had the leaves and branches chewed off."

COMPOSITEÆ.

Lactuca scariola (Prickly Lettuce).—Sent in as probable cause of death of cattle at Nudgee, near Brisbane.

Pluchea tetranthera var. *tomentosa*.—Under date 16th January, 1920, Mr. A. Jones, manager, Oban Station, Duchess, North Queensland, wrote:—"Under separate cover I am posting a sample of scrub that we consider has poisoned some 200 to 300 head of cattle on this station. My head stockman actually saw a beast eating this shrub and, while watching it, this animal jumped, bellowed, and died. While trying to shift the cattle, strong beasts would suddenly jump, bellow, and die right on the track with hardly a kick. We opened up some carcasses and found stems of this shrub in every one, but no leaves. However, we take it that the leaves, being so soft, dissolved straight away. This is a very serious matter to this property." So far as I know, this plant has, not previously been recorded as one harmful or suspected harmful to stock. The matter of the plant's properties, either poisonous or otherwise, should be set at rest, as the matter is one of considerable importance, and, if definitely proved by feeding experiment or other means, this knowledge may throw considerable light on the mortality of stock in the district. It is very desirable that the matter should be investigated.

Verbesina encelioides (Dog Weed).—Writing from Goondiwindi under date 29th June, 1920, Mr. D. M. Cameron stated:—"This plant grows in the sand ridges, and during the recent drought, when the country was destitute of food, I noticed the sheep eating it. Quite a number of sheep died near the spot, and I put the deaths down to poison from this plant. I would mention that the sheep were in low condition."

Baccharis halimifolia (Tree Groundsel).—Was received several times from the Glass House Mountains district as a weed poisonous to stock. As the plant had previously been suspected, and as a poisonous alkaloid had been found in another species of the genus—*B. cordifolia*—

reputed poisonous to sheep in South America, feeding experiments were conducted at the Stock Experiment Station, Yeerongpilly. Two heifers fed on an average ration of half *B. halimifolia* per day for a fortnight showed emaciation at the end of the test, but no other ill effects. This test seems fairly conclusive, as the plant is one which stock would only eat in any quantity when driven to it by acute hunger.

CAMPANULACEÆ.

Pratia erecta (Milk Weed).—Specimens of this plant were handed over to me by Stock Inspector McCarthy as the cause of the death of a calf at Woodhill.

PRIMULACEÆ.

Anagallis arvensis (Pimpernel).—Reported by the local Stock Inspector (Mr. J. H. McCarthy) to have caused the death of stock at Tambourine.

ASCLEPIADEÆ.

Asclepias curassavica (Red Head or Milky Cotton Bush).—Received from Ingham, N.Q., as a suspected poison weed.

Gomphocarpus fruticosus.—Received twice from the Gladstone district as poisonous to stock.

Hoya australis.—Reported to have poisoned stock in the Beaudesert, Helidon, and Chinchilla districts; also received from Hatton Vale as having caused the death of two bulls, the property of Mr. Zillmann.

CONVOLVULACEÆ.

Ipomœa calobra (Weir Vine).—Specimens of this vine were brought in by Mr. Donald Gunn, M.L.A., with the report that its effect on stock was the same as that of the well-known Indigo or Darling Pea (Swainsona). The matter formed the subject of a special communication to the "Queensland Agricultural Journal" for June, 1920.

Ipomœa Learii, *I. hederacea* and *I. palmata*.—Forwarded from Fairymead Plantation, Bundaberg district, as suspected of poisoning horses.

SOLANACEÆ.

Solanum spp.—Native and introduced species of *Solanum* are commonly included in mixed collections of herbage or plants sent in as representative of the plants from paddocks in which losses among stock have occurred, supposed to have been through eating poisonous plants.

Nicotiana suaveolens var. *parviflora* (Native Tobacco).—Received from the Beaudesert district as a suspected poisonous plant.

Datura stramonium (Stramonium, or Thorn Apple).—Several samples of lucerne and mixed chaff in which *Datura* seeds and seed-capsules were present were received, with the report that the chaff had been the cause of the death or sickness of valuable horses from Brisbane, Chinchilla, Crow's Nest, Goondiwindi, and Yarraman.

CHENOPODIACEÆ.

Chenopodium ambrosioides (American Wormseed).—Received as a suspected poison weed from Mirani.

Salsola Kali (Russian Thistle).—Suspected of causing severe diarrhoea and death of stock in the Beaudesert district.

Stachys arvensis (Stagger Weed, Hedge Nettle, Sweet Nettle, Wild Mint).—Reports as to this weed having poisoned working horses and travelling stock were particularly numerous during the spring months, especially about Toowoomba, and considerable prominence was given the matter in the local Press. Under date 5th September, S. Holloway, of Gympie, forwarded a sample of chaff, stating:—"Several of my horses have been taken sick, as a result, my veterinary surgeon tells me, of eating this particular chaff." On examination the chaff was found to be very largely infested with *Stachys arvensis*, no other weeds being observable.

Salvia plebeia.—Sent in as a suspected poisonous plant from the Pittsworth district.

THYMELAEACEÆ.

Wickstroemia indica.—This plant was included in several mixed collections of plants sent in as representative of the undergrowth in paddocks in which stock had died supposedly through eating poisonous plants. As the plant was one which had previously been referred to as one suspected poisonous, materials were collected and forwarded to the Stock Experiment Station, Yeerongpilly, for a feeding test. It was found to scour the animals under trial very badly, but induced no other ill effect. An account of the plant and the results of the feeding experiments were published in the April number of the "Queensland Agricultural Journal."

Pimelea trichostachya.—This plant and others of the genus have been accused of poisoning stock from time to time. A small quantity of *P. trichostachya* was collected on Wyaga Station and handed over to the Director of the Stock Experiment Station, Yeerongpilly, for trial on guinea pigs. The animals fed exhibited no ill effects from eating the plant.

EUPHORBIACEÆ.

Euphorbia australis.—The following is an extract from a letter, dated 17th December, 1920, from Mr. D. Hardy, Inspector of Stock, Urandangie, addressed to the Chief Inspector of Stock, Brisbane:—"I have despatched under separate cover a sample of weed supposed to be very poisonous to cattle. This weed grows on the Georgina River and in the gidgee timber, and may possibly be the cause of the loss of so many cattle in this district. This plant, which is called the "Desert Weed," grows in the spring and early summer, when other herbage is very dry. It is readily eaten by stock at that period of the year." The previous year, Inspector R. Patullo, in forwarding samples of this weed, stated that $\frac{1}{2}$ lb. fed to a goat produced death in eight to nine hours, and also stated that a bullock he had noticed feeding on this weed at 3 p.m. was dead at 5 p.m.

Euphorbia Drummondii.—Sent in from Charleville, Biddeston, Tewantin, Jandowae, and Forest Hill as supposedly poisonous to stock.

Euphorbia pilulifera (Asthma Plant).—Received from Mirani to know if poisonous.

Bridelia exaltata and *B. faginea*.—Received from Westwood as suspected poisonous plants. *B. exaltata* is strongly cyanophoric.

Adriana acerifolia.—Received among a mixed collection of plants from the Beaudesert district collected on a property on which losses

had occurred, supposedly through eating poisonous plants.—This plant is not likely to be poisonous, as it is fairly common in some parts of the State and is looked upon as a useful forage.

URTICACEÆ.

Trema aspera (Peach-leaf Poison Bush).—This plant was included in several general collections sent in from properties on which losses had occurred, supposedly through eating poisonous plants. In the course of studies in the distribution of prussic-acid-yielding glucosides in Queensland plants, Mr. F. Smith, B.Sc., F.I.C., and myself have found this plant at times to be strongly cyanophoric, though at other times quite harmless. To what extent it is responsible for deaths of cattle in this and other States is hard to say.

Trema aspera var. *viridis*.—Received from Japoonvale, North Queensland, as a plant reputed poisonous to stock in the district.

Ficus spp.—Several species of figs (in leaf only) were forwarded from Kuranda (Mrs. S. B. J. Newbury) as poisonous to cattle.

CYCADACEÆ.

Cycas media.—This particular species was received from the Rockhampton district over a law case in which the past owner of land infested with it averred that this particular species, unlike other Cycads, was not poisonous or harmful to cattle.

Bowenia serrulata.—Received from Byfield as a plant very poisonous to cattle.

LILIACEÆ.

Dianella laevis.—In January, Mr. K. E. Kandler, Proston, *viâ* Wondai, forwarding specimens of this plant for identification, wrote (to the Editor of the "Live Stock Bulletin") :—"I have lost twenty-seven head of cattle and eight horses (mares heavy in foal included) within two months. I have only three horses left and they are as good as dead, and that means a clean sweep. I am sending you a few leaves of the grass that the stock have been feeding on, they eat it greedily, and all go down in sleepiness and in the loins, and if they once lie down they never get up, only to struggle an hour or two. Could you give me a remedy, if the grass in question is poison? It might yet save a lot of the neighbour's stock, as they have no other feed and have lost heavily too."

A reference to *Dianella* as a suspected poisonous plant in New South Wales will be found in the "Agricultural Gazette of New South Wales," for November, 1916 (vol. 19, p. 925).

SCITIMINEÆ.

Alpinia caerulea (Native Ginger).—Received from the Atherton district to know if poisonous to stock in any way.

JUNCACEÆ.

Xanthorrhæa spp. (Grass Trees).—It is a very general belief in South-Eastern Queensland that the flowering spikes of the grass tree, particularly the smaller-growing ones, are poisonous to cattle, affecting them in somewhat the same way as "Zamia" (various Cycads). The amount of correspondence from stock inspectors and

others on this matter is too voluminous to reproduce here, but may form the subject of a special communication at a later date.

GRAMINEÆ.

Sorghum halepense (Johnson Grass).—Sent in from Forest Hill as the possible cause of death in calves.

GRASSES AND FORAGE PLANTS.

As a member of the committee of the Commonwealth Bureau of Science and Industry, I received from the Chairman of the Committee (Mr. E. Breakwell, B.Sc.Ag., Sydney) 20 roots of Kikuyu Grass (*Pennisetum longistylum*), 12 roots Shearman's Clover, 2 oz. seed of *Andropogon intermedius*, and 4 oz. Sudan Grass seed (Biennial strain). These have been sent away for trial in the country and the results are awaited with interest. A packet of seed of *Setaria macrostachya* and a parcel of roots of *Eleusine aristata* were forwarded Mr. Breakwell for trial in New South Wales. Under date 6th February, 1920, Mr. Breakwell reported that the seeds of the Queensland Bull Mitchell Grass (*Astrebla* sp.) did remarkably well at Nyngan, New South Wales, through a phenomenal drought year. It may here be remarked that a close examination of the material in our collection of the Queensland species of the Mitchell grasses shows that previous classifications of them were at fault, and that the Bull Mitchell above referred to is an undescribed species, and not *A. pectinata* var. *triticoides*, as previously thought. A revision of the genus *Astrebla* is being prepared for publication.

RESEARCH WORK.

In addition to the work listed under "Publications," a considerable amount of other work in the field of Systematic Botany is being accomplished. With the co-operation of Dr. R. S. Rogers, M.A., Adelaide, the leading authority on Australian Orchidaceæ, a start has been made on the revision of the orchid material in the Queensland Herbarium. This has revealed the fact that our material was badly in need of critical examination, several previously undescribed species already having been discovered. The first paper on "Contributions to the Orchidaceous Flora of Queensland" has been prepared and offered to the Royal Society of Queensland for publication in the next volume of "Proceedings of the Society."

With Mr. F. Smith, B.Sc., F.I.C., some phytochemical researches have been carried out in addition to the work entailed in the paper listed under "Publications." We have found a cyanophoric glucoside to be sometimes present in the Peach-leaf Poison Bush (*Trema aspera*), which places beyond doubt the occasional toxicity of this plant. We are now engaged conjointly on an examination of the Queensland flora for the occurrence of saponins.

At my request, Mr. E. Cheel, of the Botanic Gardens, Sydney, undertook the revision of the material in our herbarium of *Melaleuca leucadendron* and its varieties. Mr. Cheel, who has paid considerable attention to *Melaleuca* and allied genera, has not yet finished his examination of the material sent, and his report is looked forward to with interest.

A number of Queensland specimens of *Loranthaceæ* were submitted to Mr. W. F. Blakely, of the Botanic Gardens, Sydney, who is now engaged on monographic work on the Australian species.

To Mr. H. B. Williamson, of Melbourne, a number of specimens of *Pultenæa* were sent at the request of Professor A. J. Ewart. Mr. Williamson is at present revising the genus, and his notes on our material were much appreciated.

My assistant (Mr. W. D. Francis) has been at work on miscellaneous collections, and we have nearly finished revisions of the Queensland species of the genera *Cryptandra* and *Westringia*. A few new species belonging to other

genera have been put aside, and, when opportunity occurs, descriptions and notes on them will be published jointly by us.

The examination of the Papuan material collected by me in 1918 is nearing completion. The material of a number of the families have been submitted to various English and Australian specialists for reports, and the publication of an account of this collection should greatly increase our knowledge of the Papuan flora.

I have, &c.,

C. T. WHITE,

Government Botanist.

The remaining slope on river bank was planted with couch grass and the whole of the new slopes top-dressed with best swampy manure resulting in a very fair growth of grass during the last six months. A line of water in base of bank following the contour of the river wall has been planted from the Ferry at Dandenong to near bank at Edward street entrance (about 1,500 feet). *Westringia*, *Myrica* and *Panicum* were also planted. The palms used, and they will soon make a fine feature. A number of new beds have been formed and planted on the newly filled ground also a circle of *Quercus regia* (Royal Oak). A collection of *Cryptandra* has been planted along the Alice street side. This will be one of the best collections of these fine flowering trees to be found anywhere. Other beds will be formed and a large quantity of palms will be planted out shortly, and the garden will soon be one of the most attractive of the Gardens.

The *Quercus regia* in the lawn is a beautiful specimen of tree; a lot of elegant was done during the spring and over fifty loads of hospital chippings were removed, necessary to keep the lawn in good order in summer. Many of our lawns require top-dressing, and this is being carried out as material becomes available.

The main road from the Edward street entrance has been coated with metal screenings and the hard-wearing surface of the road has been done on a large scale. A lot of the latter work has been done on other parts of the year high parts of the road has prevented the ingress of all that I am happy to do in the near future.

This long-expected work has been completed with our own staff. All the worst questions are finished and a few better and spray obtained at the end of June will enable the far painting of walls to be done at a minimum cost. Both labour and materials.

The garden staff have received an overhaul and new battens and bolts put in where necessary. Fourteen new ones were made and placed

commenced with a dry spell that on the 1st of July lasted until the end of October. During the first five months of the year the total amount of rain fell on the garden was 11.9 inches (302.5 mm) but the annual total for the six months (41.9 inches) was a disastrous deficit, following as it did on two periods of bad seasons, and great difficulty was experienced in keeping plants alive. Some of the largest trees—especially the *Ficus* along the river bank—suffered severely, and one very large specimen died. The severe drought was accentuated by the restrictions imposed by the Water and Sewerage Board during December, when watering by hose was only permitted from 8 a.m. until 8 p.m. Water used for two hours during the hottest part of summer practically all dried out by the action of the sun in a very short time. Irrigations to the lawn to be allowed to use the water during two hours of the evening when it would have done more good, in fact of the morning was met by refusal. The severe season passed through in a very dry period of water consumption, this being the first occasion the limit of 250,000 gallons was exceeded, by about 250,000 gallons.

The good rains of January (1,235 points) more than three times the amount of the previous six months—soon altered the appearance of everything, and the succeeding months provided sufficient rain to keep vegetation in good growth to the end of June. The first part of winter also proved mild, with very few cold nights. The kept the grass green and the machines at work until the end of the year. Some difficulty was experienced with the road during the period of the mild winter season, no period of frost was obtained.

Great improvements were obtained during the winter months. First was the removal of eight specimens the lowest reading being 1.3 on the 2nd of August. Following is a list of the rainfall registered for the corresponding months of the previous year being given in parentheses. The severe drought of the last six months (41.9 inches) being a striking contrast with the last six months with 211.5 inches—July 26 (11); August 14 (136); September 23 (165); October 31 (130); November 43 (122); December 108 (80); January 123 (14); February 171 (41); March 183 (64); April 243 (232); May 210 (68); June 224 (64); Total 2,255 (2,275). Number of days on which rain fell 144 (87).

In the hothouse, the exhibition rookery has been extended to near end at main entrance, giving about two-thirds more room for these beautiful plants nearly 100 of which were grown there last season. They made a fine feature and cannot wait to visit. I am indebted to Mr. J. Jordan of the Museum Gardens, and

REPORT OF THE CURATOR OF THE BOTANIC GARDENS.

SIR,—I have the honour to submit the following report of the work of the Botanic Gardens for the year ended 30th June, 1920:—

WEATHER.

For the third time in succession the year commenced with a dry spell that on this occasion lasted until the end of December. During the first five months of this period, only 251 points of rain fell on 23 days; December's rainfall of 168 points freshened vegetation a little, but the small total for the six months (419 points) had a disastrous effect, following as it did on two periods of bad seasons, and great difficulty was experienced in keeping plants alive. Some of the largest trees—notably the Bunyas along the river bank—suffered severely, and one very large specimen died. The severe drought was accentuated by the restrictions imposed by the Water and Sewerage Board during December, when watering by hose was only permitted from 6 a.m. until 8 a.m. Water used those two hours during the hottest part of summer practically all dried out by the action of the sun in a very short time. Representations to the Board to be allowed to use the water during two hours of the evening, when it would have done more good, in lieu of the morning, was met by refusal. The severe season passed through is shown by the increased water consumption, this being the first occasion the limit of 5,000,000 gallons was exceeded, by about 250,000 gallons.

The good rains of January (1,335 points)—more than three times the amount of the previous six months—soon altered the appearance of everything, and the succeeding months provided sufficient rain to keep vegetation in good growth to the end of June. The first part of winter also proved mild, with very few cold nights. This kept the grass going and the machines at work until the end of the year. Some difficulty was experienced with the rose pruning, as owing to the mild moist season no period of rest was obtained.

Grass temperatures were taken during the winter months; frost was registered on eight occasions, the lowest reading being 28.3 on the 2nd of August. Following is a list of the rainfall registered, the amount for the corresponding month of the previous year being given in parentheses. The severe drought of the first six months (419 points) forms a striking contrast with the last six months, with 2,416 points:—July, 20 (14); August, 74 (136); September, 22 (165); October, 87 (130); November, 48 (182); December, 168 (59); January, 1,335 (14); February, 121 (47); March, 183 (641); April, 243 (222); May, 210 (681); June, 324 (84); Total, 2,855 (2,375). Number of days on which rain fell, 144 (87).

GENERAL IMPROVEMENTS.

In the bushhouse, the caladium rockery has been extended to near end at main entrance, giving about two-thirds more room for these beautiful plants, nearly 600 of which were grown there last season. They made a fine feature and caused great interest to visitors. I am indebted to Mr. J. Jordan, of the Museum Gardens, and

Mr. F. W. Turley, Curator, Queen's Park, Ipswich, for a number of fine seedlings from their collections; also to Mr. J. F. Bailey, who sent a good lot of named varieties from the Adelaide Botanic Gardens; and Mr. J. O'Neill, of the Maryborough Botanic Gardens, who sent seed from which a number of young plants have been raised. Mr. C. Allen, Curator, Botanic Gardens, Port Darwin, sent a nice collection of bulbs that will be tried the coming season. To connect new caladium rockery with other portion of bushhouse, a new path and steps were made. This and all other paths have been coated with metal screenings.

The remaining slope on river bank was planted with couch grass, and the whole of the new slopes top-dressed with street sweepings, resulting in a very fair growth of grass during the last six months. A line of palms at base of bank, following the contour of the river wall, has been planted from the Ferry at Domain to near baths at Edward street entrance (about 2,500 feet. *Washingtonia filifera* and *Phoenix rupicola* alternately were the palms used, and they will soon make a fine feature. A number of new beds have been formed and planted on the newly filled-up ground, also a circle of *Oreodoxa regia* (Royal Palms). A collection of erythrinias has also been planted along the Alice street side. This will be one of the best collections of these fine flowering trees to be found anywhere. Other beds will be formed, and a large quantity of palms will be planted out shortly, and this portion will soon be one of the most attractive of the Gardens.

LAWNS.

The *Paspalum dilatatum* in the lawns is a continual source of trouble; a lot of chipping was done during the spring, and over fifty loads of paspalum chippings were removed, necessitating the filling up of the holes with soil. The constant use of the horse lawn-mowers in summer is necessary to keep this pest in lawns from seeding. Many of our lawns require top-dressing, and this is being carried out as material becomes available.

PATHS AND ROADWAYS.

The main road from the Edward street entrance has been coated with metal screenings, and the hardwood edgings replaced where necessary. A lot of this latter work has been done on other paths, but the very high price of timber has prevented the replacing of all that I am hoping to do in the near future.

ASPHALTING.

This long-delayed work has been commenced, with our own staff. All the worst portions are finished, and a tar boiler and spray, obtained at the end of June, will enable the tar painting of walks to be done at a minimum cost of both labour and materials.

SEATING.

The garden seats have received an overhaul, and new battens and bolts put in where necessary. Fourteen new ones were made and placed

in position, the necessary iron for legs being portion of the old latrines removed from river bank whilst dredging operations were in progress. All our seats require painting to preserve the woodwork; this necessary work would add years of life, and very much improve their appearance. In this connection it may be mentioned, as showing the greatly increased cost of labour and materials, that the estimate recently made for painting was £1 each, the exact cost of new seats, with galvanised iron legs and arms and hardwood battens, ten years ago.

RUBBISH BASKETS.

A number of new galvanised wire rubbish baskets have been obtained and placed in suitable positions. A lot of unnecessary work is caused by the carelessness of visitors to the Gardens, who throw all sorts of rubbish, particularly papers and fruit skins, about the lawns. The students of the Technical College and High School, now numbering over 900, were great offenders, but with the co-operation of the Principal, who brought the matter under the notice of the children concerned, a great improvement has taken place. Others are those who come to the Gardens for picnics, and those to have their lunch under the trees, but the Sunday night crowds are the worst offenders, with band programmes, &c. I propose, with your permission, to take action under the by-laws dealing with the matter and prosecute offenders.

PAINTING AND REPAIRS.

The Ranger's cottage, bandstand, electric light poles, and switchboard boxes were painted, and the shelter shed on river bank (formerly bandstand) received a good overhaul. A lot of new timber was required in the roof, and this was put in and the whole painted, making it a very useful and attractive shelter. All painting and repairs were carried out by the Department of Public Works.

PLANT NAMING.

The naming of plants is still being dealt with. Delay has again occurred owing to the impossibility of obtaining the name plates required, but the matter of procuring a large number is in hand.

GRASS PLOTS.

A beginning has been made with grass plots where it is proposed to grow a number of exotic grasses by means of which those of a useful nature can be tested and seed obtained for distribution. This work has long been necessary, as the frequent calls for seed, that cannot be complied with, indicate. Advantage will also be taken to grow a number of the native grasses to enable visitors to see them, and seed will be obtained to a limited extent for exchange purposes.

PLANT DISTRIBUTION.

A very busy year has been experienced in the propagating department. The number of plants sent out, as anticipated in last report, shows a big increase, chiefly owing to the large quantities of trees supplied to local authorities and country institutions for street, park, and memorial planting. The State Schools also show an increase, partly owing to the influenza restrictions of last year delaying the planting

season. Plants were distributed as follows:— 320 State Schools received 1,620 plants; Gatton College and State Farms, 372; other Government Departments, 321; local authorities, 1,485; churches and cemeteries, 115; progress associations, 155; hospitals, 191; botanic gardens, 526; general exchanges, 899; total, 5,684 (3,792 last year).

CORRESPONDENCE.

This has been very heavy. A lot of inquiries on horticultural subjects were dealt with, and those dealing with the requirements and despatch of plants amount to a very large number of letters outward.

SOUTHERN VISIT.

The permission granted me to visit the Southern States for the purpose of obtaining plants to enlarge our collection resulted in a very profitable experience. I went through to Adelaide, where Mr. J. F. Bailey rendered me every possible assistance in my mission. Mr. Toop, of the Ballarat Gardens, and Mr. Day, of the Geelong Gardens, also helped. In Melbourne Mr. Cronin, Curator of the Botanic Gardens, was very anxious to assist, and devoted a lot of his time in aiding me. Mr. J. H. Maiden, Government Botanist and Director of the Sydney Botanic Gardens, and his Superintendent, Mr. E. N. Ward, were also very kind and gave me every assistance in their power to make my stay in Sydney pleasant and profitable. With the cordial assistance of the gentlemen above mentioned, I secured a large number of useful plants, and I am sure the result of my visit will be to our mutual advantage, and I desire to heartily thank those who so generously assisted me.

EXCHANGES.

These have been well maintained. A large quantity of native seeds were collected and despatched to correspondents abroad, resulting in many seeds of a useful nature being obtained in exchange. I am indebted to correspondents for large consignments of seeds from India, Java, Singapore, Japan, France, Egypt, South Africa, St. Vincents, Cuba, and Jamaica. Southern exchanges have also been well maintained, seeds and plants having been received from, and despatched to, New South Wales, Victoria, South Australia, Western Australia, and Port Darwin, chiefly through the various Botanic Gardens. Local and Queensland exchanges are being kept up with plants and seeds to and from nurserymen, and the Botanic Gardens at Rockhampton, Townsville, and Maryborough. I desire to record my appreciation and thanks for the assistance received by the exchanges above mentioned. The Brisbane Botanic Gardens being the only one in the State that is in touch, to any extent, with a large circle of overseas correspondents enables a lot of useful work most advantageous to the State to be carried on.

ELECTRIC LIGHTING OF GARDENS.

The lighting system again worked well. A few small troubles occurred after the heavy rains of January, owing to several circuits of the underground cables being affected by water. These were promptly remedied by the Electrician-in-Charge (J. E. Chalk). I propose to erect three or four new lights in positions where

the darkness, owing to the growth of large trees, render them necessary. The material is in stock, and the work will shortly be put in hand. The Gardens were opened on Friday, Saturday, and Sunday nights, from the beginning of October until the end of June. The attendance of visitors on week nights was very limited, but large crowds attended on Sunday nights during the warm weather. A noticeable falling off in the attendance occurs during May, when, owing to the cool nights and heavy dew on the grass, conditions are not so favourable for visitors. Generally speaking, the conduct of visitors at night time is good. Some pilfering, chiefly of a petty character, takes place, but trouble occurs by the bad conduct of parties of youths, between the ages of 15 and 21, who often make themselves very objectionable.

BAND CONCERTS.

The following bands have taken part during the past year:—Federal, Tramways, Excelsior, Ithaca Concert, Metropolitan Union, Rockhampton C.C. (one occasion). A few months ago the Tramways Band dropped out, the Metropolitan Union changed to the Brisbane Citizens' Band, and the Ithaca Concert to the Brisbane Austral; and other bands—the Labour and Union and the Hibernian—came in. If it were possible for some of the weaker bands to combine, much better results would be obtained. The concerts attract very large numbers of visitors on Sunday afternoons, and on the Sunday nights that the Gardens are open the large crowds that attend appear to greatly enjoy the music provided.

ZOOLOGICAL COLLECTION.

Owing to the very high price of all kinds of feed, the collection of birds and animals has cost far more than formerly. The collection has again been added to by exchanges. Owing to the unsuitability of aviary accommodation available, waterfowl and birds of a similar character have chiefly been obtained. A good consignment from the Melbourne Zoological Gardens, consisting of a pair of white swans, a pair each Pacific gulls, Canadian geese, bar-headed geese, and two pairs

of ibis, were a noticeable feature; also donations of a monkey, several wallabies, kangaroos, and cockatoos were received. I again desire to express my thanks to those who donated birds and animals to the Gardens.

DOMAIN SPORTS GROUND.

This has again been largely used, particularly in the football season, for training operations by members of numerous clubs during the week and matches on Saturday. It was found necessary, owing to congestion, to limit players to certain days in order that the various interests of football, hockey, running, &c., could all participate in the use of the grounds. During the cricket season a wicket was laid down by the Government Printing Office C.C., and matches played regularly each week.

CHILDREN'S PLAYGROUNDS.

These are still largely patronised by children during weekends and holidays. New iron has been placed on the "slides," and other necessary repairs effected.

STAFF.

Changes in the staff have occurred by D. Nicholson, gardener, being transferred to the Supreme Court Gardens; and by the retirement, through ill-health, of James McNae, gardener, after thirty-five years' service. Mr. McNae was granted six months' leave on full pay from the 31st of August as a retiring allowance, and resumed duty in March as a temporary hand. W. Langford, propagator, after twelve years' service, was retired on the 30th of June under the age limit provisions of the Public Service. He always took a particularly keen interest in his work, and I desire to record my appreciation of the good work he accomplished, that by his long experience as a first-class gardener he was so well qualified to do. To the other members of the staff I desire to express my thanks for the good work done and loyal support accorded me through a trying year.

E. W. BICK, Curator.

REPORT OF THE GOVERNMENT STATISTICIAN ON LIVE STOCK FOR THE YEAR 1919.

LIVE STOCK.

A.

| Year. | Horses. | Cattle. | Sheep. | Swine. |
|------------------------------------|---------|-----------|------------|---------|
| 1913 | 759,726 | 5,786,744 | 18,220,985 | 140,966 |
| 1919 | 731,705 | 5,940,433 | 17,379,332 | 99,593 |
| Numerical Increase in 1919 | ... | 153,689 | ... | ... |
| Numerical Decrease in 1919 | 28,021 | ... | 841,653 | 41,373 |
| Centesimal Increase in 1919 | ... | 2.66 | ... | ... |
| Centesimal Decrease in 1919 | 3.69 | ... | 4.62 | 29.35 |

A a.

SHOWING the NUMBER OF HORSES, CATTLE, SHEEP, and SWINE in the STATE—RETURN for TEN YEARS.

| Year. | Horses. | Cattle. | Sheep. | Swine. |
|-------------|---------|-----------|------------|---------|
| 1910 | 593,813 | 5,131,699 | 20,331,838 | 152,212 |
| 1911 | 618,954 | 5,073,201 | 20,740,981 | 173,902 |
| 1912 | 674,573 | 5,210,891 | 20,310,036 | 143,695 |
| 1913 | 707,265 | 5,322,033 | 21,786,600 | 140,045 |
| 1914 | 743,059 | 5,455,943 | 23,129,919 | 166,638 |
| 1915 | 686,871 | 4,780,893 | 15,950,154 | 117,787 |
| 1916 | 697,517 | 4,765,657 | 15,524,293 | 129,733 |
| 1917 | 733,014 | 5,316,558 | 17,204,268 | 172,699 |
| 1918 | 759,726 | 5,786,744 | 18,220,985 | 140,966 |
| 1919 | 731,705 | 5,940,433 | 17,379,332 | 99,593 |

A b.

| Year. | Horses. | Cattle. | Sheep. | Swine. |
|-------------|---------|---------|---------|---------|
| 1910 | 6.88 | 8.91 | 3.77 | 21.96 |
| 1911 | 4.23 | — 1.14 | 2.01 | 14.25 |
| 1912 | 8.99 | 2.71 | — 2.08 | — 17.37 |
| 1913 | 4.85 | 2.13 | 7.27 | — 2.54 |
| 1914 | 5.06 | 2.52 | 6.17 | 18.99 |
| 1915 | 7.56 | — 12.37 | — 31.04 | — 29.31 |
| 1916 | — 1.55 | — 0.32 | — 2.67 | 10.14 |
| 1917 | 5.09 | 11.56 | 10.82 | 33.12 |
| 1918 | 3.64 | 8.84 | 5.91 | — 18.37 |
| 1919 | — 3.69 | 2.66 | — 4.62 | — 29.35 |

— Decrease.

A c.

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. | Acres per Head. | Number per Square Mile. | Acres per Head. | Number per Square Mile. | Acres per Head. | Number per Square Mile. |
| Burke | 65,383,040 | 15.24 | 1,128 | 0.57 | 80 | 7.98 | 35 | 18.47 | 6.16 | 103.98 |
| Burnett | 7,972,480 | 1.86 | 178 | 3.60 | 18 | 34.72 | 1,293 | 0.49 | 1.67 | 383.69 |
| Cook | 63,601,920 | 14.82 | 1,293 | 0.50 | 150 | 4.27 | 517,089 | 0.001 | 13.43 | 47.67 |
| Darling Downs | 16,249,600 | 3.79 | 203 | 3.15 | 32 | 19.75 | 14 | 41.15 | 2.34 | 273.17 |
| Gregory North | 54,266,240 | 12.64 | 1,750 | 0.37 | 168 | 3.81 | 34 | 18.89 | 10.55 | 60.65 |
| Gregory South | 31,617,920 | 7.37 | 2,172 | 0.29 | 216 | 2.96 | 92 | 6.92 | 16.23 | 39.44 |
| Leichhardt | 30,946,560 | 7.21 | 554 | 1.15 | 55 | 11.64 | 37 | 17.29 | 4.41 | 145.28 |
| Maranoa | 25,110,400 | 5.85 | 783 | 0.82 | 81 | 7.86 | 11 | 56.33 | 4.47 | 143.06 |
| Mitchell | 35,431,680 | 8.26 | 765 | 0.84 | 181 | 3.53 | 5 | 122.37 | 3.85 | 166.02 |
| Moreton | 5,649,920 | 1.32 | 73 | 8.71 | 11 | 58.20 | 492 | 1.30 | 0.95 | 670.41 |
| North Kennedy | 21,832,960 | 5.09 | 253 | 2.53 | 50 | 12.84 | 4,853 | 0.13 | 4.16 | 153.81 |
| Port Curtis | 8,994,560 | 2.09 | 169 | 3.78 | 21 | 30.91 | 452 | 1.42 | 1.84 | 348.36 |
| South Kennedy | 19,528,960 | 4.55 | 496 | 1.20 | 57 | 11.18 | 90 | 7.10 | 4.86 | 131.77 |
| Warrego | 37,333,760 | 8.70 | 1,419 | 0.45 | 178 | 3.60 | 16 | 40.20 | 7.93 | 80.73 |
| Wide Bay | 5,200,000 | 1.21 | 137 | 4.66 | 18 | 36.09 | 1,458 | 0.44 | 1.57 | 407.98 |
| STATE | 429,120,000 | 100.00 | 586 | 1.09 | 72 | 8.86 | 25 | 25.92 | 5.10 | 125.43 |
| Number per Capita Population ... | | | 1.01 | | 8.20 | | 23.96 | | 115.97 | |

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 | 125 |
| New South Wales | 208 |
| Victoria | 408 |
| United Kingdom | 918 |
| Argentine | 342 |
| United States of America | 324 |
| Russia in Europe | 318 |
| Union of South Africa | 205 |

A d.

RETURN SHOWING NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE SOUTHERN, CENTRAL, AND NORTHERN DIVISIONS OF THE STATE FOR THE YEAR 1919.

| Division. | Horses. | Cattle. | Sheep. | Swine. |
|--------------------------|---------|-----------|------------|--------|
| Southern Division | 296,101 | 2,511,098 | 6,054,105 | 83,732 |
| Central Division | 210,058 | 1,577,313 | 9,322,995 | 7,260 |
| Northern Division | 225,546 | 1,852,022 | 2,002,232 | 8,601 |
| Total State | 731,705 | 5,940,433 | 17,379,332 | 99,593 |

HORSES.
A e.

| HORSES IMPORTED DURING 1919. | | | | | HORSES EXPORTED DURING 1919. | | | | |
|------------------------------|--|---------|-------|--------|------------------------------|---------------------------|-----|--------|--------|
| Country. | | Number. | | Value. | | Country. | | Value. | |
| | | | | £ | £ | | | £ | £ |
| <i>Oversea—</i> | | | | | <i>Oversea—</i> | | | | |
| | | | | | | Hong Kong ... | 1 | 25 | |
| | | | | | | Java ... | 115 | 1,770 | |
| | | | | | | Philippine Islands ... | 215 | 3,800 | |
| | | | | | | For military purposes ... | ... | ... | |
| | | | | | | | 331 | | 5,595 |
| <i>Interstate (by land)—</i> | | | | | <i>Interstate (by land)—</i> | | | | |
| New South Wales... | | 5,166 | ... | 47,069 | | New South Wales ... | | 2,740 | 24,386 |
| South Australia ... | | ... | ... | ... | | South Australia ... | | 112 | 858 |
| | | 5,166 | | 47,069 | | | | 2,852 | 25,244 |
| Totals ... | | ... | 5,166 | ... | 47,069 | Totals ... | | 3,183 | 30,839 |

A f.

| Year. | | | | | | | Entire Horses. | | Other Horses. | | Total. | |
|-------|-----|-----|-----|-----|-----|-----|----------------|---------|---------------|--|---------|--|
| 1910 | ... | ... | ... | ... | ... | ... | 7,941 | 585,872 | | | 593,813 | |
| 1911 | ... | ... | ... | ... | ... | ... | 8,505 | 610,449 | | | 618,954 | |
| 1912 | ... | ... | ... | ... | ... | ... | 9,322 | 665,251 | | | 674,573 | |
| 1913 | ... | ... | ... | ... | ... | ... | 9,691 | 697,574 | | | 707,265 | |
| 1914 | ... | ... | ... | ... | ... | ... | 9,719 | 733,340 | | | 743,059 | |
| 1915 | ... | ... | ... | ... | ... | ... | 8,629 | 678,242 | | | 686,871 | |
| 1916 | ... | ... | ... | ... | ... | ... | 7,861 | 689,656 | | | 697,517 | |
| 1917 | ... | ... | ... | ... | ... | ... | 7,762 | 725,252 | | | 733,014 | |
| 1918 | ... | ... | ... | ... | ... | ... | 7,664 | 752,062 | | | 759,726 | |
| 1919 | ... | ... | ... | ... | ... | ... | 6,616 | 725,089 | | | 731,705 | |

CATTLE.

A g.
SIZES OF HERDS OF CATTLE.

| 1 to 100. | | 101 to 300. | | 301 to 1,000. | | 1,001 and Upwards. | | Totals. | |
|-----------|-----------|-------------|---------|---------------|---------|--------------------|-----------|---------|-----------|
| Owners. | Cattle. | Owners. | Cattle. | Owners. | Cattle. | Owners. | Cattle. | Owners. | Cattle. |
| 37,276 | 1,018,273 | 4,039 | 682,548 | 1,411 | 762,010 | 850 | 3,477,602 | 43,576 | 5,940,433 |

N.B.—For details of Sizes of Herds of Cattle in Pastoral Districts, see Appendix Table No. V.

A h.

| Year. | | | | | | | Number of Owners. | | Number of Cattle. | | Average Size of Herd. | |
|-------|-----|-----|-----|-----|-----|-----|-------------------|-----------|-------------------|--|-----------------------|--|
| 1910 | ... | ... | ... | ... | ... | ... | 33,955 | 5,131,699 | | | 151 | |
| 1911 | ... | ... | ... | ... | ... | ... | 34,850 | 5,073,201 | | | 146 | |
| 1912 | ... | ... | ... | ... | ... | ... | 37,242 | 5,210,891 | | | 140 | |
| 1913 | ... | ... | ... | ... | ... | ... | 38,136 | 5,322,033 | | | 140 | |
| 1914 | ... | ... | ... | ... | ... | ... | 39,716 | 5,455,943 | | | 137 | |
| 1915 | ... | ... | ... | ... | ... | ... | 40,051 | 4,780,893 | | | 119 | |
| 1916 | ... | ... | ... | ... | ... | ... | 39,727 | 4,765,657 | | | 120 | |
| 1917 | ... | ... | ... | ... | ... | ... | 40,664 | 5,316,558 | | | 131 | |
| 1918 | ... | ... | ... | ... | ... | ... | 42,735 | 5,786,744 | | | 135 | |
| 1919 | ... | ... | ... | ... | ... | ... | 43,576 | 5,940,433 | | | 136 | |

SHEEP.

A j.

SIZES OF FLOCKS OF SHEEP.

| 50 and Under. | | 51 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. | Owners. | Sheep. |
| 1,189 | 21,282 | 858 | 182,973 | 361 | 279,882 | 395 | 608,537 | 570 | 1,912,488 | 341 | 2,435,229 |
| 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. | | |
| 224 | 3,207,602 | 139 | 4,493,626 | 43 | 3,004,086 | 10 | 1,233,627 | 4,130 | 17,379,332 | | |

N.B.—For details of Sizes of Flocks of Sheep in Pastoral Districts, see Appendix Table No. VI.

A k.

| Year. | Number of Owners. | Number of Sheep. | Average Size of Flocks. |
|-------|-------------------|------------------|-------------------------|
| 1910 | 3,082 | 20,331,838 | 6,597 |
| 1911 | 3,119 | 20,740,981 | 6,650 |
| 1912 | 3,224 | 20,310,036 | 6,300 |
| 1913 | 3,365 | 21,786,600 | 6,474 |
| 1914 | 3,719 | 23,129,919 | 6,219 |
| 1915 | 4,091 | 15,950,154 | 3,899 |
| 1916 | 3,986 | 15,524,293 | 3,895 |
| 1917 | 4,008 | 17,204,268 | 4,292 |
| 1918 | 4,030 | 18,220,985 | 4,521 |
| 1919 | 4,130 | 17,379,332 | 4,208 |

A l.

| | 1918. |
|--|------------|
| Total Sheep as per Stock Returns on 1st January, 1918 | 17,204,268 |
| Ewes mated with Rams | 7,587,417 |
| Lambs Dropped | 4,038,680 |
| Percentage of Lambing | 53.23 |
| Purchases | 3,086,904 |
| Sales | 3,584,631 |
| Total Losses | 2,280,379 |
| Killed for Food on Holding | 243,857 |
| Total Sheep as per Wool Returns on 31st December, 1918 | 18,220,985 |
| Skins obtained during Year | 243,053 |

A m.

| | CATTLE. | | SHEEP AND LAMBS. | |
|---|---------|---------|------------------|---------|
| | 1918. | 1919. | 1918. | 1919. |
| Exported, less number imported alive Oversea | 66 | 10 | 23 | 9 |
| " " " " Overland, 12 months | 46,947 | 33,256 | 270,492 | 13,251 |
| Preserved, frozen, and boiled down | 334,012 | 245,447 | 169,126 | 269,469 |
| Estimated number killed for food for home consumption | 164,725 | 215,750 | 373,353 | 447,722 |
| Totals | 545,750 | 494,463 | 812,994 | 730,451 |

N.B.—This Table does not include Interstate Traffic by Sea in live animals; this is unascertainable, but insignificant in number.

A n.

| Year. | CATTLE. | | SHEEP. | | |
|--------------|-----------------------------|-----------|----------|-----------|---------|
| | Inwards. | Outwards. | Inwards. | Outwards. | |
| | Number. | Number. | Number. | Number. | |
| 1910* | 67,587 | 122,774 | 314,779 | 685,419 | |
| 1911 | 45,225 | 133,519 | 412,152 | 613,998 | |
| 1912 | 55,482 | 144,803 | 288,523 | 551,446 | |
| 1913 | 55,402 | 131,634 | 204,045 | 843,028 | |
| 1914 { | Overland, 12 months ... | 49,632 | 109,591 | 404,530 | 827,178 |
| | Oversea, 6 months .. | 6 | 46 | ... | 2,312 |
| 1915 { | Overland, Calendar year ... | 47,065 | 93,309 | 227,853 | 938,785 |
| | Oversea, Financial year ... | 74 | 81 | 1,766 | 388 |
| 1916 { | Overland, Calendar year ... | 47,765 | 69,096 | 172,955 | 420,791 |
| | Oversea, Financial year ... | 13 | 3 | ... | 447 |
| 1917 { | Overland, Calendar year ... | 36,729 | 97,552 | 73,185 | 476,778 |
| | Oversea, Financial year ... | 12 | 38 | 6 | 202 |
| 1918 { | Overland, Calendar year ... | 55,048 | 101,995 | 205,763 | 476,255 |
| | Oversea, Financial year ... | ... | 66 | 9 | 32 |
| 1919 { | Overland, Calendar year ... | 58,618 | 91,874 | 396,731 | 409,982 |
| | Oversea, Financial year ... | ... | 10 | ... | 9 |

* Interstate Coastwise Traffic no longer available.

A o.

| Kind of Establishment. | Number. | Number of Hands Employed. | Value of Machinery and Plant. | Value of Land and Premises. | Value of Output. |
|------------------------|---------|---------------------------|-------------------------------|-----------------------------|------------------|
| Bacon Curing | 7 | 380 | £ 58,540 | £ 105,646 | £ 1,037,691 |
| Meat Preserving | 13 | 3,966 | 773,507 | 1,340,246 | 5,565,208 |
| Totals | 20 | 4,346 | 832,047 | 1,445,892 | 6,602,899 |

A p.

| Petty Sessions District. | Swine Slaughtered. | Fresh Pork. | Salt and Preserved Pork. | Bacon and Hams. |
|----------------------------|--------------------|-------------|--------------------------|-----------------|
| | Number. | Lb. | Lb. | Lb. |
| Atherton | 759 | 42,084 | 12,053 | 1,852 |
| Brisbane* | 117,147 | 14,499 | 830 | 9,008,882 |
| Bundaberg | 208 | 4,308 | 7,990 | 3,650 |
| Clifton | 311 | 3,248 | 16,065 | 13,216 |
| Crow's Nest | 317 | 452 | 5,644 | 25,849 |
| Dalby | 640 | 10,019 | 16,405 | 44,520 |
| Dugandan | 318 | 7,291 | 6,352 | 12,905 |
| Gatton | 198 | 2,384 | 5,795 | 8,569 |
| Gayndah | 277 | 2,879 | 2,700 | 21,705 |
| Gladstone | 304 | 10,765 | 13,520 | 7,660 |
| Gympie | 273 | 2,355 | 13,788 | 6,395 |
| Laidley | 199 | 3,591 | 8,621 | 10,446 |
| Logan | 393 | 2,670 | 28,829 | 22,837 |
| Maroochy | 216 | 7,235 | 8,433 | 4,245 |
| Maryborough | 5,175 | 2,708 | 6,402 | 358,563 |
| Nanango | 711 | 12,088 | 26,706 | 20,493 |
| Oakey | 243 | 3,883 | 865 | 19,273 |
| Pittsworth | 312 | 4,193 | 10,614 | 15,879 |
| Rockhampton | 1,403 | 16,921 | 13,471 | 101,763 |
| Roma | 226 | 2,942 | 7,340 | 8,166 |
| Stanthorpe | 359 | 3,355 | 10,215 | 28,630 |
| Toowoomba | 23,486 | 860 | 5,152 | 1,812,536 |
| Warwick | 5,434 | 1,145 | 5,735 | 419,771 |
| Wienholt | 535 | 7,512 | 22,331 | 14,775 |
| All other Districts | 5,131 | 167,150 | 128,629 | 162,909 |
| Totals, 1919 | 166,575 | 336,587 | 384,485 | 12,155,489 |
| „ 1918 | 208,498 | 431,167 | 459,085 | 16,476,480 |

N.B.—Returns received from Inspectors of Slaughter-houses for 1919 account for 33,075 swine killed, producing 2,860,469 lb. of fresh pork in addition to the above. In a few instances it is possible that some of these have been also included in the returns from which this table is compiled, but to what extent it is impossible to determine.

* Including South Brisbane.

WOOL.

A q.

| Production of Wool. | 1910. | 1911. | 1912. | 1913. | 1914. |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| Number of sheep shorn | 19,192,619 | 20,037,491 | 19,969,378 | 20,289,124 | 22,059,015 |
| Result off Shears only, lb. net— | | | | | |
| Greasy wool | 82,755,649 | 92,698,078 | 89,390,788 | 106,570,719 | 114,585,709 |
| Scoured wool | 23,276,963 | 21,051,636 | 19,816,854 | 19,699,752 | 17,159,546 |
| Above expressed as "Greasy" | 129,309,575 | 134,801,350 | 129,024,496 | 145,971,861 | 148,904,801 |
| Average weight, lb.— | | | | | |
| Per Greasy bale | 371 | 360 | 367 | 362 | 361 |
| Per Scoured bale | 234 | 232 | 226 | 227 | 224 |
| Per Fleece in the Grease | 6.74 | 6.73 | 6.46 | 7.19 | 6.75 |
| Total wool production (Greasy), including quantity fell-mongered, exported on skins, and utilized lb. | 139,250,802 | 142,382,269 | 136,878,270 | 154,183,114 | 155,478,740 |
| * Estimated value of production | £5,908,000 | £5,580,000 | £5,561,000 | £6,296,000 | £6,707,000 |

| Production of Wool. | 1915. | 1916. | 1917. | 1918. | 1919. |
|--|--------------------|--------------------|-------------------|--------------------|--------------------|
| Number of sheep shorn | 19,558,810 | 13,798,462 | 11,920,074 | 17,290,116 | 17,210,372 |
| Result off Shears only, lb. net— | | | | | |
| Greasy wool | 89,231,347 | 67,114,101 | 67,772,382 | 83,997,850 | 88,450,759 |
| Scoured wool | 17,671,445 | 14,717,559 | 7,310,368 | 12,475,776 | 12,476,486 |
| Above expressed as "Greasy" | 124,574,237 | 96,549,219 | 82,393,118 | 108,949,402 | 113,403,731 |
| Average weight, lb.— | | | | | |
| Per Greasy bale | 357 | 365 | 365 | 353 | 356 |
| Per Scoured bale | 219 | 238 | 239 | 235 | 226 |
| Per Fleece in the Grease | 6.37 | 7.00 | 6.91 | 6.30 | 6.59 |
| Total wool production (Greasy), including quantity fell-mongered, exported on skins, and utilized lb. | 130,783,277 | 102,220,125 | 87,425,558 | 113,777,272 | 118,035,461 |
| * Estimated value of production | £5,122,000 | £4,898,000 | £5,646,317 | £8,177,741 | £8,606,747 |

* Based on Oversea Export value.

A r.

| Average Export Price of Wool. | 1910.* | 1911.* | 1912.* | 1913.* | 1914.* | 1915.* | 1916.* | 1917.* | 1918.* | 1919.* |
|-------------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Greasy wool ... | Per lb. 10 $\frac{1}{5}$ d. | Per lb. 9 $\frac{2}{5}$ d. | Per lb. 9 $\frac{3}{4}$ d. | Per lb. 9 $\frac{1}{5}$ d. | Per lb. 10 $\frac{1}{2}$ d. | Per lb. 9 $\frac{2}{5}$ d. | Per lb. 11 $\frac{1}{2}$ d. | Per lb. 15 $\frac{1}{2}$ d. | Per lb. 17 $\frac{1}{4}$ d. | Per lb. 17 $\frac{1}{2}$ d. |
| Scoured wool ... | 18 $\frac{1}{4}$ d. | 16 $\frac{1}{5}$ d. | 18 $\frac{1}{4}$ d. | 18 $\frac{1}{2}$ d. | 19d. | 18 $\frac{1}{5}$ d. | 20 $\frac{3}{4}$ d. | 28 $\frac{1}{2}$ d. | 27d. | 28d. |

* Oversea only.

A s.

| Exports of Wool. | QUANTITY. | | | VALUE. | | |
|------------------|------------------|------------|------------|-------------|-----------|--------|
| | Interstate. | Oversea. | Total. | Interstate. | Oversea. | Total. |
| | Lb. gross. | Lb. gross. | Lb. gross. | £ | £ | £ |
| Greasy | 1914-15 | * | 78,206,793 | * | 3,058,035 | * |
| | 1915-1916 | * | 52,620,768 | * | 2,511,222 | * |
| | 1916-1917 | * | 51,906,001 | * | 3,382,793 | * |
| | 1917-1918 | * | 35,272,597 | * | 2,529,684 | * |
| | 1918-1919 | * | 56,666,969 | * | 4,114,183 | * |
| Scoured | 1914-15 | * | 17,589,369 | * | 1,335,150 | * |
| | 1915-1916 | * | 16,268,471 | * | 1,410,708 | * |
| | 1916-1917 | * | 16,901,805 | * | 2,019,060 | * |
| | 1917-1918 | * | 8,972,507 | * | 1,011,748 | * |
| | 1918-1919 | * | 22,780,888 | * | 2,651,034 | * |

* Not available.

A t.

| Quantity Wool used in Manufacture. | 1910. | 1911. | 1912. | 1913. | 1914. | 1915. | 1916. | 1917. | 1918. | 1919. |
|------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. |
| 3scoured wool ... | 135,123 | 168,243 | 291,946 | 203,415 | 160,449 | 202,262 | 241,600 | 223,695 | 262,393 | 122,814 |

A u.

EXPORTS OVERSEA, QUEENSLAND.

| Value of— | 1917-1918. | | 1918-19. | |
|---------------------------|--------------------|------------------------------|--------------------|------------------------------|
| | HOME PRODUCE ONLY. | | HOME PRODUCE ONLY. | |
| | Total Exports. | Percentage to Total Exports. | Total Exports. | Percentage to Total Exports. |
| | Oversea £ | Only. | Oversea £ | Only. |
| Agricultural Products ... | 1,825,950 | 16·82 | 842,623 | 6·78 |
| Pastoral „ | 8,722,974 | 80·36 | 11,142,243 | 89·66 |
| Mineral „ | 86,832 | 0·80 | 17,025 | 0·14 |
| Other „ | 218,712 | 2·02 | 424,593 | 3·42 |
| Totals | £10,854,468 | 100·00 | £12,426,484 | 100·00 |

A v.

EXPORTS OVERSEA, QUEENSLAND.

| Value of— | 1917-18. | 1918-19. | Increase or —Decrease, 1918-19. £ |
|--------------------------------------|-----------------------|-----------------------|--|
| | HOME PRODUCE ONLY. | | |
| | Exports Oversea. £ | Exports Oversea. £ | |
| Pastoral Products — | | | |
| Wool | 3,541,432 | 6,765,217 | 3,223,785 |
| Live stock | 200,137 | 60,930 | — 139,207 |
| *Meat (all kinds, including Extract) | 4,175,182 | 3,256,475 | — 918,707 |
| Tallow | 321,905 | 640,612 | 318,707 |
| Hides and skins | 199,991 | 265,618 | 65,627 |
| All other | 284,327 | 153,391 | — 130,936 |
| Totals | 8,722,974 | 11,142,243 | 2,419,269 |

* Exclusive of Bacon, Poultry, &c., these being treated as products of Agriculture.

GOATS (COMMON).

A w.

| | Number Depastured. | Number Killed. | Weight: Lb. |
|------|--------------------|----------------|-------------|
| 1910 | 168,339 | 36,978 | 952,460 |
| 1911 | 149,804 | 33,791 | 898,397 |
| 1912 | 155,010 | 37,044 | 974,430 |
| 1913 | 148,006 | 35,541 | 978,244 |
| 1914 | 134,967 | 31,471 | 831,932 |
| 1915 | 126,730 | 35,153 | 880,352 |
| 1916 | 119,645 | 28,992 | 791,321 |
| 1917 | 129,173 | 27,700 | 731,591 |
| 1918 | 124,964 | 26,375 | 719,033 |
| 1919 | 122,088 | 26,903 | 698,874 |

Table No. I.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE VARIOUS PETTY SESSIONS DISTRICTS OF THE STATE, TOGETHER WITH THE INCREASE AND DECREASE OF CATTLE AND SHEEP ON THE 31ST DECEMBER, 1919.

| Petty Sessions District. | Horses. 1919. | Cattle. | | | | Sheep. | | | | Swine. 1919. |
|--------------------------|------------------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|
| | | 1918. | 1919. | 1919. | | 1918. | 1919. | 1919. | | |
| | | | | Increase. | Decrease. | | | Increase. | Decrease. | |
| Adavale | 2,862 | 9,160 | 10,230 | 1,070 | ... | 260,631 | 199,694 | ... | 60,937 | 9 |
| Allora | 3,958 | 12,272 | 11,929 | ... | 343 | 13,231 | 10,119 | ... | 3,112 | 1,935 |
| Alpha | 6,472 | 81,576 | 93,514 | 11,938 | ... | 110,712 | 126,191 | 15,479 | ... | 130 |
| Aramac | 3,063 | 7,649 | 13,123 | 5,474 | ... | 307,618 | 314,227 | 6,609 | ... | 6 |
| Atherton | 6,865 | ... | 39,540 | 39,540 | ... | ... | 77 | ... | ... | 1,557 |
| Augathella | 3,813 | 28,312 | 32,009 | 3,697 | ... | 359,549 | 331,879 | ... | 27,670 | 36 |
| Ayr | 10,403 | 26,953 | 23,344 | 1,391 | ... | 70 | 43 | ... | 27 | 538 |
| Banana | 4,043 | 47,751 | 44,674 | ... | 3,077 | 7,887 | 5,233 | ... | 2,654 | 65 |
| Barcardine | 4,810 | 11,535 | 13,521 | 1,986 | ... | 927,739 | 884,871 | ... | 42,868 | 192 |
| Beaudesert | 4,571 | 64,206 | 62,535 | ... | 1,671 | 1,832 | 1,781 | ... | 51 | 3,511 |
| Biggenden | 3,823 | 33,244 | 31,882 | ... | 1,362 | 252 | 323 | 71 | ... | 468 |
| Blackall | 5,843 | 7,946 | 13,700 | 5,754 | ... | 1,200,121 | 1,181,588 | ... | 18,533 | 57 |
| Bollon | 4,377 | 62,770 | 68,707 | 5,937 | ... | 404,030 | 456,751 | 52,721 | ... | 16 |
| Boulia | 9,497 | 122,434 | 120,666 | ... | 1,768 | 329,625 | 315,360 | ... | 14,265 | 49 |
| Bowen | 13,841 | 128,634 | 129,432 | 798 | ... | 748 | 395 | ... | 353 | 364 |
| Brisbane | 10,532 | 20,943 | 20,068 | ... | 875 | 609 | 1,076 | 467 | ... | 3,282 |
| Bundaberg | 7,980 | 28,994 | 29,548 | 554 | ... | 52 | 174 | 122 | ... | 830 |
| Burke | 5,899 | 121,586 | 116,857 | ... | 4,729 | 5,247 | 4,450 | ... | 787 | 92 |
| Caboolture | 1,216 | 9,068 | 9,171 | 103 | ... | 283 | 381 | 98 | ... | 792 |
| Cairns | 4,124 | 7,594 | 7,449 | ... | 145 | 5 | 46 | 41 | ... | 224 |
| Camooweal | 5,102 | 66,818 | 83,106 | 16,288 | ... | ... | ... | ... | ... | 41 |
| Cape River | 8,573 | 87,990 | 85,259 | ... | 2,731 | 1,000 | 466 | ... | 534 | 112 |
| Cardwell | 1,448 | 8,504 | 11,732 | 3,228 | ... | ... | ... | ... | ... | 36 |
| Charleville | 7,177 | 68,282 | 75,145 | 6,863 | ... | 705,998 | 662,782 | ... | 43,216 | 125 |
| Charters Towers | 21,894 | 178,023 | 163,004 | ... | 15,019 | 786 | 616 | ... | 170 | 1,033 |
| Childers | 3,397 | 11,568 | 11,259 | ... | 309 | 22 | 5 | ... | 17 | 501 |
| Chillagoe | 7,835 | 35,587 | 25,714 | ... | 8,873 | ... | ... | ... | ... | 168 |
| Clermont | 13,565 | 153,535 | 154,921 | 1,386 | ... | 497,808 | 538,801 | 40,993 | ... | 291 |
| Cleveland | 430 | 1,014 | 1,045 | 31 | ... | 8 | 137 | 129 | ... | 150 |
| Clifton | 6,701 | 16,512 | 17,743 | 1,231 | ... | 28,797 | 25,671 | ... | 3,126 | 2,661 |
| Cloncurry | 22,075 | 232,977 | 232,763 | ... | 214 | 496,911 | 502,119 | 5,208 | ... | 284 |
| Coen | 3,114 | 27,529 | 26,818 | ... | 711 | ... | ... | ... | ... | ... |
| Condamine | 4,170 | 38,349 | 37,898 | ... | 451 | 4,538 | 4,308 | ... | 230 | 421 |
| Cook | 4,596 | 30,796 | 28,510 | ... | 2,286 | ... | ... | ... | ... | 64 |
| Cooyar | 1,747 | 9,358 | 10,353 | 995 | ... | 571 | 580 | 9 | ... | 514 |
| Crow's Nest | 3,151 | 19,083 | 17,653 | ... | 1,430 | 411 | 513 | 102 | ... | 2,387 |
| Croydon | 3,032 | 24,684 | 29,426 | 4,742 | ... | 1 | ... | ... | 1 | 13 |
| Cunnamulla | 3,561 | 24,668 | 22,752 | ... | 1,916 | 695,502 | 486,038 | ... | 209,464 | 102 |
| Dalby | 16,280 | 124,593 | 140,712 | 16,119 | ... | 291,918 | 252,558 | ... | 39,360 | 2,455 |
| Diamantina | 5,334 | 64,694 | 64,255 | ... | 439 | 7,571 | 3,663 | ... | 3,908 | ... |
| Douglas | 1,493 | 2,022 | 2,100 | 78 | ... | ... | ... | ... | ... | 14 |
| Dugandan | 5,294 | 32,956 | 33,504 | 548 | ... | 477 | 444 | ... | 33 | 4,952 |
| Eidsvold | 6,703 | 86,099 | 84,920 | ... | 1,179 | 3,124 | 643 | ... | 2,481 | 185 |
| Emerald | 5,279 | 36,462 | 36,058 | ... | 404 | 130,130 | 122,511 | ... | 7,619 | 177 |
| Esk | 5,067 | 65,714 | 66,067 | 353 | ... | 897 | 1,070 | 173 | ... | 1,474 |
| Etheridge | 12,535 | 157,751 | 152,754 | ... | 4,997 | 2 | ... | ... | 2 | 146 |
| Eulo | 1,029 | 14,324 | 17,375 | 3,051 | ... | 60,345 | 50,931 | ... | 9,414 | 19 |
| Gatton | 4,906 | 18,896 | 19,474 | 578 | ... | 1,429 | 1,135 | ... | 294 | 2,961 |
| Gayndah | 9,277 | 103,306 | 105,721 | 2,415 | ... | 1,328 | 1,311 | ... | 17 | 1,499 |
| Gin Gin | 5,000 | 49,911 | 50,104 | 193 | ... | 275 | 262 | ... | 13 | 343 |
| Gladstone | 19,502 | 193,844 | 196,732 | 2,888 | ... | 2,486 | 2,545 | 59 | ... | 1,270 |
| Goodna | 572 | 2,336 | 2,250 | ... | 86 | 86 | 153 | 67 | ... | 194 |
| Goombungee | 1,503 | 6,986 | 6,487 | ... | 499 | 4,081 | 4,380 | 299 | ... | 1,370 |
| Goondiwindi | 5,187 | 47,806 | 58,834 | 11,028 | ... | 304,995 | 264,692 | ... | 40,303 | 292 |
| Gympie | 8,643 | 107,459 | 105,229 | ... | 2,230 | 2,361 | 1,756 | ... | 605 | 3,871 |
| Harrisville | 3,595 | 19,962 | 19,942 | ... | 20 | 546 | 514 | ... | 32 | 2,979 |
| Helidon | 2,548 | 12,137 | 12,195 | 58 | ... | 304 | 176 | ... | 128 | 1,365 |
| Herberton | 9,510 | 88,305 | 48,957 | ... | 39,348 | 700 | 604 | ... | 96 | 191 |
| Highfields | 1,380 | 8,373 | 7,024 | ... | 1,349 | 417 | 268 | ... | 149 | 892 |
| Hughenden | 11,213 | 96,677 | 99,770 | 3,093 | ... | 718,175 | 663,642 | ... | 54,533 | 79 |
| Hungerford | 864 | 3,044 | 6,022 | 2,978 | ... | 56,383 | 80,043 | 23,660 | ... | 2 |
| Ingham | 8,704 | 21,303 | 15,416 | ... | 5,887 | 481 | 250 | ... | 231 | 869 |
| Inglewood | 3,082 | 23,061 | 25,060 | 1,999 | ... | 124,578 | 131,494 | 6,916 | ... | 284 |
| Ipswich | 3,433 | 14,257 | 12,975 | ... | 1,282 | 218 | 128 | ... | 90 | 1,000 |
| Isisford | 5,125 | 7,107 | 6,657 | ... | 450 | 800,887 | 733,664 | ... | 67,223 | 12 |
| Jondaryan | 1,699 | 12,630 | 11,843 | ... | 787 | 62,853 | 50,798 | ... | 12,055 | 428 |
| Jundah | 2,584 | 15,663 | 21,187 | 5,524 | ... | 188,791 | 151,291 | ... | 37,500 | 5 |
| Kilcoy | 1,674 | 17,523 | 18,121 | 598 | ... | 203 | 297 | 94 | ... | 1,242 |
| Kilkivan | 1,753 | 17,334 | 16,505 | ... | 829 | 407 | 404 | ... | 3 | 223 |
| Killarney | 2,962 | 9,669 | 10,578 | 909 | ... | 2,705 | 1,380 | ... | 1,325 | 859 |
| Laidley | 3,869 | 16,810 | 16,369 | ... | 441 | 244 | 117 | ... | 127 | 2,013 |
| Logan | 2,649 | 14,055 | 14,769 | 714 | ... | 226 | 251 | 25 | ... | 888 |
| Longreach | 10,114 | 21,421 | 32,213 | 10,792 | ... | 1,518,671 | 1,569,193 | 50,522 | ... | 91 |
| Lowood | 3,292 | 16,547 | 16,152 | ... | 395 | 199 | 291 | 92 | ... | 1,676 |
| Mackay | 32,663 | 98,309 | 102,748 | 4,439 | ... | 2,325 | 2,312 | ... | 13 | 1,078 |
| Maroochy | 4,368 | 38,658 | 38,027 | ... | 631 | 300 | 357 | 57 | ... | 1,851 |
| Maryborough | 6,035 | 20,469 | 22,051 | 1,582 | ... | 411 | 418 | 7 | ... | 548 |
| Mitchell | 9,494 | 87,860 | 103,270 | 15,410 | ... | 278,425 | 343,917 | 65,492 | ... | 146 |
| Mount Morgan | 6,768 | 17,981 | 19,591 | 1,610 | ... | 111 | 132 | 21 | ... | 360 |
| Mount Perry | 2,861 | 25,673 | 23,763 | ... | 1,910 | 51 | 20 | ... | 31 | 116 |
| Mourilyan | 2,900 | 3,410 | 3,382 | ... | 28 | ... | ... | ... | ... | 90 |
| Muttaburra | 7,098 | 22,696 | 30,211 | 7,515 | ... | 1,421,373 | 1,382,967 | ... | 38,406 | 212 |
| Nanango | 14,524 | 102,648 | 104,370 | 1,722 | ... | 1,730 | 1,701 | ... | 29 | 4,337 |
| Nerang | 2,907 | 33,463 | 34,101 | 638 | ... | 509 | 403 | ... | 106 | 1,958 |
| Norman | 10,335 | 325,910 | 330,024 | 4,114 | ... | 3 | ... | ... | 3 | 9 |
| Oakey | 4,645 | 25,592 | 24,894 | ... | 698 | 14,590 | 10,171 | ... | 4,419 | 2,537 |
| Palmer | 2,255 | 46,765 | 48,729 | 1,964 | ... | ... | ... | ... | ... | 3 |
| Pittsworth | 7,454 | 40,447 | 44,396 | 3,949 | ... | 162,147 | 123,530 | ... | 38,617 | 3,857 |
| Proserpine | 5,092 | 11,921 | 12,250 | 329 | ... | 1,964 | 2,238 | 274 | ... | 356 |
| Quilpie | 2,074 | 19,383 | 15,647 | ... | 3,736 | 182,825 | 164,783 | ... | 18,042 | 12 |
| Ravenswood | 3,678 | 19,262 | 16,185 | ... | 3,077 | ... | ... | ... | ... | 89 |

Table No. I.—continued.

| Petty Sessions District. | Horses. | Cattle. | | | | Sheep. | | | | Swine. | |
|---------------------------------|---------|-----------|-----------|---------|-----------|------------|------------|---------|-----------|---------|-----------|
| | | 1919. | 1918. | 1919. | 1919. | | 1918. | 1919. | 1919. | | |
| | | | | | Increase. | Decrease. | | | Increase. | | Decrease. |
| Redcliffe | 2,226 | 16,669 | 18,106 | 1,437 | ... | 15 | 28 | 13 | ... | 1,081 | |
| Richmond | 11,109 | 109,727 | 107,885 | ... | 1,842 | 1,192,003 | 1,097,797 | ... | 94,206 | 47 | |
| Rockhampton | 31,739 | 293,017 | 314,385 | 21,368 | ... | 12,279 | 17,734 | 5,455 | ... | 2,993 | |
| Roma | 9,526 | 61,064 | 72,353 | 11,289 | ... | 221,528 | 246,945 | 25,417 | ... | 881 | |
| Rosewood | 2,797 | 21,106 | 20,913 | ... | 193 | 586 | 633 | 47 | ... | 2,305 | |
| St. George | 6,221 | 46,498 | 51,102 | 4,604 | ... | 751,209 | 761,681 | 10,472 | ... | 156 | |
| St. Lawrence | 6,323 | 103,186 | 93,991 | ... | 9,195 | 1,887 | 2,143 | 256 | ... | 104 | |
| Somerset | 542 | 804 | 532 | ... | 272 | ... | ... | ... | ... | 20 | |
| Southport | 436 | 2,394 | 2,437 | 43 | ... | 50 | 61 | 11 | ... | 97 | |
| Springsure | 10,526 | 86,999 | 98,653 | 11,654 | ... | 355,266 | 309,687 | ... | 45,579 | 98 | |
| Stanthorpe | 2,687 | 17,400 | 17,820 | 420 | ... | 106,888 | 111,422 | 4,534 | ... | 316 | |
| Surat | 3,177 | 25,182 | 28,088 | 2,906 | ... | 386,739 | 406,616 | 19,877 | ... | 26 | |
| Tambo | 3,835 | 14,971 | 17,998 | 3,027 | ... | 558,809 | 548,599 | ... | 10,210 | 30 | |
| Taroom | 4,935 | 78,266 | 80,152 | 1,886 | ... | 13,104 | 10,833 | ... | 2,271 | 73 | |
| Texas | 1,824 | 12,127 | 10,388 | ... | 1,739 | 9,058 | 11,429 | 2,371 | ... | 46 | |
| Thargomindah | 9,612 | 116,022 | 102,457 | ... | 13,565 | 142,555 | 143,126 | 571 | ... | 89 | |
| Tiaro | 4,288 | 47,164 | 48,076 | 912 | ... | 448 | 467 | 19 | ... | 713 | |
| Toowoomba | 6,048 | 19,511 | 17,872 | ... | 1,639 | 8,773 | 3,849 | ... | 4,924 | 1,873 | |
| Townshend | 1,857 | 8,043 | 8,948 | 905 | ... | 13 | 40 | 27 | ... | 1,985 | |
| Townsville | 10,091 | 27,838 | 22,282 | ... | 5,556 | 202 | 312 | 110 | ... | 1,172 | |
| Warwick | 10,199 | 48,669 | 54,934 | 6,265 | ... | 96,428 | 114,772 | 18,344 | ... | 3,123 | |
| Wienholt | 10,526 | 107,512 | 110,549 | 3,037 | ... | 2,686 | 2,533 | ... | 153 | 4,603 | |
| Windorah | 6,101 | 76,679 | 81,233 | 4,554 | ... | 249,639 | 187,200 | ... | 62,459 | 15 | |
| Winton | 13,433 | 55,785 | 64,640 | 8,855 | ... | 1,392,164 | 1,218,050 | ... | 174,114 | 15 | |
| Woodford | 1,767 | 19,119 | 18,706 | ... | 413 | 448 | 494 | 46 | ... | 577 | |
| Wynnum | 860 | 1,698 | 1,738 | 40 | ... | 158 | 139 | ... | 19 | 142 | |
| Yeulba | 1,652 | 9,906 | 13,225 | 3,319 | ... | 179 | 229 | 50 | ... | 78 | |
| Total in State, 1919 ... | 731,705 | ... | 5,940,433 | ... | ... | ... | 17,379,332 | ... | ... | 99,593 | |
| Total in State, 1918 ... | 759,726 | 5,786,744 | ... | ... | ... | 18,220,985 | ... | ... | ... | 140,963 | |
| Increase in 1919 ... | ... | ... | ... | 153,689 | ... | ... | ... | ... | ... | ... | |
| Decrease in 1919 ... | 28,021 | ... | ... | ... | ... | ... | ... | 841,653 | ... | 41,373 | |
| Centesimal Increase in 1919 ... | ... | ... | ... | 2.66 | ... | ... | ... | ... | ... | ... | |
| Centesimal Decrease in 1919 ... | 3.69 | ... | ... | ... | ... | ... | ... | 4.62 | ... | 29.35 | |

Table No. II.

NUMBER OF CALVES RETURNED AS BRANDED DURING THE YEAR 1919.

| Petty Sessions District. | Male. | Female. | Petty Sessions District. | Male. | Female. |
|--------------------------|--------|---------|--------------------------|---------|---------|
| Adavale | 1,266 | 1,291 | Hungerford | 290 | 276 |
| Allora | 1,451 | 1,348 | Ingham | 1,442 | 1,554 |
| Alpha | 8,126 | 8,058 | Inglewood | 2,114 | 1,873 |
| Aramac | 828 | 839 | Ipswich | 709 | 900 |
| Atherton | 3,113 | 3,508 | Isisford | 553 | 584 |
| Augathella | 2,960 | 2,860 | Jondaryan | 977 | 969 |
| Ayr | 2,809 | 2,690 | Jundah | 2,640 | 2,668 |
| Banana | 4,398 | 4,453 | Kilcoy | 1,475 | 1,509 |
| Barcaldine | 1,517 | 1,514 | Kilkivan | 1,317 | 1,351 |
| Beaudesert | 4,341 | 4,642 | Killarney | 1,058 | 1,011 |
| Biggenden | 2,556 | 2,642 | Laidley | 1,023 | 1,155 |
| Blackall | 1,647 | 1,694 | Logan | 703 | 1,592 |
| Bollon | 3,320 | 3,249 | Longreach | 2,567 | 2,527 |
| Boulia | 15,193 | 15,207 | Lowood | 1,135 | 1,186 |
| Bowen | 16,641 | 16,850 | Mackay | 10,905 | 10,802 |
| Brisbane | 379 | 1,768 | Maroochy | 2,472 | 3,308 |
| Bundaberg | 2,547 | 2,678 | Maryborough | 1,668 | 1,860 |
| Burke | 16,201 | 20,281 | Mitchell | 11,026 | 11,122 |
| Caboolture | 763 | 821 | Mount Morgan | 1,397 | 1,325 |
| Cairns | 542 | 531 | Mount Perry | 2,141 | 2,082 |
| Camooweal | 13,035 | 13,382 | Mourilyan | 257 | 280 |
| Cape River | 8,956 | 8,752 | Muttaborra | 3,357 | 3,489 |
| Cardwell | 897 | 926 | Nanango | 10,295 | 10,055 |
| Charleville | 4,264 | 4,335 | Nerang | 1,810 | 2,625 |
| Charters Towers | 19,846 | 16,843 | Norman | 34,349 | 34,834 |
| Childers | 912 | 958 | Oakey | 2,402 | 2,416 |
| Chillagoe | 2,741 | 2,695 | Palmer | 4,546 | 4,578 |
| Clermont | 16,968 | 16,732 | Pittsworth | 3,577 | 3,651 |
| Cleveland | 75 | 110 | Proserpine | 1,170 | 1,151 |
| Clifton | 1,709 | 1,906 | Quilpie | 1,419 | 1,294 |
| Clonecurry | 25,810 | 26,193 | Ravenswood | 1,499 | 1,582 |
| Coen | 2,893 | 2,788 | Redcliffe | 868 | 1,701 |
| Condamine | 3,169 | 3,123 | Richmond | 9,679 | 9,666 |
| Cook | 3,830 | 3,611 | Rockhampton | 32,413 | 31,954 |
| Cooyar | 1,032 | 985 | Roma | 7,685 | 7,323 |
| Crow's Nest | 1,552 | 1,638 | Rosewood | 949 | 1,107 |
| Croydon | 3,211 | 3,058 | St. George | 2,982 | 2,965 |
| Cunnamulla | 2,263 | 2,241 | St. Lawrence | 10,573 | 10,654 |
| Dalby | 13,324 | 13,596 | Somerseset | 10 | 15 |
| Diamantina | 7,882 | 7,781 | Southport | 87 | 246 |
| Douglas | 184 | 182 | Springsure | 11,948 | 11,846 |
| Dugandan | 2,287 | 2,392 | Stanthorpe | 1,766 | 1,746 |
| Eidsvold | 7,526 | 7,584 | Surat | 2,680 | 2,840 |
| Emerald | 3,168 | 3,117 | Tambo | 2,119 | 2,083 |
| Esk | 4,050 | 4,257 | Taroom | 9,842 | 9,880 |
| Etheridge | 17,723 | 17,134 | Texas | 850 | 930 |
| Eulo | 1,662 | 1,633 | Thargomindah | 11,178 | 11,303 |
| Gatton | 1,500 | 1,585 | Tiaro | 4,347 | 4,403 |
| Gayndah | 8,628 | 8,848 | Toowoomba | 1,453 | 1,605 |
| Gin Gin | 4,550 | 4,671 | Townshend | 753 | 1,153 |
| Gladstone | 19,813 | 19,561 | Townsville | 1,982 | 1,984 |
| Goodna | 136 | 180 | Warwick | 5,714 | 5,620 |
| Goombungee | 436 | 508 | Wienholt | 10,017 | 10,151 |
| Goondiwindi | 4,499 | 4,820 | Windorah | 8,381 | 8,669 |
| Gympie | 7,016 | 8,867 | Winton | 7,862 | 7,575 |
| Harrisville | 1,550 | 1,684 | Woodford | 1,037 | 1,160 |
| Helidon | 1,038 | 1,030 | Wynnum | 52 | 161 |
| Herberton | 5,440 | 5,279 | Yeulba | 1,075 | 1,024 |
| Highfields | 590 | 673 | | | |
| Hughenden | 10,650 | 10,572 | | | |
| | | | Totals | 588,008 | 598,524 |

Table No. III.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND SWINE IN THE VARIOUS PASTORAL DISTRICTS OF THE STATE FOR THE YEARS 1918 AND 1919, 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 ... | { 1918 | 57,788 | 808,748 | 2,029,690 | 1,067 | | | | | | | | | |
| | { 1919 | 57,943 | 815,621 | 1,886,578 | 528 | 155 | 6,873 | -143,112 | -539 | 0.27 | 0.85 | -7.05 | -50.52 | |
| Burnett ... | { 1918 | 47,721 | 427,688 | 8,799 | 17,697 | | | | | | | | | |
| | { 1919 | 44,837 | 432,514 | 6,166 | 10,971 | -2,884 | 4,826 | -2,633 | -6,726 | -6.04 | 1.13 | -29.92 | -38.01 | |
| Cook ... | { 1918 | 51,784 | 446,939 | 229 | 3,375 | | | | | | | | | |
| | { 1919 | 49,207 | 424,497 | 123 | 2,301 | -2,577 | -22,442 | -106 | -1,074 | -4.98 | -5.02 | -46.29 | -31.82 | |
| Darling Downs | { 1918 | 85,292 | 465,461 | 1,236,064 | 35,616 | | | | | | | | | |
| | { 1919 | 80,040 | 501,450 | 1,120,881 | 23,358 | -5,252 | 35,989 | -115,176 | -12,258 | -6.16 | 7.73 | -9.32 | -34.42 | |
| Gregory North | { 1918 | 28,983 | 293,123 | 1,816,528 | 83 | | | | | | | | | |
| | { 1919 | 31,016 | 323,019 | 1,602,069 | 89 | 2,033 | 29,896 | -214,459 | 6 | 7.01 | 10.20 | -11.81 | 7.23 | |
| Gregory South | { 1918 | 15,037 | 143,612 | 395,915 | 112 | | | | | | | | | |
| | { 1919 | 14,554 | 146,113 | 341,919 | 22 | -483 | 2,501 | -53,996 | -90 | -3.21 | 1.74 | -13.64 | -80.36 | |
| Leichhardt ... | { 1918 | 55,820 | 554,300 | 853,725 | 1,824 | | | | | | | | | |
| | { 1919 | 55,810 | 563,080 | 835,817 | 1,112 | -10 | 8,780 | -17,908 | -712 | -0.02 | 1.58 | -2.10 | -39.04 | |
| Maranoa ... | { 1918 | 32,013 | 270,214 | 2,038,422 | 2,050 | | | | | | | | | |
| | { 1919 | 32,078 | 308,207 | 2,210,000 | 1,261 | 65 | 37,993 | 171,578 | -789 | 0.20 | 14.06 | 8.42 | -38.49 | |
| Mitchell ... | { 1918 | 43,459 | 130,154 | 6,874,100 | 448 | | | | | | | | | |
| | { 1919 | 46,301 | 195,366 | 6,774,454 | 662 | 2,842 | 65,212 | -99,646 | 214 | 6.54 | 50.10 | -1.45 | 47.77 | |
| Moreton ... | { 1918 | 82,679 | 513,925 | 10,917 | 54,408 | | | | | | | | | |
| | { 1919 | 76,870 | 513,821 | 11,484 | 41,560 | -5,809 | -104 | 567 | -12,848 | -7.03 | -0.02 | 5.19 | -23.61 | |
| North Kennedy | { 1918 | 94,671 | 463,256 | 4,529 | 5,488 | | | | | | | | | |
| | { 1919 | 86,324 | 437,946 | 4,499 | 4,681 | -8,347 | -25,310 | 30 | -807 | -8.82 | -5.46 | -0.66 | -14.70 | |
| Port Curtis ... | { 1918 | 53,788 | 408,572 | 14,520 | 6,334 | | | | | | | | | |
| | { 1919 | 53,176 | 434,420 | 19,885 | 4,347 | -612 | 25,848 | 5,365 | -1,987 | -1.14 | 6.33 | 36.95 | -31.37 | |
| South Kennedy | { 1918 | 42,617 | 353,155 | 221,368 | 1,372 | | | | | | | | | |
| | { 1919 | 39,381 | 341,038 | 216,648 | 1,232 | -3,236 | -12,117 | -4,720 | -140 | -7.59 | -3.43 | -2.13 | -10.20 | |
| Warrego ... | { 1918 | 26,963 | 211,814 | 2,712,126 | 622 | | | | | | | | | |
| | { 1919 | 26,301 | 210,080 | 2,345,236 | 387 | -662 | -1,734 | -366,890 | -235 | -2.46 | -0.82 | -13.53 | -37.78 | |
| Wide Bay ... | { 1918 | 41,111 | 295,783 | 4,053 | 10,470 | | | | | | | | | |
| | { 1919 | 37,867 | 293,261 | 3,566 | 7,082 | -3,244 | -2,522 | -487 | -3,388 | -7.99 | -0.85 | -12.02 | -32.36 | |

Table No. IV.

DISTRIBUTION OF LIVE STOCK IN THE STATE—RETURN FOR TEN YEARS.

(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. |
| 1910... | 723 | 0.89 | 0.99 | 84 | 7.65 | 8.57 | 21 | 30.32 | 33.94 | 5.53 | 115.72 | 129.50 |
| 1911... | 693 | 0.92 | 0.99 | 85 | 7.75 | 8.15 | 21 | 30.93 | 33.34 | 5.53 | 115.83 | 124.83 |
| 1912... | 636 | 1.01 | 1.06 | 82 | 7.77 | 8.19 | 21 | 30.29 | 31.91 | 5.42 | 118.07 | 124.39 |
| 1913... | 607 | 1.05 | 1.07 | 81 | 7.94 | 8.06 | 20 | 32.49 | 33.00 | 5.23 | 122.42 | 124.33 |
| 1914... | 577 | 1.11 | 1.10 | 79 | 8.14 | 8.06 | 19 | 34.50 | 34.18 | 5.04 | 126.95 | 125.79 |
| 1915... | 625 | 1.02 | 1.00 | 90 | 7.13 | 6.96 | 27 | 23.79 | 23.22 | 6.08 | 105.34 | 102.80 |
| 1916... | 615 | 1.04 | 1.04 | 90 | 7.11 | 7.12 | 28 | 23.15 | 23.19 | 6.12 | 104.63 | 104.78 |
| 1917... | 585 | 1.09 | 1.06 | 81 | 7.92 | 7.72 | 25 | 25.66 | 24.99 | 5.52 | 115.88 | 112.85 |
| 1918... | 565 | 1.13 | 1.09 | 74 | 8.63 | 8.33 | 24 | 27.17 | 26.24 | 5.13 | 124.81 | 120.51 |
| 1919... | 586 | 1.09 | 1.01 | 72 | 8.86 | 8.20 | 25 | 25.92 | 23.96 | 5.10 | 125.43 | 115.97 |

Table No. V.

SHOWING SIZES AND DISTRIBUTION OF HERDS OF CATTLE IN PASTORAL DISTRICTS.

| Pastoral District. | 100 and Under. | | 101 to 300. | | 301 to 1,000. | | 1,001 and Upwards. | | Totals. | |
|--------------------|----------------|------------------|--------------|----------------|---------------|----------------|--------------------|------------------|---------------|------------------|
| | Owners. | Cattle. | Owners. | Cattle. | Owners. | Cattle. | Owners. | Cattle. | Owners. | Cattle. |
| Burke | 363 | 12,543 | 123 | 22,050 | 80 | 43,940 | 91 | 737,088 | 657 | 815,621 |
| Burnett | 3,586 | 122,623 | 464 | 75,531 | 160 | 85,490 | 61 | 148,870 | 4,271 | 432,514 |
| Cook | 1,280 | 38,446 | 146 | 24,005 | 26 | 13,202 | 56 | 348,844 | 1,508 | 424,497 |
| Darling Downs | 7,275 | 200,961 | 690 | 115,840 | 187 | 95,863 | 44 | 88,786 | 8,196 | 501,450 |
| Gregory North | 134 | 3,340 | 22 | 4,486 | 33 | 17,819 | 39 | 297,374 | 228 | 323,019 |
| Gregory South | 77 | 3,049 | 15 | 3,022 | 19 | 11,507 | 22 | 128,535 | 133 | 146,113 |
| Leichhardt | 1,107 | 31,968 | 270 | 50,300 | 136 | 74,994 | 119 | 405,818 | 1,632 | 563,080 |
| Maranoa | 1,149 | 35,744 | 221 | 39,700 | 101 | 54,564 | 63 | 178,199 | 1,534 | 308,207 |
| Mitchell | 587 | 15,513 | 94 | 17,001 | 83 | 47,734 | 49 | 115,118 | 813 | 195,366 |
| Moreton | 10,578 | 282,629 | 809 | 128,332 | 130 | 62,378 | 23 | 40,482 | 11,540 | 513,821 |
| North Kennedy | 2,172 | 42,292 | 170 | 30,771 | 77 | 45,003 | 68 | 319,880 | 2,487 | 437,946 |
| Port Curtis | 2,510 | 68,233 | 354 | 61,878 | 144 | 82,716 | 83 | 221,593 | 3,091 | 434,420 |
| South Kennedy | 1,187 | 24,301 | 98 | 17,387 | 58 | 34,894 | 59 | 264,456 | 1,402 | 341,038 |
| Warrego | 443 | 13,937 | 97 | 16,912 | 80 | 46,084 | 48 | 133,147 | 668 | 210,080 |
| Wide Bay | 4,828 | 122,694 | 466 | 75,333 | 97 | 45,822 | 25 | 49,412 | 5,416 | 293,261 |
| Totals | 37,276 | 1,018,273 | 4,039 | 682,548 | 1,411 | 762,010 | 850 | 3,477,602 | 43,576 | 5,940,433 |

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— <i>continued</i> | Stanthorpe | Mitchell <i>—contd.</i> | Longreach | North Kennedy <i>—contd.</i> | Charters Towers |
| | Camooweal | | Texas | | Alpha, part of | | Ingham |
| | Richmond | | Warwick | | Hughenden, part of | | Proserpine |
| | Cloncurry, part of | | Crow's Nest, part of | | Isisford, part of | | Ravenswood |
| | Croydon, part of | | Highfields, part of | | Jundah, part of | | Townsville |
| | Hughenden, part of | | Toowoomba, part of | | Muttaborra, part of | | Bowen, part of |
| | Norman, part of | | Yeulba, part of | | Tambo, part of | | Cape River, part of |
| | Eidsvold | | Boulia | | | | Herberton, part of |
| | Gayndah | | Winton | | | | Gladstone |
| | Mount Perry | | Cloncurry, part of | | | | Mount Morgan |
| Burnett | Wienholt | Gregory North | Diamantina, part of | Moreton | Beaudesert | Port Curtis | Rockhampton, part of |
| | Biggenden, part of | | Windorah, part of | | Caboolture | | St. Lawrence, part of |
| | Gin Gin, part of | | Adavale, part of | | Cleveland | | Alpha, part of |
| | Nanango, part of | | Diamantina, part of | | Cooyar | | Bowen, part of |
| | Atherton | | Isisford, part of | | Dugandan | | Cape River, part of |
| | Cairns | | Jundah, part of | | Esk | | Clermont, part of |
| | Chillagoe | | Quilpie, part of | | Gatton | | Mackay, part of |
| | Coen | | Thargomindah, part of | | Goodna | | Muttaborra, part of |
| | Cook | | Windorah, part of | | Harrisville | | |
| | Douglas | | Banana | | Helidon | | |
| Cook | Etheridge | Leichhardt | Emerald | North Kennedy | Ipswich | Warrego | Augathella |
| | Mourilyan | | Springsure | | Kilcoy | | Charleville |
| | Palmer | | Taroom | | Laidley | | Cunnamulla |
| | Somerset | | Clermont, part of | | Logan | | Eulo |
| | Croydon, part of | | Mackay, part of | | Lowood | | Hungerford |
| | Herberton, part of | | Rockhampton, part of | | Nerang | | Adavale, part of |
| | Norman, part of | | Roma, part of | | Redcliffe | | Quilpie, part of |
| | Allora | | St. Lawrence, part of | | Rosewood | | Tambo, part of |
| | Clifton | | | | Southport | | Thargomindah, part of |
| | Condamine | | | | Townshend | | |
| Darling Downs | Dalby | Maranoa | Bollon | Wide Bay | Wynnum | Wide Bay | Bundaberg |
| | Goombungee | | Mitchell | | Crow's Nest, part of | | Childers |
| | Goondiwindi | | St. George | | Highfields, part of | | Gympie |
| | Inglewood | | Surat | | Maroochy, part of | | Kilkivan |
| | Jondaryan | | Roma, part of | | Nanango, part of | | Maryborough |
| | Killarney | | Yeulba, part of | | Toowoomba, part of | | Tiaro |
| | Oakey | | | | Woodford, part of | | Biggenden, part of |
| | Pittsworth | | | | | | Gin Gin, part of |
| | | | | | | | Maroochy, part of |
| | | | | | | | Woodford, part of |

Table No. VI.

SHOWING SIZES AND DISTRIBUTION OF FLOCKS OF SHEEP IN PASTORAL DISTRICTS.

| Pastoral District. | 50 and Under. | | 51 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. | Owners | Sheep. | |
| Burke | 15 | 241 | 18 | 3,047 | 2 | 1,670 | 12 | 21,096 | 66 | 234,392 | 31 | 221,877 | 29 | 446,375 | 18 | 535,158 | 3 | 218,930 | 2 | 203,792 | 196 | 1,886,578 | |
| Burnett | 73 | 1,138 | 23 | 2,438 | 1 | 640 | 1 | 1,950 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 98 | 6,166 | |
| Cook | 6 | 123 | 433 | 98,557 | 154 | 119,056 | 89 | 138,348 | 71 | 222,773 | 27 | 172,278 | 11 | 164,240 | 5 | 150,311 | 1 | 52,778 | ... | ... | 6 | 123 | |
| Darling Downs | 9 | 87 | 5 | 752 | 6 | 4,260 | 10 | 16,300 | 38 | 134,263 | 21 | 151,877 | 19 | 259,813 | 13 | 388,650 | 9 | 515,129 | ... | ... | 1,215 | 1,120,888 | |
| Gregory North | 3 | 51 | 2 | 419 | 2 | 2,000 | 3 | 4,470 | 8 | 30,132 | 3 | 24,351 | 4 | 62,238 | 4 | 127,008 | 1 | 91,250 | ... | ... | 1 | 1,602,069 | |
| Gregory South | 65 | 2,390 | 69 | 14,707 | 45 | 35,096 | 50 | 75,541 | 41 | 126,859 | 16 | 106,563 | 7 | 90,968 | 9 | 332,442 | 1 | 51,251 | ... | ... | 30 | 341,919 | |
| Leichhardt | 70 | 1,141 | 119 | 30,581 | 92 | 71,097 | 111 | 170,295 | 103 | 344,189 | 60 | 431,957 | 24 | 320,827 | 18 | 588,757 | 4 | 256,156 | ... | ... | 601 | 835,817 | |
| Maranoa | 22 | 273 | 23 | 5,541 | 21 | 15,534 | 42 | 63,720 | 130 | 434,642 | 137 | 994,892 | 96 | 1,401,603 | 52 | 1,609,022 | 19 | 1,457,449 | ... | ... | 548 | 2,210,000 | |
| Mitchell | 285 | 4,779 | 49 | 6,197 | 1 | 508 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 335 | 11,484 |
| Moreton | 28 | 497 | 13 | 2,143 | 2 | 1,859 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 43 | 4,499 |
| North Kennedy | 61 | 909 | 33 | 3,576 | ... | ... | 1 | 1,100 | 2 | 5,800 | 1 | 8,500 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 98 | 19,885 |
| Port Curtis | 11 | 206 | 16 | 3,069 | 4 | 3,512 | 10 | 16,426 | 8 | 24,784 | 2 | 17,925 | 3 | 43,595 | 1 | 33,131 | ... | ... | ... | ... | ... | 56 | 216,648 |
| South Kennedy | 24 | 582 | 34 | 9,698 | 31 | 24,650 | 66 | 104,291 | 103 | 354,654 | 43 | 305,509 | 31 | 417,943 | 19 | 734,147 | 4 | 287,143 | ... | ... | 1 | 106,619 | |
| Warrego | 93 | 1,318 | 21 | 2,248 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 356 | 2,345,236 |
| Wide Bay | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 114 | 3,566 |
| Totals | 1,189 | 21,282 | 858 | 182,973 | 361 | 279,882 | 395 | 608,537 | 570 | 1,912,488 | 341 | 2,435,229 | 224 | 3,207,602 | 139 | 4,493,626 | 43 | 3,004,086 | 10 | 1,233,627 | 4,130 | 17,379,332 | |

Table No. VII.

RETURN FOR TEN YEARS OF LIVE STOCK SLAUGHTERED 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. | | | | | | |
|-------|-----------------------------------|---------------|--------------|---------------|---------------------------|---------------|--------------|---------------|--------------|---------------|-----------------------|---------------|---------------------------------------|---------------|------------------------------|----------------------------|---|---------------|--------------|---------------|--------------|---------------|--------------|
| | Average Number of Hands Employed. | Cattle. | | Sheep. | Beef. | | Mutton. | | Lamb. | | Pork, Salt and Fresh. | | Extract and Essence of Meat Produced. | | | | | | | | | | |
| | | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. | For Freezing. | For Boiling. |
| 1910 | 13 | 131,814 | 33,005 | 2,245 | 867,031 | 143,273 | 93,651 | 89,710,770 | 19,450,283 | 215,226 | 4,692,119 | 34,345,343 | 3,218,028 | 8,248 | 484,039 | 95 | 10,758,963 | 820,120 | 116,663 | 7,744 | 677,515 | 2,141,156 | |
| 1911 | 13 | 182,627 | 45,074 | 2,555 | 178,607 | 106,385 | 6,475 | 92,853,184 | 27,909,045 | 3,218,028 | 2,822,710 | 6,847,460 | 3,218,028 | 2,125 | 375,739 | 6,158 | 11,667,654 | 789,837 | 96,925 | 7,677 | 582,154 | 1,575,463 | |
| 1912 | 19 | 3,568 | 280,489 | 71,173 | 528,744 | 58,095 | 16,770 | 142,402,250 | 31,651,315 | 4,123,018 | 1,238,786 | 19,590,274 | 2,421 | 299,382 | 501 | 12,437,019 | 1,041,224 | 352,685 | 12,572 | 822,398 | 3,031,969 | | |
| 1913 | 21 | 4,225 | 346,243 | 97,678 | 636,758 | 47,893 | 6,428 | 191,400,986 | 40,972,885 | 4,476,684 | 1,324,847 | 25,853,408 | 31,519 | 1,238,582 | 512 | 13,709,716 | 670,345 | 520,743 | 16,399 | 836,353 | 4,206,885 | | |
| 1914 | 24 | 5,429 | 416,494 | 124,463 | 634,351 | 75,599 | 4,129 | 225,785,690 | 39,644,026 | 2,402,249 | 1,978,046 | 25,759,382 | 200 | 1,308,120 | 93 | 13,339,131 | 522,477 | 629,452 | 16,762 | 929,610 | 6,818,676 | | |
| 1915 | 23 | 5,051 | 378,381 | 59,104 | 4,432 | 401,818 | 8,638 | 181,459,501 | 24,500,368 | 925,778 | 4,093,104 | 15,310,521 | 791,969 | 89,322 | ... | 12,363,939 | 884,736 | 359,544 | 10,374 | 698,905 | 5,295,688 | | |
| 1916 | 22 | 4,634 | 358,536 | 27,470 | 395,986 | 29,875 | 540 | 191,735,238 | 23,005,878 | 356,614 | 1,362,126 | 17,070,957 | ... | ... | ... | 10,427,649 | 737,606 | 189,993 | 8,394 | 622,369 | 5,062,479 | | |
| 1917 | 21 | 5,100 | 390,558 | 28,282 | 233,019 | 25,811 | 477 | 191,735,238 | 23,005,878 | 284,495 | 1,023,815 | 9,995,909 | 95,200 | 95,200 | ... | 14,791,540 | 808,518 | 986,123 | 9,069 | 761,060 | 6,740,376 | | |
| 1918 | 21 | 5,079 | 290,342 | 41,119 | 74,640 | 94,338 | 46 | 176,849,345 | 31,719,394 | 217,308 | 3,644,854 | 3,162,016 | 3,833 | 3,833 | ... | 16,476,480 | 890,252 | 277,333 | 7,889 | 854,161 | 5,830,105 | | |
| 1919 | 21 | 4,351 | 197,632 | 45,033 | 215,419 | 48,022 | 1,168 | 120,675,330 | 26,603,970 | 12,632 | 1,410,136 | 8,226,181 | 141,641 | 141,641 | ... | 12,155,489 | 721,072 | 288,656 | 6,115 | 656,547 | 4,503,806 | | |

N.B.—13,204 swine killed by farmers and 1,219,655 lb. of pork and bacon made therefrom during 1919 are included in this table.

* Excluding 40,282 cattle and 30,090 sheep and meat obtained therefrom supplied to State Butchers' Shops and included in Table VIII.

Table No. VIII.

RETURN showing the 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, for TEN YEARS, ending 31st DECEMBER, 1919 (exclusive of Factories 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. | |
| | | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | lb. | | |
| 1910 | ... | 198,862 | 617,961 | 12,588 | 13,530 | 34,651 | 626 | 43 | 66 | 85 | 210.21 | 43.83 | 1.40 | 0.82 | 4.97 | 261.23 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | | |
| 1911 | ... | 228,874 | 661,951 | 15,134 | 15,270 | 44,774 | 599 | 43 | 69 | 98 | 223.29 | 45.94 | 1.70 | 0.84 | 7.12 | 278.89 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | | |
| 1912 | ... | 228,250 | 643,897 | 17,068 | 15,754 | 49,978 | 580 | 44 | 76 | 84 | 209.47 | 44.67 | 2.05 | 0.88 | 6.62 | 263.69 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | | |
| 1913 | ... | 235,212 | 627,637 | 18,465 | 16,331 | 43,804 | 588 | 43 | 78 | 87 | 211.99 | 41.51 | 2.21 | 0.82 | 5.82 | 262.35 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | | |
| 1914 | ... | 215,703 | 578,038 | 14,296 | 16,416 | 40,178 | 584 | 42 | 76 | 86 | 186.51 | 35.65 | 1.62 | 0.82 | 5.14 | 229.74 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | |
| 1915 | ... | 193,082 | 598,944 | 18,016 | 21,398 | 41,273 | 537 | 37 | 71 | 80 | 150.89 | 32.49 | 1.86 | 0.99 | 4.81 | 191.04 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | |
| 1916 | ... | 178,375 | 459,716 | 11,570 | 20,135 | 27,405 | 570 | 43 | 67 | 88 | 150.01 | 29.50 | 1.15 | 1.06 | 3.54 | 185.26 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | |
| 1917 | ... | 153,206 | 412,669 | 8,467 | 15,400 | 29,035 | 591 | 43 | 50 | 86 | 133.00 | 25.97 | 0.62 | 0.73 | 3.66 | 163.98 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | |
| 1918 | ... | 159,066 | 359,688 | 5,659 | 13,665 | 39,588 | 576 | 43 | 47 | 81 | 133.00 | 22.61 | 0.38 | 0.57 | 4.65 | 161.21 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | |
| 1919 | ... | *204,977 | *431,503 | 10,773 | 16,219 | 33,986 | 586 | 39 | 50 | 86 | 166.80 | 23.41 | 0.75 | 0.68 | 4.08 | 195.72 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | |

* Including 40,282 Cattle and 30,090 Sheep and Meat obtained therefrom supplied by Meat Works to State Butchers' Shops.

Table No. IX.

OTHER PRODUCTS OF MEAT PRESERVING, ETC., ESTABLISHMENTS IN the STATE—RETURN for TEN YEARS.

| Year. | No. | Hides. | | Skins. | | Edible Fats. | | Bones. | | Hoofs and Horns. | | Hair. | | Oils, &c. | | Manure. | | All Other Products. | | Total Value. |
|-------|-----|---------|---------|-----------|---------|--------------|---------|--------|--------|------------------|---------|-------|--------|-----------|--------|---------|-----------|---------------------|--|--------------|
| | | Number. | £ | Number. | £ | Lb. | £ | Tons. | £ | £ | £ | Lb. | £ | Tons. | £ | £ | £ | | | |
| 1910 | 11 | 167,064 | 224,475 | 1,119,660 | 219,805 | 1,324,354 | 22,170 | 266 | 1,815 | 4,354 | 70,241 | 1,542 | 14,794 | 3,538 | 17,695 | 25,256 | 518,705 | | | |
| 1911 | 12 | 200,296 | 244,228 | 303,932 | 76,716 | 534,466 | 9,255 | 348 | 2,558 | 4,738 | 76,882 | 1,670 | 14,265 | 4,372 | 22,694 | 29,348 | 392,851 | | | |
| 1912 | 19 | 343,894 | 452,797 | 663,416 | 131,948 | 1,933,753 | 31,412 | 676 | 5,501 | 9,217 | 100,089 | 3,060 | 24,087 | 7,009 | 33,913 | 40,556 | 711,209 | | | |
| 1913 | 21 | 456,919 | 695,491 | 789,889 | 194,155 | 4,060,966 | 64,713 | 1,072 | 9,176 | 10,291 | 134,376 | 4,271 | 34,467 | 8,751 | 45,095 | 53,621 | 1,081,223 | | | |
| 1914 | 24 | 546,781 | 822,155 | 756,840 | 152,997 | 5,107,118 | 88,259 | 1,747 | 11,946 | 11,113 | 115,902 | 4,186 | 38,556 | 10,512 | 57,521 | 175,918 | 1,328,817 | | | |
| 1915 | 23 | 449,925 | 704,202 | 718,737 | 125,176 | 4,455,300 | 122,714 | 840 | 8,335 | 7,611 | 108,254 | 4,080 | 32,244 | 9,016 | 43,131 | 214,560 | 1,239,074 | | | |
| 1916 | 22 | 396,292 | 695,004 | 460,980 | 129,143 | 6,185,530 | 150,639 | 585 | 6,456 | 6,882 | 100,257 | 2,750 | 27,733 | 7,238 | 47,296 | 192,555 | 1,236,176 | | | |
| 1917 | 21 | 426,610 | 948,747 | 290,170 | 98,547 | 9,132,507 | 337,043 | 648 | 11,431 | 8,805 | 118,839 | 3,302 | 23,669 | 6,602 | 50,136 | 284,259 | 1,746,709 | | | |
| 1918 | 21 | 340,155 | 740,036 | 186,569 | 62,116 | 8,875,269 | 242,602 | 578 | 10,885 | 7,978 | 109,102 | 2,992 | 22,961 | 5,404 | 47,379 | 373,180 | 1,492,777 | | | |
| 1919 | 21 | 291,384 | 802,167 | 184,353 | 57,698 | 8,295,790 | 253,336 | 541 | 7,979 | 8,729 | 118,200 | 3,469 | 33,433 | 4,710 | 48,355 | 467,444 | 1,658,583 | | | |

Table No. XI.

RETURN SHOWING THE RESULTS OF LAMBING, LOSSES, KILLED FOR FOOD ON HOLDINGS, &c., IN THE SEVERAL PASTORAL DISTRICTS OF THE STATE FOR THE YEAR 1918.

| Pastoral District. | Total Sheep as per Stock Returns on 1st Jan., 1918. | Ewes Mated with Rams. | Lambs Dropped. | Percentage of Lambing | Purchases. | Sales. | LOSSES AND THE CAUSES AS RETURNED BY OWNERS, AND THE PERCENTAGE TO TOTAL LOSSES FROM EACH CAUSE. | | | | | |
|--------------------|---|-----------------------|----------------|-----------------------|------------|-----------|--|-------|---------|-------|---------|-------|
| | | | | | | | Drought. | | Flood. | | Fly. | |
| | | | | | | | No. | % | No. | % | No. | % |
| Burke | 2,139,014 | 836,538 | 385,144 | 46.04 | 358,260 | 448,724 | 185,278 | 48.36 | 30,089 | 7.85 | 38,602 | 10.08 |
| Burnett | 9,496 | 2,254 | 1,398 | 62.02 | 3,212 | 4,355 | 59 | 10.03 | .. | .. | 13 | 2.22 |
| Cook | 216 | .. | .. | .. | 156 | 143 | .. | .. | .. | .. | .. | .. |
| Darling Downs .. | 1,339,242 | 466,477 | 192,911 | 41.35 | 330,265 | 387,498 | 118,522 | 57.11 | 1,982 | 0.96 | 20,835 | 10.04 |
| Gregory North .. | 1,881,498 | 830,197 | 353,267 | 42.55 | 230,283 | 249,134 | 182,173 | 48.19 | 18,107 | 4.79 | 37,987 | 10.05 |
| Gregory South .. | 334,488 | 157,284 | 90,610 | 57.61 | 53,210 | 35,128 | 8,709 | 22.35 | 650 | 1.67 | 4,748 | 12.19 |
| Leichhardt | 719,774 | 315,037 | 180,652 | 57.34 | 180,627 | 107,071 | 13,244 | 12.10 | 16,589 | 15.16 | 32,096 | 29.33 |
| Maranoa | 1,688,908 | 792,773 | 479,610 | 60.50 | 736,432 | 683,667 | 44,410 | 29.45 | 170 | 0.11 | 27,607 | 18.31 |
| Mitchell | 6,642,483 | 3,011,700 | 1,555,402 | 51.65 | 766,818 | 1,234,952 | 172,123 | 22.09 | 63,406 | 8.14 | 121,322 | 15.56 |
| Moreton | 13,397 | 3,946 | 1,862 | 47.19 | 2,218 | 3,903 | 756 | 38.63 | .. | .. | 37 | 1.89 |
| North Kennedy .. | 5,351 | 1,654 | 857 | 51.81 | 3,737 | 3,689 | 20 | 1.28 | 400 | 25.53 | 557 | 35.55 |
| Port Curtis | 12,870 | 4,914 | 2,489 | 50.65 | 3,573 | 655 | 909 | 26.50 | 590 | 17.20 | 180 | 5.25 |
| South Kennedy .. | 205,616 | 71,809 | 51,171 | 71.26 | 45,151 | 38,722 | 4,633 | 12.06 | 8,492 | 22.10 | 12,281 | 31.97 |
| Warrego | 2,207,173 | 1,091,720 | 742,556 | 68.02 | 372,646 | 385,887 | 39,328 | 21.05 | 890 | 0.48 | 27,903 | 14.94 |
| Wide Bay | 4,742 | 1,114 | 751 | 67.41 | 316 | 1,103 | 68 | 12.43 | .. | .. | 1 | 0.18 |
| | 17,204,268 | 7,587,417 | 4,038,680 | 53.23 | 2,986,904 | 3,584,631 | 770,232 | 33.78 | 141,365 | 6.20 | 324,169 | 14.21 |

| Pastoral District. | LOSSES AND THE CAUSES AS RETURNED BY OWNERS, AND THE PERCENTAGE TO TOTAL LOSSES FROM EACH CAUSE. | | | | | | | | Killed for Food on Holding. | Total Sheep as per Stock Returns on 31st Dec., 1918. | Skins Obtained during Year. |
|--------------------|--|-------|----------------------|-------|-----------|-------|---|-------|-----------------------------|--|-----------------------------|
| | Dingoes. | | Old Age and Lambing. | | Other.* | | Total Losses and Percentage to Total Sheep. | | | | |
| | No. | % | No. | % | No. | % | No. | % | | | |
| Burke | 6,134 | 1.60 | 67,420 | 17.60 | a 55,595 | 14.51 | 383,118 | 17.91 | 20,886 | 2,029,690 | 21,171 |
| Burnett | 122 | 20.75 | 208 | 35.37 | b 186 | 31.63 | 588 | 6.19 | 364 | 8,799 | 312 |
| Cook | .. | .. | .. | .. | .. | .. | .. | .. | 229 | .. | .. |
| Darling Downs .. | 16,245 | 7.83 | 27,843 | 13.42 | c 22,094 | 10.65 | 207,521 | 15.50 | 31,335 | 1,236,064 | 46,224 |
| Gregory North .. | 18,938 | 5.01 | 65,842 | 17.42 | d 54,981 | 14.54 | 378,028 | 20.09 | 21,358 | 1,816,528 | 21,365 |
| Gregory South .. | 8,327 | 21.37 | 15,750 | 40.43 | e 775 | 1.99 | 38,959 | 11.65 | 8,306 | 395,915 | 3,157 |
| Leichhardt | 13,381 | 12.23 | 16,794 | 15.35 | f 17,327 | 15.83 | 109,431 | 15.20 | 10,826 | 853,725 | 8,736 |
| Maranoa | 20,606 | 13.66 | 46,317 | 30.71 | g 11,700 | 7.76 | 150,810 | 8.93 | 32,051 | 2,038,422 | 29,367 |
| Mitchell | 73,003 | 9.37 | 155,657 | 19.98 | h 193,707 | 24.86 | 779,218 | 11.73 | 76,433 | 6,874,100 | 71,132 |
| Moreton | 408 | 20.84 | 378 | 19.32 | i 378 | 19.32 | 1,957 | 14.61 | 700 | 10,917 | 868 |
| North Kennedy .. | 128 | 8.17 | 372 | 23.73 | j 90 | 5.74 | 1,567 | 29.28 | 160 | 4,529 | 153 |
| Port Curtis | 136 | 3.96 | 419 | 12.22 | k 1,196 | 34.87 | 3,430 | 26.65 | 327 | 14,520 | 389 |
| South Kennedy .. | 3,370 | 8.77 | 7,609 | 19.81 | l 2,033 | 5.29 | 38,418 | 18.68 | 3,430 | 221,368 | 3,434 |
| Warrego | 39,369 | 21.08 | 65,029 | 34.81 | m 14,268 | 7.64 | 186,787 | 8.46 | 37,575 | 2,712,126 | 36,623 |
| Wide Bay | 101 | 18.46 | 240 | 43.88 | n 137 | 25.05 | 547 | 11.54 | 106 | 4,053 | 127 |
| | 200,268 | 8.78 | 469,878 | 20.61 | 374,467 | 16.42 | 2,280,379 | 13.25 | 243,857 | 18,220,985 | 243,053 |

* Causes included in "Other"—

- a Bugged, bushfire, cancer, foxes, killed for bait, lost, marking, natural, poison, shearing;
- b Marking, poison, worms;
- c Blown, bogged, cancer, crows, dogs, eagles, foxes, frost, grubs in head, hoven, lost, natural, pneumonia, poison, white eye, worms;
- d Bushfire, cancer, killed for bait, marking, natural, poison, shearing wild pigs.
- e Foxes, poison weed, stolen;
- f Bugged, bushfire, dogs, grass seed, lost, poison, prickly-pear stagers worms.

- g Blight, bogged, cancer, crows, fire, foxes, marking, missing, natural, poison, shearing, travelling, wild pigs, worms;
- h Blindness, bogged, bushfire, cancer, droving, eagles, footrot, foxes, killed for skins, marking, natural, shearing, worms;
- i Blown, eagles, poison, scrubticks, worms;
- j Lantana, ticks;
- k Cyclone, speargrass, ticks, worms
- l Lost, worms;
- m Blindness, bogged, bushfire, cancer, dogs, foxes, hawks, marking, poison weed, shearing, travelling.
- n Dogs, ticks, worms.

REPORT OF THE GOVERNMENT STATISTICIAN ON AGRICULTURAL PRODUCTION FOR THE YEAR 1919.

DAIRYING.

B.

TABLE 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. | Total. | | | | | |
| | | | | | 1890 | ... | ... | Lb. *2,000,000 | Lb. *170,240 |
| | | | | | 1895 | ... | ... | 3,719,523 | 1,841,799 |
| 1909 | 15,279 | 228,497 | 105,342 | 333,839 | 1900 | ... | ... | 8,680,389 | 1,984,705 |
| 1910 | 16,079 | 262,788 | 102,656 | 365,444 | 1905 | ... | ... | 20,319,976 | 2,682,089 |
| 1911 | 16,225 | 237,997 | 119,098 | 357,095 | 1910 | ... | ... | 31,258,333 | 4,146,661 |
| 1912 | 16,579 | 267,847 | 107,813 | 375,660 | 1911 | ... | ... | 27,858,535 | 3,718,257 |
| 1913 | 17,866 | 285,403 | 106,036 | 391,439 | 1912 | ... | ... | 30,307,339 | 3,947,615 |
| 1914 | 18,029 | 288,334 | 98,977 | 387,311 | 1913 | ... | ... | 35,199,387 | 5,395,050 |
| 1915 | 17,876 | 218,511 | 116,732 | 335,243 | 1914 | ... | ... | 37,230,240 | 7,931,869 |
| 1916 | 18,410 | 247,855 | 95,456 | 343,311 | 1915 | ... | ... | 25,456,714 | 4,383,410 |
| 1917 | 19,404 | 303,133 | 96,375 | 399,508 | 1916 | ... | ... | 28,967,279 | 8,495,825 |
| 1918 | 19,313 | 255,039 | 126,466 | 381,505 | 1917 | ... | ... | 38,930,690 | 11,142,114 |
| 1919 | 18,952 | 211,331 | 161,815 | 373,146 | 1918 | ... | ... | 32,371,575 | 8,636,700 |
| | | | | | 1919 | ... | ... | 26,213,514 | 8,296,318 |

* Estimated.

B a.

DETAILS OF THE PRINCIPAL DAIRYING DIVISIONS FOR THE YEAR 1919.

| 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 | 29,665,684 | 1,417,166 | 5,067 | 1,746,093 | 22,122,741 | 2,669,581 | 1,389,597 | 315,439 |
| Wide Bay | 17,620,281 | 985,043 | 3,000 | 1,130,456 | 14,793,727 | 237,565 | ... | 470,490 |
| Port Curtis | 2,753,148 | 254,124 | 250 | 185,617 | 2,070,758 | 242,399 | ... | ... |
| Downs | 17,307,602 | 909,801 | 670 | 1,231,133 | 7,707,298 | 249,558 | 839,345 | ... |
| Other Districts | 4,509,323 | 473,750 | 60 | 658,119 | 3,027,419 | 282,109 | ... | 6,369,797 |
| Total, 1919 | 71,856,038 | 4,039,894 | 9,047 | 4,951,418 | b 49,721,943 | 3,681,212 | 2,228,942 | 7,223,592 |
| Total, 1918 | 87,580,098 | 4,296,478 | 63,495 | 5,215,456 | a 64,205,672 | 4,094,412 | 1,222,375 | 8,482,210 |
| Increase, 1919 | ... | ... | ... | ... | ... | ... | ... | ... |
| Decrease, 1919 | 16,724,060 | 256,594 | 54,448 | 264,038 | 14,483,729 | 413,200 | 1,006,567 | 1,258,618 |

| District. | ESTABLISHMENTS. | | | DAIRY CATTLE. | | BUTTER MADE. | | | CHEESE MADE. | | |
|-----------------|-----------------|-------------------|-------------------|---------------|---------|---------------|-------------|------------|--------------|-------------|-----------|
| | Dairying. | Butter Factories. | Cheese Factories. | In Milk. | Dry. | At Factories. | By Farmers. | Total. | A Factories. | By Farmers. | Total. |
| | No. | No. | No. | No. | No. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. |
| Moreton | 7,172 | 16 | 7 | 88,219 | 53,558 | 11,595,520 | 618,517 | 12,214,037 | 288,846 | 5,067 | 293,913 |
| Wide Bay | 4,262 | 8 | 8 | 52,268 | 45,068 | 6,735,362 | 408,114 | 7,143,476 | 491,495 | 3,500 | 494,995 |
| Port Curtis | 811 | 2 | ... | 11,270 | 10,910 | 491,674 | 90,081 | 581,755 | ... | ... | ... |
| Downs | 4,553 | 13 | 68 | 44,655 | 33,391 | 4,594,892 | 400,262 | 4,995,154 | 7,492,449 | 661 | 7,493,110 |
| Other Districts | 2,154 | 3 | 2 | 14,919 | 13,888 | 1,111,209 | 167,883 | 1,279,092 | 14,240 | 60 | 14,300 |
| Total, 1919 | 18,952 | 42 | 85 | 211,331 | 161,815 | 24,528,657 | 1,684,857 | 26,213,514 | 8,287,030 | 9,288 | 8,296,318 |
| Total, 1918 | 19,313 | 45 | 79 | 255,039 | 126,466 | 30,669,112 | 1,702,463 | 32,371,575 | 8,573,270 | 63,430 | 8,636,700 |
| Increase, 1919 | ... | ... | 6 | ... | 35,349 | ... | ... | ... | ... | ... | ... |
| Decrease, 1919 | 361 | 3 | ... | 43,708 | ... | 6,140,455 | 17,606 | 6,158,061 | 286,240 | 54,142 | 340,382 |

a 1,065,961 gallons of this were sent from the Moreton Division to New South Wales.
 b 821,162 gallons of this were sent from the Moreton Division to New South Wales.

B b.

BUTTER.

QUANTITY EXPORTED FOR FIVE YEARS.

| Butter Exported Overseas. | 1914-15. | 1915-16. | 1916-17. | 1917-18. | 1918-19 |
|---------------------------|------------|-----------|------------|------------|-----------|
| Quantity lb.) | 14,134,135 | 2,353,989 | 17,945,023 | 19,595,849 | 7,839,356 |
| Value | £697,437 | £136,232 | £1,285,169 | £1,320,992 | £608,587 |
| Average value per lb. | 12d. | 1s. 2½d. | 1s. 5¼d. | 1s. 4¾d. | 1s. 6¾d. |

NOTE.—Butter sent to other States not included in above.

B c.

CONDENSED MILK MANUFACTURED.

| Year | Lb. |
|------|-----------|
| 1915 | 5,368,510 |
| 1916 | 6,584,272 |
| 1917 | 9,409,059 |
| 1918 | 6,845,610 |
| 1919 | 9,170,034 |

POULTRY.

B d.

DETAILS RESPECTING PRINCIPAL DISTRICTS, 1919.

| Petty Sessions District. | Fowls. | Ducks. | Geese. | Turkeys. | Other. | Eggs. |
|--------------------------|---------|--------|--------|----------|--------|-----------|
| | No. | No. | No. | No. | No. | Doz. |
| Atherton | 19,528 | 565 | 41 | 206 | 15 | 75,052 |
| Allora | 8,887 | 75 | 9 | 52 | ... | 22,443 |
| Beaudesert | 9,675 | 255 | 74 | 272 | 60 | 19,090 |
| Brisbane (A) | 28,003 | 1,315 | 30 | 37 | 89 | 165,558 |
| Brisbane (B) | 13,433 | 1,464 | 32 | 34 | ... | 59,782 |
| Bundaberg | 14,625 | 219 | 54 | 147 | ... | 40,464 |
| Cairns | 13,378 | 615 | 73 | 50 | 24 | 48,023 |
| Clifton | 18,256 | 182 | ... | 308 | ... | 87,099 |
| Crow's Nest | 8,673 | 163 | 61 | 65 | 2 | 21,052 |
| Dalby | 15,624 | 419 | 98 | 560 | ... | 39,065 |
| Dugandan | 30,470 | 1,960 | 423 | 305 | 56 | 146,756 |
| Esk | 13,379 | 678 | 574 | 557 | 147 | 47,680 |
| Gatton | 21,366 | 1,572 | 567 | 169 | 40 | 61,793 |
| Gayndah | 7,877 | 260 | 45 | 246 | 10 | 22,160 |
| Gladstone | 7,853 | 200 | 51 | 162 | ... | 24,382 |
| Gympie | 18,950 | 1,121 | 98 | 528 | 71 | 64,673 |
| Harrisville | 19,274 | 888 | 187 | 384 | 2 | 91,689 |
| Helidon | 8,060 | 63 | 11 | 61 | ... | 32,794 |
| Highfields | 6,058 | 70 | 3 | 51 | ... | 28,002 |
| Ipswich | 7,373 | 207 | 40 | 47 | 15 | 29,480 |
| Jondaryan | 5,565 | 38 | 38 | 126 | ... | 15,063 |
| Killarney | 7,805 | 165 | 5 | 210 | 2 | 29,472 |
| Laidley | 16,100 | 1,362 | 631 | 89 | 12 | 54,278 |
| Logan | 11,676 | 803 | 165 | 20 | ... | 45,551 |
| Lowood | 13,715 | 1,682 | 789 | 52 | ... | 51,158 |
| Mackay | 26,093 | 711 | 82 | 131 | 48 | 71,098 |
| Maroochy | 23,363 | 1,254 | 65 | 48 | 22 | 81,609 |
| Maryborough | 9,314 | 238 | 69 | 210 | ... | 39,515 |
| Nanango | 20,885 | 543 | 59 | 445 | 64 | 64,110 |
| Nerang | 8,939 | 670 | 83 | 156 | ... | 28,112 |
| Oakey | 13,901 | 148 | 18 | 273 | ... | 46,990 |
| Pittsworth | 14,493 | 104 | 30 | 237 | ... | 55,232 |
| Redcliffe | 10,178 | 482 | 31 | 96 | 16 | 39,057 |
| Rockhampton | 19,570 | 691 | 104 | 206 | 94 | 81,648 |
| Rosewood | 17,295 | 611 | 202 | 183 | 35 | 76,639 |
| Toowoomba | 13,223 | 165 | 45 | 65 | 3 | 42,367 |
| Townshend | 9,913 | 921 | 164 | 33 | 2 | 36,914 |
| Warwick | 23,421 | 448 | 102 | 603 | 40 | 75,945 |
| Wienholt | 21,305 | 935 | 237 | 491 | 55 | 65,050 |
| All other Districts | 145,132 | 4,714 | 635 | 3,186 | 719 | 444,140 |
| Totals, 1919 | 722,628 | 28,976 | 6,025 | 11,101 | 1,643 | 2,570,985 |
| Totals, 1918 | 859,492 | 43,988 | 6,763 | 14,148 | 2,023 | 2,925,594 |
| Increase, 1919 | ... | ... | ... | ... | ... | ... |
| Decrease, 1919 | 136,864 | 15,012 | 738 | 3,047 | 380 | 354,609 |

N.B.—Brisbane (B) refers to South Brisbane.

APIARIES.

B e.

PARTICULARS FOR 1919.

| Petty Sessions District. | No. of Hives. | | | Average per Productive Hive. | Wax. | Petty Sessions District. | No. of Hives. | | | Average per Productive Hive. | Wax. |
|--------------------------|---------------|-----------------|--------|------------------------------|------|--------------------------|---------------|-----------------|---------|------------------------------|-------|
| | Productive. | Non-Productive. | Honey. | | | | Productive. | Non-Productive. | Honey. | | |
| | | | | | | | | | | | |
| Allora | 58 | 16 | 1,312 | 23 | 21 | Maroochy | 688 | 446 | 24,881 | 36 | 472 |
| Atherton | 70 | 6 | 1,100 | 16 | 106 | Maryborough | 267 | 267 | 7,136 | 27 | 161 |
| Brisbane (A) | 164 | 165 | 3,286 | 20 | 98 | Nerang | 151 | 56 | 4,380 | 29 | 170 |
| Brisbane (B) | 44 | 131 | 1,792 | 41 | 55 | Oakey | 40 | 17 | 1,120 | 28 | 30 |
| Bundaberg | 129 | 83 | 4,955 | 38 | 100 | Pittsworth | 219 | 199 | 10,750 | 49 | 198 |
| Caboolture | 783 | 124 | 11,460 | 15 | 302 | Redcliffe | 119 | 100 | 1,666 | 14 | 47 |
| Clifton | 110 | 8 | 2,120 | 19 | 20 | Rockhampton | 561 | 227 | 70,766 | 126 | 694 |
| Cook | 197 | 10 | 14,450 | 73 | 441 | Roma | 103 | 86 | 5,860 | 57 | 122 |
| Dalby | 112 | 139 | 9,338 | 83 | 68 | Rosewood | 41 | 27 | 1,580 | 39 | ... |
| Dugandan | 77 | 109 | 1,995 | 26 | ... | Southport | 100 | 48 | 4,380 | 44 | 70 |
| Esk | 46 | 33 | 1,989 | 43 | 373 | Stanthorpe | 267 | 71 | 8,262 | 31 | 136 |
| Gatton | 117 | 19 | 3,020 | 26 | 36 | Tiaro | 46 | 15 | 1,545 | 34 | 14 |
| Gympie | 997 | 282 | 38,204 | 38 | 637 | Toowoomba | 65 | 83 | 960 | 15 | ... |
| Harrisville | 85 | 18 | 5,800 | 68 | 262 | Warwick | 440 | 243 | 8,167 | 19 | 154 |
| Helidon | 74 | 32 | 590 | 8 | ... | All other Districts | 751 | 546 | 25,826 | 34 | 1,471 |
| Ipswich | 42 | 31 | 1,427 | 34 | ... | Totals, 1919 | 7,770 | 4,280 | 305,586 | 39 | 7,215 |
| Killarney | 60 | 460 | 1,610 | 27 | 20 | Totals, 1918 | 10,061 | 5,223 | 410,182 | 41 | 9,099 |
| Laidley | 119 | 42 | 1,887 | 16 | 133 | Increase, 1919 | ... | ... | ... | ... | ... |
| Logan | 562 | 97 | 18,854 | 34 | 739 | Decrease, 1919 | 2,291 | 943 | 104,596 | 2 | 1,884 |
| Lowood | 66 | 44 | 3,118 | 47 | 65 | | | | | | |

N.B.—Brisbane (B) refers to South Brisbane.

C.

RETURN SHOWING PROGRESS OF HOLDINGS AND AREA CULTIVATED.—RETURN FOR 10 YEARS.

| car. | Number of Holdings Returned. | Increase per cent. on Previous Year. | Increase per cent. on Figures of 1904. | Area under Cultivation. | Increase per cent. on Previous Year. | Increase per cent. on Figures for 1904. |
|----------|------------------------------|--------------------------------------|--|-------------------------|--------------------------------------|---|
| 1910 ... | 22,023 | 4.1 | 23.4 | 794,826 | 7.63 | 37.54 |
| 1911 ... | 22,276 | 1.1 | 24.8 | 779,800 | -1.89 | 34.94 |
| 1912 ... | 22,976 | 3.1 | 28.7 | 844,420 | 8.29 | 46.12 |
| 1913 ... | 23,472 | 2.2 | 31.5 | 920,010 | 8.95 | 59.20 |
| 1914 ... | 24,553 | 4.6 | 37.5 | 981,218 | 6.65 | 69.79 |
| 1915 ... | 24,828 | 1.11 | 39.06 | 1,059,401 | 7.97 | 83.32 |
| 1916 ... | 25,713 | 3.56 | 44.02 | 1,077,342 | 1.69 | 86.42 |
| 1917 ... | 25,872 | 0.62 | 44.91 | 998,036 | -7.36 | 72.70 |
| 1918 ... | 26,041 | 0.65 | 45.86 | 982,066 | -1.60 | 69.94 |
| 1919 ... | 26,713 | 2.58 | 49.62 | 988,541 | 0.66 | 71.06 |

The minus sign (-) implies a decrease.

C a.

RETURN SHOWING LABOUR EMPLOYED AND THE CAPITAL INVESTED IN FARMING MACHINERY, ETC.

| PETTY SESSIONS DISTRICT, | LABOUR. | | | | VALUE OF MACHINERY AND IMPLEMENTS. | | | | |
|--------------------------|----------|----------|-----------|----------|------------------------------------|-----------|-------------|-----------------------|-----------|
| | Farming. | | Dairying. | | Farming. | Dairying. | Irrigation. | Travelling Machinery. | Total. |
| | Males. | Females. | Males. | Females. | £ | £ | £ | £ | £ |
| Allora ... | 362 | 1 | 61 | 49 | 45,867 | 4,767 | 840 | 900 | 52,374 |
| Atherton ... | 617 | 8 | 412 | 292 | 19,943 | 26,667 | 1,374 | 120 | 48,104 |
| Ayr ... | 1,046 | ... | 4 | 4 | 65,600 | 1,707 | 139,078 | 1,027 | 207,412 |
| Beaudesert ... | 318 | 2 | 179 | 387 | 15,801 | 12,175 | 780 | ... | 28,756 |
| Biggenden ... | 77 | 3 | 231 | 171 | 8,735 | 12,602 | ... | ... | 21,337 |
| Brisbane (A) ... | 720 | 20 | 329 | 193 | 23,396 | 6,109 | 2,385 | 550 | 32,440 |
| Brisbane (B) ... | 124 | 7 | 2 | 86 | 7,720 | 1,501 | 3,065 | ... | 12,286 |
| Bundaberg ... | 1,427 | 9 | 124 | 129 | 54,313 | 3,087 | 18,630 | 7,150 | 83,180 |
| Cairns ... | 1,262 | 28 | 16 | 18 | 43,062 | 324 | 100 | 100 | 43,586 |
| Childers ... | 601 | 1 | 47 | 40 | 27,930 | 909 | ... | ... | 28,839 |
| Clifton ... | 710 | 2 | 117 | 233 | 80,546 | 7,975 | 50 | 2,200 | 90,771 |
| Crow's Nest ... | 145 | ... | 27 | 90 | 19,431 | 5,110 | ... | ... | 24,541 |
| Dalby ... | 465 | 22 | 575 | 426 | 40,000 | 16,222 | 225 | 610 | 57,057 |
| Dugandan ... | 730 | 98 | 591 | 500 | 44,547 | 8,322 | 335 | ... | 53,204 |
| Esk ... | 438 | 27 | 369 | 279 | 28,965 | 4,929 | 1,462 | 1,905 | 37,261 |
| Gatton ... | 795 | 67 | 538 | 316 | 47,465 | 7,039 | ... | 5,170 | 59,674 |
| Gayndah ... | 323 | 1 | 387 | 361 | 16,423 | 11,616 | ... | ... | 28,039 |
| Goombungee ... | 171 | ... | 5 | 135 | 13,835 | 2,517 | ... | 1,300 | 17,652 |
| Gympie ... | 585 | 30 | 1,267 | 1,010 | 14,975 | 36,602 | 335 | ... | 51,912 |
| Harrisville ... | 492 | 1 | 432 | 189 | 34,953 | 6,969 | 3,076 | ... | 44,998 |
| Helidon ... | 269 | 2 | 104 | 196 | 14,269 | 3,772 | 500 | 640 | 19,181 |
| Ingham ... | 821 | 8 | 19 | 16 | 61,149 | 201 | ... | 500 | 61,850 |
| Ipswich ... | 250 | ... | 242 | 156 | 6,338 | 3,241 | 1,379 | ... | 10,958 |
| Jondaryan ... | 107 | 1 | 106 | 75 | 17,421 | 4,072 | 300 | ... | 21,793 |
| Killarney ... | 389 | 1 | 280 | 190 | 36,118 | 4,698 | 2,055 | 3,445 | 46,316 |
| Laidley ... | 473 | 6 | 101 | 253 | 35,011 | 5,428 | 17 | 6,578 | 47,034 |
| Logan ... | 622 | 159 | 368 | 320 | 19,832 | 4,798 | ... | ... | 24,630 |
| Lowood ... | 417 | 4 | 120 | 222 | 19,595 | 3,444 | ... | ... | 23,039 |
| Mackay ... | 2,346 | 185 | 22 | 36 | 130,002 | 1,833 | 745 | 85 | 132,665 |
| Maroochy ... | 962 | 36 | 461 | 323 | 23,275 | 16,699 | 1,255 | 100 | 41,329 |
| Maryborough ... | 536 | 30 | 158 | 168 | 16,584 | 3,520 | 320 | ... | 20,424 |
| Nanango ... | 537 | 8 | 224 | 145 | 64,489 | 17,639 | 460 | 160 | 82,748 |
| Nerang ... | 249 | 8 | 500 | 326 | 8,675 | 17,869 | 755 | 580 | 27,879 |
| Oakey ... | 540 | ... | 323 | 387 | 47,512 | 7,188 | 200 | 2,340 | 57,240 |
| Pittsworth ... | 572 | 2 | 379 | 472 | 7,301 | 24,265 | ... | 1,930 | 33,496 |
| Redcliffe ... | 431 | 1 | 295 | 248 | 13,939 | 7,332 | 2,285 | ... | 23,556 |
| Rockhampton ... | 644 | 69 | 480 | 356 | 29,941 | 12,177 | 13,565 | 1,319 | 57,002 |
| Roma ... | 316 | 120 | 131 | 148 | 27,293 | 3,428 | ... | ... | 30,721 |
| Rosewood ... | 382 | 31 | 375 | 336 | 16,026 | 4,595 | ... | ... | 20,621 |
| Tiaro ... | 376 | ... | 222 | 226 | 12,740 | 5,322 | 86 | ... | 18,148 |
| Toowoomba ... | 664 | 108 | 298 | 399 | 31,837 | 4,652 | 5,085 | 992 | 42,566 |
| Townshend ... | 294 | 4 | 266 | 231 | 10,924 | 2,651 | ... | ... | 13,575 |
| Warwick ... | 980 | 20 | 298 | 348 | 76,669 | 6,460 | 150 | 6,060 | 89,339 |
| Wienholt ... | 894 | 4 | 668 | 438 | 64,800 | 26,794 | 150 | 3,300 | 95,044 |
| All other Districts ... | 5,273 | 200 | 1,329 | 1,220 | 217,439 | 41,979 | 31,310 | 5,890 | 296,618 |
| Total, 1919 ... | 30,752 | 1,334 | 13,482 | 12,193 | 1,662,686 | 411,206 | 232,352 | 54,951 | 2,361,195 |
| Total, 1918 ... | 31,332 | 1,360 | 14,346 | 13,092 | 1,631,705 | 392,761 | 222,550 | 53,957 | 2,300,973 |
| Increase, 1919 ... | ... | ... | ... | ... | 30,981 | 18,445 | 9,802 | 994 | 60,222 |
| Decrease, 1919 ... | 580 | 26 | 864 | 889 | ... | ... | ... | ... | ... |

N.B.—Brisbane (B) refers to South Brisbane.

C b.

SUMMARY OF LAND TREATED FOR CULTIVATION, ETC., 1919.

| | 1918. | 1919. |
|---|-----------|-----------|
| | Acres. | Acres. |
| Under crop | 525,517 | 563,762 |
| In fallow | 279,809 | 253,642 |
| New ground broken up... .. | 8,951 | 10,164 |
| Previously cropped, but not during 1918 and 1919 respectively ... | 167,789 | 160,973 |
| Under cultivation | 982,066* | 988,541* |
| Under permanent artificially sown grasses | 418,467 | 449,019 |
| Grand total | 1,400,533 | 1,437,560 |

* See C e. for details of areas and owners.

C c.

LAND SELECTED DESTINED TO BECOME FREEHOLD.—RETURN FOR 10 YEARS.

| Year. | Acres. | Year. | Acres. |
|-------------|-----------|-------------|---------|
| 1910 | 1,969,819 | 1915 | 789,572 |
| 1911 | 1,756,347 | 1916 | 305,500 |
| 1912 | 1,261,712 | 1917 | Nil |
| 1913 | 1,086,825 | 1918 | Nil |
| 1914 | 1,140,492 | 1919 | Nil |

C d.

VALUE OF AGRICULTURAL CROPS.

| | 1918. | 1919. | Increase or—Decrease. |
|----------------------|-----------|-----------|-----------------------|
| | £ | £ | £ |
| Grain crops | 1,052,392 | 843,836 | — 208,556 |
| Green forage | 543,810 | 945,408 | 401,598 |
| Hay and straw | 531,486 | 487,779 | — 43,707 |
| Root crops | 150,400 | 231,996 | 81,596 |
| Sugar-cane | 2,733,268 | 2,342,072 | — 391,196 |
| Fruit | 681,266 | 800,680 | 119,414 |
| All other | 318,898 | 645,308 | 326,410 |
| Total | 6,011,520 | 6,297,079 | 285,559 |

The minus sign (—) indicates a decrease.

C e.

AREA UNDER CULTIVATION.

| Petty Sessions District. | Under 5 Acres. | | 5 and under 20 Acres. | | 20 and under 50 Acres. | | 50 Acres and Over. | | Totals. | |
|--------------------------|----------------|--------|-----------------------|--------|------------------------|---------|--------------------|---------|---------|---------|
| | Owners. | Acres. | Owners. | Acres. | Owners. | Acres. | Owners. | Acres. | Owners. | Acres. |
| Allora | 1 | 1 | 1 | 18 | 17 | 633 | 239 | 37,160 | 258 | 37,812 |
| Atherton | 105 | 98 | 69 | 710 | 133 | 4,141 | 155 | 11,665 | 462 | 16,614 |
| Ayr | 7 | 14 | 34 | 465 | 146 | 4,932 | 239 | 22,382 | 426 | 27,793 |
| Beaudesert | 29 | 72 | 187 | 2,126 | 100 | 3,067 | 10 | 778 | 326 | 6,043 |
| Biggenden | 29 | 76 | 88 | 903 | 48 | 1,316 | 8 | 477 | 173 | 2,772 |
| Brisbane (A) | 159 | 453 | 353 | 3,546 | 71 | 1,901 | 1 | 59 | 584 | 5,959 |
| Brisbane (B) | 77 | 160 | 74 | 735 | 25 | 773 | 2 | 110 | 178 | 1,778 |
| Bundaberg | 45 | 123 | 209 | 2,452 | 260 | 8,127 | 100 | 15,997 | 614 | 26,699 |
| Cairns | 30 | 59 | 123 | 1,408 | 122 | 4,126 | 180 | 18,839 | 455 | 24,432 |
| Childers | 12 | 32 | 42 | 530 | 88 | 2,962 | 110 | 12,579 | 252 | 16,103 |
| Clifton | ... | ... | 3 | 28 | 27 | 987 | 447 | 76,701 | 477 | 77,716 |
| Crow's Nest | 6 | 17 | 64 | 805 | 186 | 6,029 | 85 | 6,389 | 341 | 13,240 |
| Dalby | 46 | 101 | 100 | 1,099 | 126 | 3,826 | 184 | 19,922 | 456 | 24,948 |
| Douglas | 18 | 54 | 18 | 225 | 33 | 1,066 | 48 | 4,678 | 117 | 6,023 |
| Dugandan | 4 | 13 | 96 | 1,320 | 329 | 11,248 | 88 | 5,949 | 517 | 18,530 |
| Esk | 22 | 61 | 121 | 1,385 | 128 | 3,909 | 60 | 4,982 | 331 | 10,337 |
| Gatton | 9 | 22 | 100 | 1,320 | 226 | 7,105 | 210 | 19,008 | 545 | 27,455 |
| Gayndah | 19 | 55 | 92 | 976 | 64 | 1,757 | 17 | 1,575 | 192 | 4,363 |
| Gin Gin | 12 | 26 | 64 | 657 | 104 | 3,082 | 32 | 2,809 | 212 | 6,574 |
| Goombungee | ... | ... | 1 | 15 | 54 | 1,784 | 81 | 7,401 | 136 | 9,200 |
| Gympie | 209 | 488 | 290 | 2,785 | 52 | 1,460 | 11 | 820 | 562 | 5,553 |
| Harrisville | 10 | 32 | 64 | 799 | 209 | 7,011 | 75 | 4,958 | 358 | 12,800 |
| Helidon | 9 | 27 | 67 | 790 | 108 | 3,312 | 44 | 2,786 | 223 | 6,915 |
| Highfields | 2 | 8 | 53 | 671 | 113 | 3,508 | 46 | 3,543 | 214 | 7,730 |
| Ingham | 24 | 38 | 30 | 350 | 47 | 1,755 | 216 | 21,634 | 317 | 23,777 |
| Inglewood | 17 | 53 | 26 | 267 | 43 | 1,304 | 43 | 4,729 | 129 | 6,353 |
| Ipswich | 19 | 49 | 77 | 915 | 71 | 2,163 | 16 | 1,025 | 183 | 4,152 |
| Jondaryan | 3 | 12 | 31 | 369 | 92 | 2,915 | 107 | 12,424 | 233 | 15,720 |
| Killarney | 6 | 15 | 20 | 202 | 27 | 802 | 177 | 28,392 | 230 | 29,411 |
| Laidley | 12 | 29 | 36 | 489 | 176 | 6,390 | 214 | 17,286 | 438 | 24,194 |
| Logan | 72 | 190 | 297 | 3,288 | 32 | 769 | ... | ... | 401 | 4,247 |
| Lowood | 4 | 9 | 27 | 321 | 180 | 5,951 | 70 | 4,784 | 281 | 11,065 |
| Mackay | 45 | 118 | 203 | 2,465 | 429 | 14,431 | 428 | 37,845 | 1,105 | 54,859 |
| Maryborough | 73 | 188 | 244 | 2,740 | 91 | 2,596 | 9 | 554 | 417 | 6,078 |
| Maroochy | 355 | 829 | 592 | 5,880 | 87 | 2,492 | 4 | 278 | 1,038 | 9,479 |
| Mourilyan | 10 | 34 | 57 | 701 | 166 | 5,688 | 187 | 15,406 | 420 | 21,829 |
| Nanango | 45 | 91 | 155 | 1,824 | 260 | 8,546 | 263 | 24,176 | 723 | 34,637 |
| Pittsworth | 4 | 9 | 25 | 329 | 85 | 3,089 | 377 | 53,768 | 491 | 57,195 |
| Proserpine | 18 | 48 | 122 | 1,441 | 102 | 3,138 | 28 | 2,334 | 270 | 6,961 |
| Rockhampton | 157 | 367 | 214 | 2,168 | 110 | 3,259 | 23 | 1,715 | 504 | 7,509 |
| Roma | 9 | 21 | 20 | 184 | 52 | 1,574 | 190 | 24,798 | 271 | 26,577 |
| Rosewood | 6 | 17 | 78 | 1,133 | 207 | 6,543 | 26 | 1,579 | 317 | 9,272 |
| Stanthorpe | 33 | 102 | 240 | 3,012 | 147 | 4,213 | 11 | 712 | 431 | 8,039 |
| Tiaro | 51 | 117 | 130 | 1,426 | 77 | 2,305 | 8 | 695 | 266 | 4,543 |
| Toowoomba | 92 | 263 | 170 | 1,744 | 119 | 3,943 | 148 | 22,815 | 529 | 28,665 |
| Townshend | 8 | 27 | 43 | 601 | 125 | 3,933 | 35 | 2,069 | 211 | 6,630 |
| Warwick | 19 | 43 | 77 | 900 | 124 | 4,019 | 458 | 60,391 | 678 | 65,353 |
| Wienholt | 26 | 50 | 97 | 1,184 | 231 | 7,653 | 306 | 25,048 | 660 | 33,935 |
| All other Districts | 815 | 1,979 | 1,384 | 13,870 | 517 | 15,249 | 503 | 59,574 | 3,169 | 90,672 |
| Total, 1919... | 2,783 | 6,690 | 6,658 | 73,571 | 6,366 | 202,682 | 6,319 | 705,598 | 22,126 | 988,541 |
| Total, 1918 | 3,001 | 7,105 | 6,686 | 73,695 | 6,242 | 204,470 | 6,169 | 696,796 | 22,098 | 982,066 |
| Increase, 1919 | ... | ... | ... | ... | 124 | ... | 150 | 8,802 | 28 | 6,475 |
| Decrease, 1919 | 218 | 415 | 28 | 124 | ... | 1,788 | ... | ... | ... | ... |

N.B.—Brisbane (B) refers to South Brisbane.

See Summary C b.

D.

IRRIGATION.—RETURN FOR 10 YEARS.

| Year. | Acres Irrigated. | Year. | Acres Irrigated. |
|-------|------------------|-------|------------------|
| 1910 | 8,007 | 1915 | 11,842 |
| 1911 | 8,661 | 1916 | 10,886 |
| 1912 | 9,420 | 1917 | 4,467 |
| 1913 | 11,904 | 1918 | 6,947 |
| 1914 | 11,809 | 1919 | 9,267 |

D a.
IRRIGATION.

| Petty Sessions District | Number of Irrigators. | Acres Irrigated. | Original Source of Water Supply. | Means Employed for Procurement and Utilisation. | Principal Crops Treated. |
|---------------------------|-----------------------|------------------|--|---|---|
| Ayr | 177 | 6,004 | Wells, lagoons, and river... | Steam, oil, and suction gas pumps, electricity, and gravitation | Sugar-cane, bananas, and maize |
| Bowen | 67 | 445 | Wells, creek, and river ... | Steam, oil, and horse pumps, windmills, drains, and pipes | Sugar-cane, fruit, vegetables, green fodder, tobacco |
| Brisbane (A) | 30 | 125 | Creeks, wells, and river ... | Oil and horse pumps, gravitation ... | Market gardens, green fodder, and vegetables |
| Brisbane (B) | 14 | 56 | Creeks, wells, and bore ... | Oil and steam pumps, windmills ... | Market gardens and fruit |
| Bundaberg | 5 | 224 | Wells, Burnett River ... | Oil and steam engines, windmills, and gravitation | Sugar-cane and fruit |
| Cape River | 5 | 30 | Creeks and river | Hot-air pumps and pipes | Fruit and vegetables |
| Charters Towers | 34 | 84 | Wells, creek, and river ... | Oil and horse pumps, windmills, pipes, and drains | Fruit, vegetables, and green fodder |
| Cloncurry | 7 | 32 | Wells, creek, and bore ... | Oil and steam pumps, windmills ... | Fruit and vegetables |
| Cunnamulla | 5 | 308 | River and bores | Steam and horse pumps, gravitation ... | Natural grasses, wheat, lucerne, fruit and vegetables |
| Esk | 4 | 37 | River and creek | Oil engine and steam pump | Lucerne |
| Gatton | 2 | 44 | Creek | Suction gas, oil engine, and pumps ... | Lucerne, vegetables, and fruit |
| Harrisville | 14 | 120 | Lagoon and creek | Oil and horse engine, windmills ... | Lucerne, wheat, oats, and vegetables |
| Hughenden | 2 | 60 | Wells | Oil and horse pumps | Fruit and vegetables |
| Killarney | 13 | 91 | River and creek | Oil pumps and engines | Vegetables |
| Maroochy | 12 | 42 | River, creek, and springs ... | Oil engines, pipes, and gravitation ... | Lucerne, fruit, and vegetables |
| Redcliffe | 11 | 71 | River, creek, and bores ... | Oil engines | Fruit, vegetables, lucerne, maize, and green fodder |
| Rockhampton | 64 | 360 | Wells, river, lagoons, spring, and bores | Steam and oil engines, suction gas, pumps, and gravitation | Fruit, vegetables, maize, and green fodder |
| St. George | 5 | 57 | River | Steam and oil pumps, gasoline engines, drains, and pipes | Fruit and vegetables |
| Toowoomba | 43 | 107 | Creek, wells, and bores ... | Steam and oil pumps, windmills ... | Fruit, vegetables, and green fodder |
| Townsville | 44 | 452 | Wells, creeks, and rivers ... | Oil, steam, horse pumps, suction gas, and gravitation | Maize, sugar cane, green fodder, market gardens |
| 57 Other Districts | 143 | 518 | Various | ... | Mostly market gardens |
| Total 1919 | 701 | 9,267 | | | |

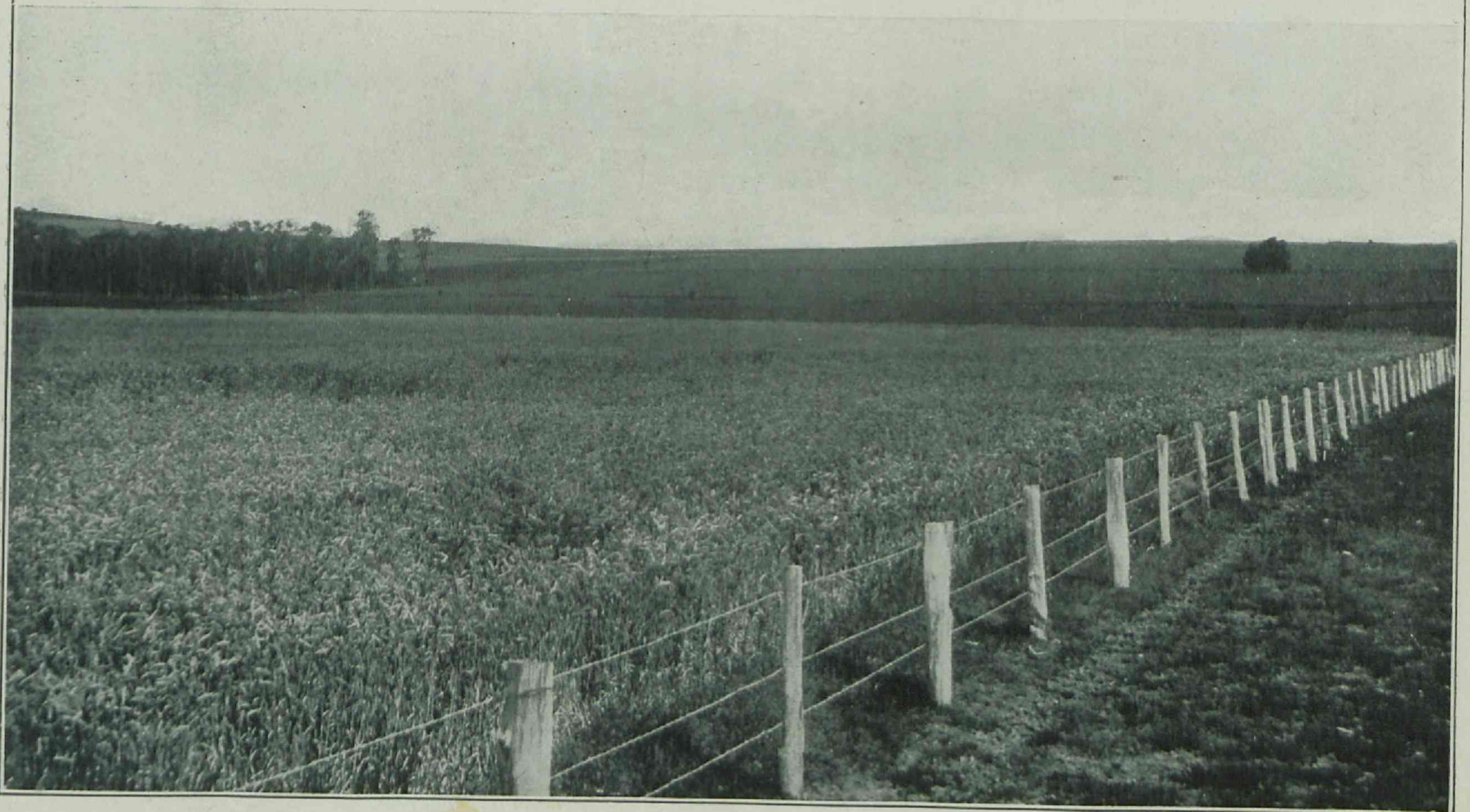
E.
WHEAT (GRAIN).
RETURN FOR TEN YEARS.

| Year. | Area. | Produce. | Average per Acre. | INCREASE OR — DECREASE ON THE PREVIOUS YEAR. | | |
|-----------------------------|---------|-----------|-------------------|--|------------|-------------------|
| | | | | Area. | Produce. | Average per Acre. |
| | | | | Acres. | Bushels. | Bushels. |
| 1910 | 106,718 | 1,022,373 | 9.58 | -10,442 | -549,206 | -3.83 |
| 1911 | 42,962 | 285,109 | 6.64 | -63,756 | -737,264 | -2.94 |
| 1912 | 124,963 | 1,975,505 | 15.81 | 82,001 | 1,690,396 | 9.17 |
| 1913 | 132,655 | 1,769,432 | 13.34 | 7,692 | 206,073 | -2.47 |
| 1914 | 127,015 | 1,585,087 | 12.48 | -5,640 | -184,345 | -0.86 |
| 1915 | 93,703 | 414,438 | 4.42 | -33,312 | -1,170,649 | -8.06 |
| 1916 | 227,778 | 2,463,141 | 10.81 | 134,075 | 2,048,703 | 6.39 |
| 1917 | 127,815 | 1,035,268 | 8.10 | -99,963 | -1,427,873 | -2.71 |
| 1918 | 21,637 | 104,509 | 4.83 | -106,178 | -930,759 | -3.27 |
| 1919 | 46,478 | 311,638 | 6.71 | 24,841 | 207,129 | 1.88 |
| Average of Ten Years | 105,172 | 1,096,650 | 9.27 | ... | ... | ... |

E a.
WHEAT.
AVERAGE YIELD PER ACRE EACH STATE.—RETURN FOR 10 YEARS.

| States. | Average Produce per Acre—Bushels. | | | | | | | | | | Mean for 10 Years ending 1919. |
|--------------------------|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------------|
| | 1910. | 1911. | 1912. | 1913. | 1914. | 1915. | 1916. | 1917. | 1918. | 1919. | |
| Queensland | 9.6 | 6.6 | 15.81 | 13.34 | 12.48 | 4.42 | 10.81 | 8.10 | 4.83 | 6.71 | 9.27 |
| New South Wales | 13.1 | 10.6 | 14.56 | 11.86 | 4.65 | 15.94 | 9.61 | 11.71 | 7.60 | 2.96 | 10.26 |
| Victoria | 14.5 | 9.7 | 12.58 | 12.84 | 1.38 | 15.90 | 16.37 | 14.03 | 11.40 | 7.75 | 11.65 |
| South Australia | 11.6 | 9.1 | 10.34 | 7.47 | 1.41 | 12.46 | 16.46 | 12.18 | 10.49 | 7.78 | 9.92 |
| Western Australia | 10.1 | 7.1 | 11.56 | 12.15 | 1.91 | 10.52 | 10.28 | 7.44 | 7.72 | 11.41 | 9.02 |
| Tasmania | 21.5 | 18.8 | 24.99 | 18.97 | 16.10 | 20.43 | 12.53 | 11.57 | 15.66 | 14.10 | 17.47 |

WHEAT AND BARLEY CROPS, 1920.



AMBY WHEAT.

REAPER AND BINDER AT WORK.

CROP OF SKINLESS BARLEY.

E b.

WHEAT FOR GRAIN.—RETURN FOR TWO YEARS.

| Divisions and Petty Sessions Districts. | 1918.. | | | 1919. | | | INCREASE OR - DECREASE. | | |
|---|--------|----------|-------------------|--------|----------|-------------------|-------------------------|----------|-------------------|
| | Area. | Produce. | Average per Acre. | Area. | Produce. | Average per Acre. | Area. | Produce. | Average per Acre. |
| MORETON. | | | | | | | | | |
| Cooyar | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Crow's Nest | 41 | 510 | 12.44 | 60 | 219 | 3.65 | 19 | 291 | 8.79 |
| Dugandan | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Esk | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Gatton | 13 | 148 | 11.38 | 3 | 24 | 8.00 | 10 | 124 | 3.38 |
| Harrisville | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Helidon | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Laidley | ... | ... | ... | 15 | 159 | 10.60 | 15 | 159 | 10.60 |
| Townshend | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Woodford | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total, Moreton | 54 | 658 | 12.19 | 78 | 402 | 5.15 | 24 | 256 | 7.04 |
| WIDE BAY. | | | | | | | | | |
| Biggenden | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Gayndah | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Nanango | 310 | 1,745 | 5.63 | 16 | 48 | 3.00 | 294 | 1,697 | 2.63 |
| Wienholt | 10 | 210 | 21.00 | 10 | 50 | 5.00 | ... | 160 | 16.00 |
| Total, Wide Bay | 320 | 1,955 | 6.11 | 26 | 98 | 3.77 | 294 | 1,857 | 2.34 |
| SOUTH-WESTERN. | | | | | | | | | |
| St. George | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total South-western | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| CENTRAL. | | | | | | | | | |
| Emerald | 104 | 252 | 2.42 | ... | ... | ... | 104 | 252 | 2.42 |
| Springure | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Taroom | 2 | 24 | 12.00 | ... | ... | ... | 2 | 24 | 12.00 |
| Total Central | 106 | 276 | 2.60 | ... | ... | ... | 106 | 276 | 2.60 |
| MARANOVA. | | | | | | | | | |
| Mitchell | 523 | 2,340 | 4.47 | 915 | 2,313 | 2.53 | 392 | 27 | 1.94 |
| Roma | 6,857 | 29,562 | 4.31 | 6,036 | 16,596 | 2.75 | 821 | 12,966 | 1.56 |
| Yeulba | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total, Maranoa | 7,380 | 31,902 | 4.32 | 6,951 | 18,909 | 2.72 | 429 | 12,993 | 1.60 |
| DOWNS. | | | | | | | | | |
| Allora | 2,210 | 13,379 | 6.05 | 5,713 | 59,677 | 10.45 | 3,503 | 46,298 | 4.40 |
| Clifton | 1,276 | 6,215 | 4.87 | 10,449 | 76,192 | 7.29 | 9,173 | 69,977 | 2.42 |
| Condamine | 20 | 60 | 3.00 | ... | ... | ... | 20 | 60 | 3.00 |
| Dalby | 601 | 1,303 | 2.17 | 796 | 1,372 | 1.72 | 195 | 69 | 0.45 |
| Goombungee | ... | ... | ... | 56 | 546 | 9.75 | 56 | 546 | 9.75 |
| Goondiwindi | 197 | 870 | 4.42 | 360 | 555 | 1.54 | 163 | 315 | 2.88 |
| Highfields | 9 | 52 | 5.78 | 97 | 624 | 6.43 | 88 | 572 | 0.65 |
| Inglewood | 616 | 1,410 | 2.29 | 40 | 48 | 1.20 | 576 | 1,362 | 1.09 |
| Jondaryan... .. | 116 | 465 | 4.01 | 127 | 327 | 2.57 | 11 | 138 | 1.44 |
| Killarney | 1,934 | 5,939 | 3.07 | 3,686 | 31,155 | 8.45 | 1,752 | 25,216 | 5.38 |
| Oakey | 143 | 509 | 3.56 | 940 | 2,839 | 3.02 | 797 | 2,330 | 0.54 |
| Pittsworth | 493 | 1,772 | 3.59 | 7,226 | 26,623 | 3.68 | 6,733 | 24,851 | 0.09 |
| Stanthorpe | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Texas | 30 | 24 | 0.80 | ... | ... | ... | 30 | 24 | 0.80 |
| Toowoomba | 305 | 1,183 | 3.88 | 725 | 3,653 | 5.04 | 420 | 2,470 | 1.16 |
| Warwick | 5,827 | 36,537 | 6.27 | 9,208 | 88,618 | 9.62 | 3,381 | 52,081 | 3.35 |
| Total, Downs | 13,777 | 69,718 | 5.06 | 39,423 | 292,229 | 7.41 | 25,646 | 222,511 | 2.35 |
| Total State | 21,637 | 104,509 | 4.83 | 46,478 | 311,638 | 6.71 | 24,841 | 207,129 | 1.88 |

E c.

TABLE SHOWING QUANTITY OF WHEAT TREATED IN QUEENSLAND, 1919.

| 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 } 1919 { | 2 } | 259 | 14 | 80 | 2,443,413 | 49,360 | £ 653,715 | 263 | £ 3,391 | 2,002,992 | £ 190,566 |
| Elsewhere | 8 } | | | | | | | | | | |
| Total, 1918 ... | 11 | 270 | 14 | 86 | 2,317,098 | 45,589 | 548,830 | 241 | 2,991 | 2,149,720 | 139,242 |

F.

BARLEY.

SHOWING HOW CROP WAS DEALT WITH.

| Barley. | | | | | | | | | | 1918. | 1919. |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|--------|
| | | | | | | | | | | Acres. | Acres. |
| Reaped for grain | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,316 | 3,275 |
| Mown for hay | ... | ... | ... | ... | ... | ... | ... | ... | ... | 55 | 339 |
| Used for green food | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4,663 | 12,224 |
| Totals | ... | ... | ... | ... | ... | ... | ... | ... | ... | 6,034 | 15,838 |

F a.

BARLEY.

SHOWING RESULT OF GRAIN CROP FOR TWO YEARS.

| Year. | | | | | | | | | | Area for Grain. | Produce. | Average Produce per Acre. |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|----------|---------------------------|
| | | | | | | | | | | Acres. | Bushels. | Bushels. |
| 1918 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,316 | 8,824 | 6.71 |
| 1919 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3,275 | 34,892 | 10.65 |
| Increase, 1919 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,959 | 26,068 | 3.94 |

F b.

BARLEY.

RESULT OF CROP, DISTINGUISHING BETWEEN MALTING AND OTHER VARIETIES.

| Petty Sessions District. | Malting Grain. | | | Other Varieties Grain. | | |
|--------------------------|----------------|----------|----------------------------|------------------------|----------|----------------------------|
| | Acres. | Bushels. | Average per Acre, Bushels. | Acres. | Bushels. | Average per Acre, Bushels. |
| Allora | 77 | 504 | 6.55 | 113 | 780 | 6.90 |
| Clifton | 2,099 | 24,829 | 11.83 | 47 | 564 | 12.00 |
| Crow's Nest | 10 | 30 | 3.00 | ... | ... | ... |
| Dalby | ... | ... | ... | ... | ... | ... |
| Goombungee | ... | ... | ... | ... | ... | ... |
| Highfields | ... | ... | ... | ... | ... | ... |
| Jondaryan | ... | ... | ... | 7 | 15 | 2.14 |
| Killarney | 141 | 869 | 6.16 | 81 | 1,512 | 18.67 |
| Oakey | 91 | 285 | 3.13 | ... | ... | ... |
| Pittsworth | 227 | 1,209 | 5.33 | 3 | 24 | 8.00 |
| Toowoomba | 211 | 2,661 | 12.61 | ... | ... | ... |
| Warwick | 122 | 1,243 | 10.19 | 40 | 330 | 8.25 |
| All other Districts | 1 | 7 | 7.00 | 5 | 30 | 6.00 |
| Total, 1919 | 2,979 | 31,637 | 10.62 | 296 | 3,255 | 11.00 |

F c.

MALT.

QUANTITY MADE AND HOW DEALT WITH.—RETURN FOR 10 YEARS.

| Year. | Made from Imported Barley. | Made from Queensland Barley. | Total Malt Made. | Beer (including Waste). | Malt used in Breweries as returned to Excise. |
|-------|----------------------------|------------------------------|------------------|-------------------------|---|
| | Bushels. | Bushels. | Bushels. | Gallons. | Bushels. |
| 1910 | ... | 122,811 | 122,811 | 5,736,876 | 190,020 |
| 1911 | ... | 155,087 | 155,087 | 6,375,228 | 208,766 |
| 1912 | 197,160 | 4,735 | 201,895 | 6,809,405 | 224,852 |
| 1913 | 65,830 | 85,769 | 151,599 | 6,248,304 | 203,564 |
| 1914 | 46,545 | 73,398 | 119,943 | 6,244,462 | 194,031 |
| 1915 | ... | 34,204 | 34,204 | 5,821,397 | 177,323 |
| 1916 | 47,730 | ... | 47,730 | 5,586,940 | 161,764 |
| 1917 | ... | 70,117 | 70,117 | 6,167,638 | 181,067 |
| 1918 | ... | 58,139 | 58,139 | 6,889,707 | 206,992 |
| 1919 | 66,119 | 1,270 | 67,389 | 8,466,242 | 256,658 |

G.
MAIZE.

SUMMARY FOR FIVE YEARS.

| Year. | Grain. | | Average per Acre. |
|-------|---------|-----------|-------------------|
| | Acres. | Bushels. | Bushels. |
| 1915 | 146,474 | 2,003,463 | 13·68 |
| 1916 | 181,405 | 3,018,934 | 16·64 |
| 1917 | 165,124 | 4,188,586 | 25·37 |
| 1918 | 149,505 | 4,105,974 | 27·46 |
| 1919 | 105,260 | 1,830,664 | 17·39 |

G a.

MAIZE (GRAIN).

PRODUCTION IN EACH DIVISION OF THE STATE.

| Division or Group. | Acres. | Produce. | Average. | Proportion of Divisional |
|--------------------|----------------|------------------|--------------|---|
| | | | | Area to Total Area of Maize for Grain. |
| | | Bushels. | Bushels. | |
| Moreton | 30,711 | 447,379 | 14·57 | 29·18 |
| Wide Bay | 30,075 | 424,912 | 14·13 | 28·57 |
| Port Curtis | 2,495 | 21,927 | 8·79 | 2·37 |
| Edgecumbe | 573 | 13,001 | 22·69 | 0·55 |
| Rockingham | 15,784 | 669,531 | 42·42 | 15·00 |
| York Peninsula | 96 | 2,052 | 21·38 | 0·09 |
| Carpentaria | 66 | 1,030 | 15·61 | 0·06 |
| Central Western | ... | 36 | 18·00 | ... |
| South Western | 2 | 40 | 20·00 | ... |
| Central | 2 | 40 | 20·00 | ... |
| Maranoa | 74 | 437 | 5·91 | 0·07 |
| Downs | 25,382 | 250,319 | 9·86 | 24·11 |
| Total | 105,260 | 1,830,664 | 17·39 | 100·00 |

G b.

MAIZE.

AREA AND PRODUCE IN EACH PRINCIPAL DISTRICT FOR TWO YEARS.

| Petty Sessions District. | Area for Grain. | | | Produce. | | | Average per Acre. | | |
|--------------------------|-----------------|----------------|----------------------------|------------------|------------------|----------------------------|-------------------|--------------|----------------------------|
| | 1918. | 1919. | Increase or Decrease | 1918. | 1919. | Increase or Decrease | 1918. | 1919. | Increase or Decrease |
| | Acres. | Acres. | Acres. | Bushels. | Bushels. | Bushels. | Bushels. | Bushels. | Bushels. |
| Allora | 7,706 | 2,029 | — 5,677 | 208,786 | 30,696 | — 178,090 | 27·09 | 15·13 | — 11·96 |
| Atherton | 13,468 | 15,616 | 2,148 | 408,312 | 664,868 | 256,556 | 30·32 | 42·58 | 12·26 |
| Beaudesert | 1,813 | 446 | — 1,367 | 40,338 | 7,164 | — 33,174 | 22·25 | 16·06 | — 6·19 |
| Biggenden | 485 | 640 | 155 | 13,322 | 10,405 | — 2,917 | 27·47 | 16·26 | — 11·21 |
| Bundaberg | 712 | 1,421 | 709 | 12,631 | 23,091 | 10,460 | 17·74 | 16·25 | — 1·49 |
| Clifton | 9,488 | 2,058 | — 7,430 | 248,639 | 20,864 | — 227,775 | 26·21 | 10·14 | — 16·07 |
| Crow's Nest | 4,651 | 1,745 | — 2,906 | 115,697 | 8,843 | — 106,854 | 24·88 | 5·07 | — 19·81 |
| Dalby | 943 | 324 | — 619 | 18,395 | 1,347 | — 17,048 | 19·51 | 4·16 | — 15·35 |
| Dugandan | 8,474 | 4,753 | — 3,721 | 209,563 | 65,389 | — 144,174 | 24·73 | 13·76 | — 10·97 |
| Esk | 2,077 | 1,671 | — 406 | 47,536 | 27,031 | — 20,505 | 22·89 | 16·18 | — 6·71 |
| Gatton | 5,461 | 4,641 | — 820 | 153,675 | 38,543 | — 115,132 | 28·14 | 8·30 | — 19·84 |
| Gayndah | 1,773 | 2,009 | 236 | 31,441 | 21,145 | — 10,296 | 17·73 | 10·53 | — 7·20 |
| Gin Gin | 596 | 654 | 58 | 12,444 | 9,063 | — 3,381 | 20·88 | 13·86 | — 7·02 |
| Gladstone | 710 | 1,039 | 329 | 15,872 | 11,212 | — 4,660 | 22·35 | 10·79 | — 11·56 |
| Goombungee | 2,117 | 197 | — 1,920 | 55,652 | 1,610 | — 54,042 | 26·29 | 8·17 | — 18·12 |
| Gympie | 1,219 | 1,066 | — 153 | 41,670 | 27,257 | — 14,413 | 32·18 | 25·59 | — 6·59 |
| Harrisville | 3,857 | 1,587 | — 2,270 | 89,929 | 20,441 | — 69,488 | 23·32 | 12·88 | — 10·44 |
| Helidon | 803 | 606 | — 197 | 19,297 | 4,870 | — 14,427 | 24·03 | 8·04 | — 15·99 |
| Highfields | 2,499 | 506 | — 1,993 | 60,386 | 3,781 | — 56,605 | 24·16 | 7·47 | — 16·69 |
| Jondaryan | 1,876 | 585 | — 1,291 | 34,895 | 2,685 | — 32,210 | 18·60 | 4·59 | — 14·01 |
| Killarney | 5,764 | 7,430 | 1,666 | 175,745 | 60,717 | — 115,028 | 30·49 | 8·17 | — 22·32 |
| Laidley | 6,976 | 5,337 | — 1,639 | 219,726 | 68,769 | — 150,957 | 31·50 | 12·89 | — 18·61 |
| Logan | 740 | 732 | — 8 | 14,093 | 13,608 | — 485 | 19·04 | 18·59 | — 0·45 |
| Lowood | 4,938 | 4,024 | — 914 | 137,205 | 67,289 | — 69,916 | 27·79 | 16·72 | — 11·07 |
| Nanango | 11,609 | 11,389 | — 220 | 355,329 | 144,291 | — 211,038 | 30·61 | 12·67 | — 17·94 |
| Nerang | 418 | 356 | — 62 | 9,975 | 7,101 | — 2,874 | 23·86 | 19·95 | — 3·91 |
| Oakey | 6,052 | 792 | — 5,260 | 178,251 | 8,661 | — 169,590 | 29·45 | 10·94 | — 18·51 |
| Pittsworth | 3,798 | 3,336 | — 462 | 84,677 | 29,279 | — 55,398 | 22·30 | 8·78 | — 13·52 |
| Rockhampton | 2,115 | 1,442 | — 673 | 34,567 | 10,240 | — 24,327 | 16·34 | 7·10 | — 9·24 |
| Rosewood | 1,778 | 1,402 | — 376 | 33,420 | 36,458 | 3,038 | 18·80 | 26·00 | 7·20 |
| Toowoomba | 2,491 | 362 | — 2,129 | 57,313 | 2,812 | — 54,501 | 23·01 | 7·77 | — 15·24 |
| Townshend | 2,078 | 1,329 | — 749 | 49,376 | 39,966 | — 9,410 | 23·76 | 30·07 | 6·31 |
| Warwick | 12,290 | 7,427 | — 4,863 | 387,621 | 85,296 | — 302,325 | 31·54 | 11·48 | — 20·06 |
| Wienholt | 11,931 | 11,593 | — 338 | 387,129 | 168,262 | — 218,867 | 32·45 | 14·51 | — 17·94 |
| All other Districts | 5,799 | 4,716 | — 1,083 | 143,067 | 87,610 | — 55,457 | 24·76 | 18·58 | — 6·18 |
| Total State | 149,505 | 105,260 | — 44,245 | 4,105,974 | 1,830,664 | — 2,275,310 | 27·46 | 17·39 | — 10·07 |

H.
OATS.

TABLE SHOWING HOW CROP WAS DEALT WITH FOR FIVE YEARS.

| Oats. | 1915. | 1916. | 1917. | 1918. | 1919. |
|-----------------------------|--------|--------|--------|--------|--------|
| | Acres. | Acres. | Acres. | Acres. | Acres. |
| Reaped for grain | 339 | 6,564 | 3,002 | 298 | 363 |
| Mown for hay | 6,377 | 30,041 | 10,901 | 1,803 | 2,488 |
| Cut for green fodder | 20,398 | 18,080 | 16,439 | 11,109 | 27,245 |
| Totals | 27,114 | 54,685 | 30,342 | 13,210 | 30,096 |

H a.
OATS.

RESULT OF THE GRAIN CROP FOR TWO YEARS.

| Year. | Area for Grain. | Produce. | Average per Acre. |
|-----------------------|-----------------|----------|-------------------|
| | Acres. | Bushels. | Bushels. |
| 1918 | 298 | 3,632 | 12·19 |
| 1919 | 363 | 2,871 | 7·91 |
| Increase, 1919 | 65 | — 761 | — 4·28 |

- Decrease.

J.
RYE.

AREA AND PRODUCE OF THE GRAIN CROP FOR FIVE YEARS.

| Year. | Area. | Produce. | Average per Acre. |
|-------------|--------|----------|-------------------|
| | Acres. | Bushels. | Bushels. |
| 1915 | 26 | 529 | 20·35 |
| 1916 | 131 | 1,668 | 12·73 |
| 1917 | 43 | 595 | 13·84 |
| 1918 | 2 | 20 | 10·00 |
| 1919 | 3 | 20 | 6·67 |

J a.

POTATOES.

AREA AND YIELD FOR FIVE YEARS.

POTATOES (ENGLISH).

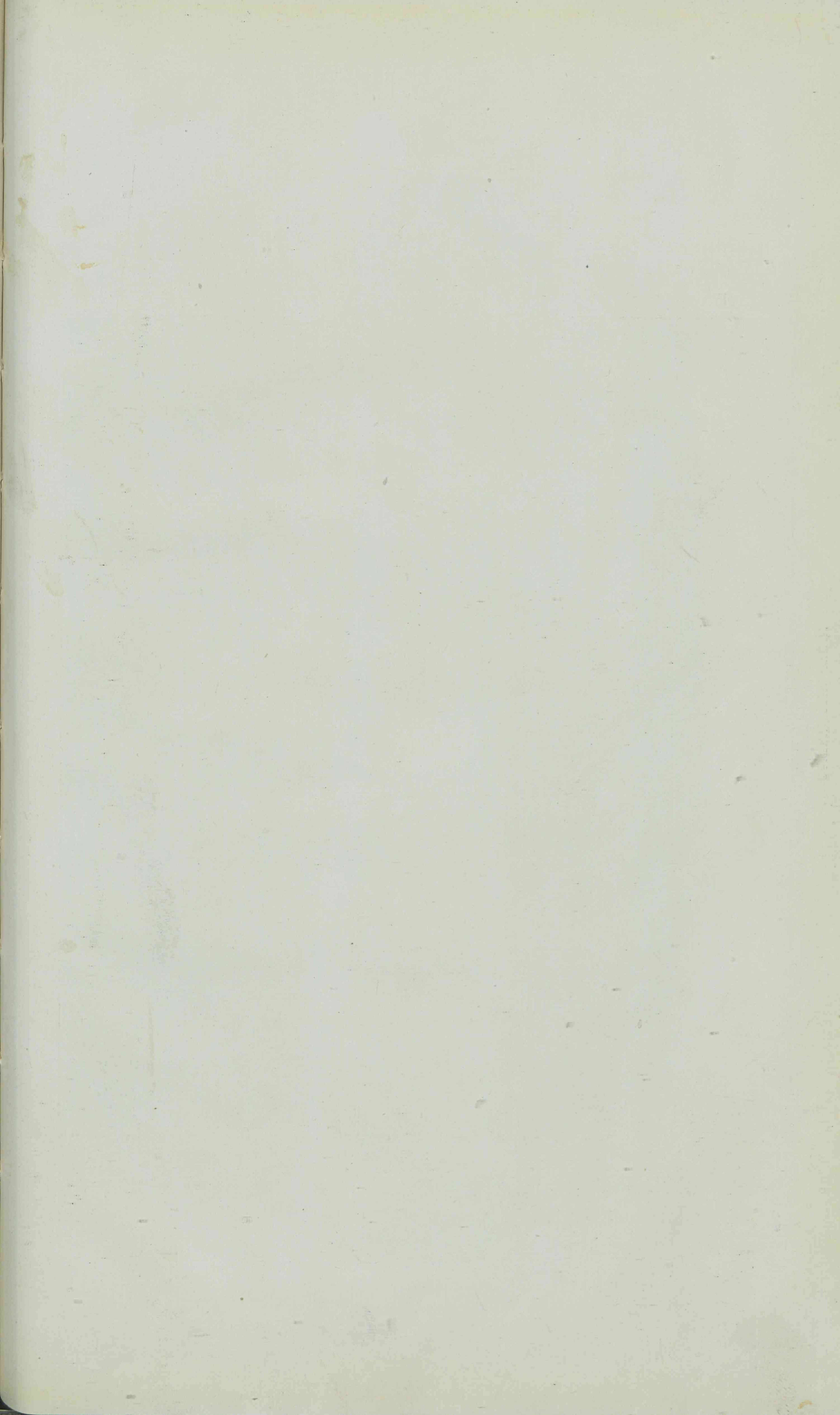
| | Acres. | Tons. | Value. |
|-------------|--------|--------|----------|
| 1915 | 5,796 | 7,439 | £89,268 |
| 1916 | 8,908 | 19,457 | £218,891 |
| 1917 | 10,738 | 22,139 | £196,484 |
| 1918 | 6,434 | 11,083 | £102,241 |
| 1919 | 4,432 | 7,844 | £183,942 |

K.

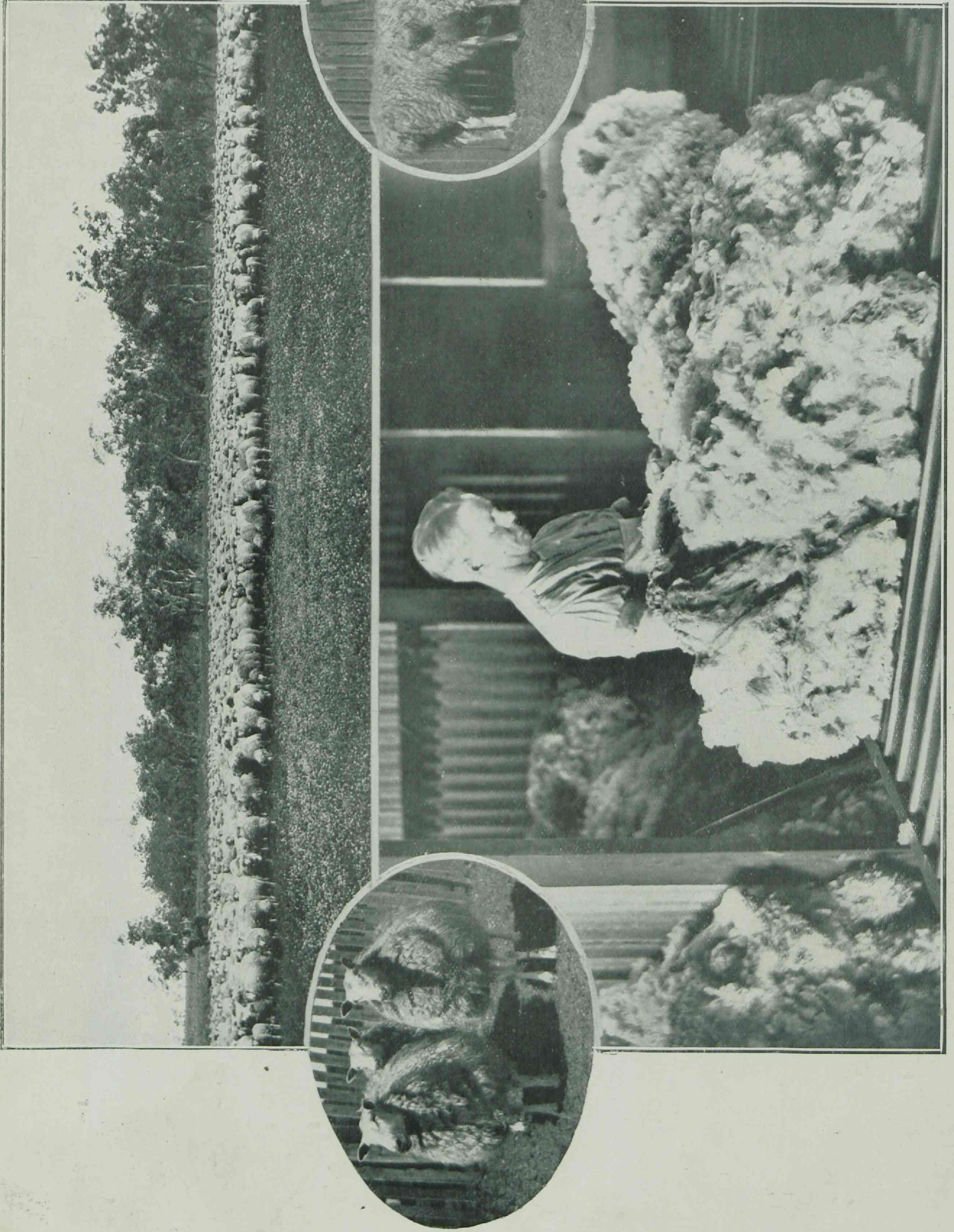
COTTON.

RESULT FOR THE PAST TWO YEARS.

| Division or Group. | 1918. | | 1919. | |
|------------------------|--------|------------------|--------|------------------|
| | Acres. | Lb. Seed Cotton. | Acres. | Lb. Seed Cotton. |
| Moreton | 29 | 19,031 | 14 | 7,685 |
| Wide Bay | 27 | 10,161 | 9 | 1,130 |
| Port Curtis | 34 | 19,149 | 25 | 12,966 |
| Edgecumbe | 1 | 1,990 | 2 | 1,914 |
| Rockingham | .. | .. | .. | .. |
| York Peninsula | .. | .. | .. | .. |
| Carpentaria | .. | .. | .. | .. |
| Central Western | .. | .. | .. | .. |
| South Western | .. | .. | .. | .. |
| Central | 31 | 19,568 | 8 | 1,075 |
| Maranoa | 34 | 16,748 | 14 | 2,700 |
| Downs | 47 | 14,798 | .. | .. |
| Total State | 203 | 101,445 | 72 | 27,470 |



SHEEP AND WOOL.



MERINO SHEEP ON MOUNT ABUNDANCE, ROMA.

WOOL CLASSING ON MOUNT ABUNDANCE, ROMA.

L.
SUGAR.

NUMBER OF PLANTATIONS, ETC.

| | Number of Plantations. | Area under Cane. | Average to each Planter. |
|-----------------------|------------------------|------------------|--------------------------|
| | | | |
| No. 1 District | 1,099 | 60,048 | 55 |
| No. 2 District | 1,519 | 57,423 | 38 |
| No. 3 District | 865 | 28,572 | 33 |
| No. 4 District | 151 | 2,426 | 16 |
| Total | 3,634 | 148,469 | 41 |

L a.

SUMMARY FOR FIVE YEARS.

| Year. | Acres Cultivated. | Acres Crushed. | PRODUCE. | |
|-------------|-------------------|----------------|------------|--|
| | | | Tons Cane. | Tons Sugar, at 94 per cent. Net Titre. |
| 1915 | 153,027 | 94,459 | 1,152,516 | 140,496 |
| 1916 | 167,221 | 75,914 | 1,579,514 | 176,973 |
| 1917 | 175,762 | 108,707 | 2,704,211 | 307,714 |
| 1918 | 160,534 | 111,572 | 1,674,829 | 189,978 |
| 1919 | 148,469 | 84,877 | 1,258,760 | 162,136 |

The consumption per capita is estimated at 138 lb. of raw sugar.

L b.

PERCENTAGES OF YIELDS FOR FIVE YEARS.

| Year. | TO EACH ACRE CRUSHED. | | Tons of Cane to One Ton of Sugar. |
|-------------|-----------------------|----------------|-----------------------------------|
| | Tons of Cane. | Tons of Sugar. | |
| 1915 | 12·20 | 1·49 | 8·20 |
| 1916 | 20·81 | 2·33 | 8·93 |
| 1917 | 24·88 | 2·83 | 8·79 |
| 1918 | 15·01 | 1·70 | 8·82 |
| 1919 | 14·83 | 1·91 | 7·76 |

L c.

DETAILS OF CROPS, EACH DIVISION, 1919.

| Division and District. | Area for Plants. | Area Stand-over or Unproductive. | 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 | 506 | 5,044 | 19,202 | 24,752 | 370,447 | 47,424 | 1,889,480 |
| Ingham and Mourilyan | 1,486 | 11,332 | 22,478 | 35,296 | 386,875 | 53,927 | 2,043,692 |
| Total | 1,992 | 16,376 | 41,680 | 60,048 | 757,322 | 101,351 | 3,933,172 |
| <i>Edgecumbe—</i> | | | | | | | |
| Ayr and Townsville | 702 | 8,062 | 9,476 | 18,240 | 91,987 | 11,953 | 535,000 |
| Proserpine and Bowen | 75 | 1,562 | 2,474 | 4,111 | 35,692 | 4,880 | 215,000 |
| Mackay | 948 | 13,337 | 20,787 | 35,072 | 280,546 | 34,855 | 1,492,726 |
| Total | 1,725 | 22,961 | 32,737 | 57,423 | 408,225 | 51,688 | 2,242,726 |
| <i>Wide Bay—</i> | | | | | | | |
| Bundaberg, Gin Gin, &c. | 331 | 8,962 | 6,123 | 15,416 | 44,078 | 5,651 | 406,000 |
| Biggenden, Childers, Maryborough, Tiaro,† &c. } | 384 | 9,996 | 2,667 | 13,047 | 18,554 | | |
| Gympie† | 1 | 7 | 19 | 27 | 116 | | |
| Total | 716 | 18,965 | 8,809 | 28,490 | 62,748 | 5,651 | 478,440 |
| <i>Port Curtis—</i> | | | | | | | |
| Gladstone* | ... | 12 | 7 | 19 | 28 | ... | ... |
| St. Lawrence‡ | 5 | 48 | 10 | 63 | 216 | ... | ... |
| <i>Moreton—</i> | | | | | | | |
| Logan | 2 | 132 | 460 | 594 | 7,703 | 679 | 42,592 |
| Townshend | 1 | 34 | ... | 35 | ... | ... | ... |
| Maroochy, &c. | 24 | 599 | 1,174 | 1,797 | 22,518 | 2,767 | 158,900 |
| Total | 27 | 765 | 1,634 | 2,426 | 30,221 | 3,446 | 201,492 |
| TOTAL OF STATE | 4,465 | 59,127 | 84,877 | 148,469 | 1,258,760 | 162,136 | 6,855,830 |

* Crushed in Bundaberg.

† Crushed in Maroochy.

‡ Crushed in Mackay.

§ Area exclusive of 4,920 acres cut for fodder.

L d.
SUGAR AVERAGES, 1919.

| 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 | 19.29 | 2.47 | 7.81 |
| Ingham and Mourilyan | 17.21 | 2.40 | 7.17 |
| Total | 18.17 | 2.43 | 7.47 |
| <i>Edgumbe—</i> | | | |
| Ayr and Townsville | 9.71 | 1.26 | 7.70 |
| Bowen and Proserpine | 14.43 | 1.97 | 7.31 |
| Mackay | 13.50 | 1.68 | 8.05 |
| Total | 12.47 | 1.58 | 7.90 |
| <i>Wide Bay—</i> | | | |
| Bundaberg, Gin Gin, &c. | 7.20 | ‡0.65 | ‡10.88 |
| Biggenden, Childers, Maryborough, Tiara, &c. | 6.96 | | |
| Gympie | 6.11 | | |
| Total | 7.12 | ‡0.65 | ‡10.88 |
| <i>Port Curtis—</i> | | | |
| Gladstone | 4.00 | † | † |
| St. Lawrence | 21.60 | ** | ** |
| <i>Moreton—</i> | | | |
| Logan | 16.75 | 1.48 | 11.34 |
| Townshend | ... | ... | ... |
| Maroochy, &c. | 19.18 | 2.09 | 8.60 |
| Total | 18.49 | 1.93 | 9.14 |
| TOTAL STATE | 14.83 | 1.91 | 7.76 |

* Crushed in Maroochy. † Crushed in Bundaberg. ‡ Exclusive of Tiara. Crushed in Maroochy. ** Crushed at Mackay.

L e.
IN EACH DIVISION OF THE STATE—TWO YEARS.

| Division | AREA UNDER CULTIVATION. | | | PRODUCTION. | | | | | |
|-------------------------------|-------------------------|---------|----------------------|---------------|---------|---------------|---------|-------------------------------|--------|
| | 1918. | 1919. | Increase or Decrease | 1918. | | 1919. | | Increase or Decrease in 1919. | |
| | | | | Area Crushed. | Sugar. | Area Crushed. | Sugar. | Area Crushed. | Sugar. |
| Rockingham and York Peninsula | 57,944 | 60,048 | 2,104 | 39,015 | 62,173 | 41,680 | 101,351 | 2,665 | 39,178 |
| Edgumbe | 62,103 | 57,423 | 4,680 | 43,364 | 69,232 | 32,737 | 51,688 | 10,627 | 17,544 |
| Port Curtis* | 530 | 82 | 448 | 433 | 455 | 17 | ... | 416 | 455 |
| Wide Bay† | 36,963 | 28,490 | 8,473 | 27,062 | 55,307 | 8,809 | 5,651 | 18,253 | 49,656 |
| Moreton | 2,994 | 2,426 | 568 | 1,698 | 2,811 | 1,634 | 3,446 | 64 | 635 |
| Total | 160,534 | 148,469 | 12,065 | 111,572 | 189,978 | 84,877 | 162,136 | 26,695 | 27,842 |

* Crushed in Wide Bay. † The cane grown in Gympie and Tiara was crushed in the Moreton Division.

L f.
PERCENTAGES IN EACH DIVISION OF THE STATE—TWO YEARS.

| Division. | TO EACH ACRE CRUSHED. | | | | TONS CANE TO EACH TON SUGAR. | |
|-------------------------------|-----------------------|-------|----------------|-------|------------------------------|--------|
| | Tons of Cane. | | Tons of Sugar. | | 1918. | 1919. |
| | 1918. | 1919. | 1918. | 1919. | | |
| Rockingham and York Peninsula | 13.79 | 18.17 | 1.59 | 2.43 | 8.65 | 7.47 |
| Edgumbe | 13.89 | 12.47 | 1.60 | 1.58 | 8.70 | 7.90 |
| Port Curtis | 12.41 | 14.35 | * | * | * | * |
| Wide Bay | 18.53 | 7.12 | 2.03 | †0.65 | 9.08 | †10.88 |
| Moreton | 16.42 | 18.49 | 1.64 | 1.93 | 10.04 | 9.14 |
| Total | 15.01 | 14.83 | 1.70 | 1.91 | 8.82 | 7.76 |

* Included in Wide Bay and Edgumbe. † Exclusive of Tiara. Crushed in Maroochy.

L g.
PRODUCTION IN AUSTRALIA, 1919.

| | Area under Cultivation. | Area Cut or Dug for Manufacture. | Yield of Cane, &c. | Sugar Obtained. |
|-----------------|-------------------------|----------------------------------|--------------------|-----------------|
| Queensland | Acres. 148,469 | Acres. 84,877 | Tons. 1,258,760 | Tons. 162,136 |
| New South Wales | 10,731 | 4,566 | 105,234 | 12,278 |
| Victoria (beet) | 1,080 | 1,080 | 13,084 | 1,551 |

Lh.
MILLS IN QUEENSLAND.

| Manufactories. | Works. | Hands Employed. | VALUE. | |
|-------------------------------|----------------------|-----------------|------------|--------------------|
| | | | Machinery. | Land and Premises. |
| | No. | No. | £ | £ |
| Refineries } Sugar Mills } | In operation, 1919 { | 2 | 3,143,442 | 515,684 |
| | { | 32 | | |
| Total | 34 | 4,488 | | |

NOTE.—In addition, 8 mills closed during the year had machinery and plant valued at £291,783, and land and premises valued at £17,907.

Li.
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 |
| From Consolidated Revenue (North Eton and Racecourse) | ... | ... | ... | 2 |
| From General Loan Fund | ... | ... | ... | 7 |
| 2. Number of Tramway Companies to which advances have been made under— | | | | |
| The Sugar Works Guarantee Acts (Double Peak) | ... | ... | ... | 1 |
| Under other conditions | ... | ... | ... | None |
| 3. Total amount of advances made to 31st December, 1919, under the Sugar Works Guarantee Acts— | | | | |
| | | | £ | s. d. |
| Marian Mill | ... | ... | 39,000 | 0 0 |
| Mount Bauple | ... | ... | 32,480 | 16 1 |
| Pleystowe | ... | ... | 35,472 | 1 3 |
| Nerang River | ... | ... | 19,998 | 18 10 |
| Gin Gin | ... | ... | 50,000 | 0 0 |
| Plane Creek | ... | ... | 65,000 | 0 0 |
| Double Peak | ... | ... | 18,200 | 0 0 |
| Proserpine | ... | ... | 54,000 | 0 0 |
| Moreton | ... | ... | 32,864 | 15 0 |
| Mulgrave | ... | ... | 46,000 | 0 0 |
| Isis | ... | ... | 38,636 | 0 0 |
| Mossman | ... | ... | 66,300 | 0 0 |
| Johnstone | ... | ... | 847 | 17 8 |
| Under "The Sugar Works Act of 1911"— | | | | 498,800 8 10 |
| Babinda Mill | ... | ... | 344,798 | 18 5 |
| South Johnstone | ... | ... | 525,269 | 16 1 |
| From Consolidated Revenue— | | | | 870,068 14 6 |
| North Eton Mill | ... | ... | 26,000 | 0 0 |
| Racecourse Mill | ... | ... | 21,000 | 0 0 |
| From General Loan Fund— | | | | 47,000 0 0 |
| North Eton Mill | ... | ... | 9,243 | 11 2 |
| Mount Bauple | ... | ... | 8,500 | 0 0 |
| Gin Gin | ... | ... | 2,000 | 0 0 |
| Double Peak | ... | ... | 4,453 | 2 11 |
| Proserpine | ... | ... | 17,765 | 9 4 |
| Moreton | ... | ... | 14,350 | 0 0 |
| Mossman | ... | ... | 11,071 | 14 0 |
| 4. Indebtedness at 31st December, 1919, under the Sugar Works Guarantee Acts— | | | | 67,383 17 5 |
| Mount Bauple Mill | ... | ... | 25,788 | 6 0 |
| Pleystowe Mill | ... | ... | 4,852 | 11 5 |
| Nerang Mill | ... | ... | 30,892 | 16 5 |
| Gin Gin Mill | ... | ... | 15,313 | 0 7 |
| Plane Creek Mill | ... | ... | 8,708 | 6 9 |
| Double Peak Mill | ... | ... | 8,796 | 13 4 |
| Proserpine Mill | ... | ... | 18,803 | 1 1 |
| Mulgrave Mill | ... | ... | 12,146 | 4 4 |
| Isis Mill | ... | ... | 3,380 | 15 9 |
| Mossman Mill | ... | ... | 20,336 | 11 9 |
| Johnstone Mill | ... | ... | 740 | 7 8 |
| Under "The Sugar Works Act of 1911"— | | | | 149,758 15 1 |
| Babinda Mill | ... | ... | 333,017 | 4 5 |
| South Johnstone | ... | ... | 525,269 | 16 1 |
| From Consolidated Revenue—North Eton Mill | ... | ... | | 858,287 0 6 |
| From General Loan Fund— | | | | 6,668 10 0 |
| North Eton Mill | ... | ... | 2,759 | 16 3 |
| Mount Bauple Mill | ... | ... | 8,670 | 0 0 |
| Double Peak Mill | ... | ... | 2,151 | 19 11 |
| Proserpine Mill | ... | ... | 3,358 | 17 8 |
| Mossman Mill | ... | ... | 8,720 | 13 4 |
| | | | | 25,661 7 2 |

M.

ARROWROOT.

DISTRICTS WHERE CULTIVATED AND PRODUCTION—TWO YEARS.

| Petty Sessions District. | 1918. | | 1919. | | Increase or Decrease — | |
|--------------------------|--------|----------|--------|----------|------------------------|---------|
| | Area. | Produce. | Area. | Produce. | Area. | Produce |
| | Acres. | Tons. | Acres. | Tons. | Acres. | Tons. |
| Brisbane (A) | 1 | 2 | ... | ... | — 1 | — 2 |
| Brisbane (B) | ... | ... | ... | ... | ... | ... |
| Caboolture | 1 | 10 | ... | ... | — 1 | — 10 |
| Dugandan | ... | ... | ... | ... | ... | ... |
| Gladstone | 1 | 1 | ... | ... | — 1 | — 1 |
| Gympie | 1 | 1 | ... | ... | — 1 | — 1 |
| Ipswich | ... | ... | ... | ... | ... | ... |
| Kilcoy | ... | ... | 1 | 1 | 1 | 1 |
| Logan | 177 | 1,672 | 222 | 2,779 | 45 | 1,107 |
| Lowood | 4 | 15 | 1 | 2 | — 3 | — 13 |
| Maroochy | 4 | 68 | 1 | 16 | — 3 | — 52 |
| Nerang | 226 | 3,710 | 235 | 2,281 | 9 | — 1,429 |
| Pittsworth | ... | ... | ... | ... | ... | ... |
| Rosewood | 3 | 27 | ... | ... | — 3 | — 27 |
| Tiaro | 1 | 2 | 2 | 5 | 1 | 3 |
| Townshend | 4 | 20 | 7 | 14 | 3 | — 6 |
| Wienholt | ... | ... | ... | ... | ... | ... |
| Woodford | 1 | 1 | ... | ... | — 1 | — 1 |
| Total State | 424 | 5,529 | 469 | 5,098 | 45 | — 431 |

M a.

ARROWROOT.

DETAILS OF MANUFACTURE.

| Petty Sessions District. | Hands Employed. | Tuber. | Arrowroot. |
|--------------------------|-----------------|--------|------------|
| | No. | Tons. | Lb. |
| Logan | } 72 | 5,048 | 1,093,724 |
| Nerang | | | |

N.

TOBACCO.

DISTRICTS WHERE CULTIVATED AND YIELD—TWO YEARS.

| Division and Petty Sessions District. | 1918. | | 1919. | | Increase or Decrease — | |
|---------------------------------------|--------|---------------------|--------|---------------------|------------------------|---------|
| | Area. | Produce Dried Leaf. | Area. | Produce Dried Leaf. | Area. | Produce |
| | Acres. | Lb. | Acres. | Lb. | Acres. | Lb. |
| <i>Moreton—</i> | | | | | | |
| Cleveland | 1 | 512 | ... | ... | — 1 | — 512 |
| Lowood | 5 | 5,598 | ... | ... | — 5 | — 5,598 |
| <i>Edgecumbe—</i> | | | | | | |
| Bowen | 12 | 10,615 | 26 | 23,803 | 14 | 13,188 |
| Proserpine | 12 | 9,888 | 27 | 18,297 | 15 | 8,409 |
| Townsville | 10 | 5,036 | 11 | 5,065 | 1 | 29 |
| <i>Rockingham—</i> | | | | | | |
| Cairns | ... | ... | ... | ... | ... | ... |
| Cardwell | 1 | 150 | 9 | 822 | 8 | 672 |
| <i>Downs—</i> | | | | | | |
| Inglewood | 76 | 42,179 | 83 | 43,627 | 7 | 1,448 |
| Texas | 96 | 39,164 | 163 | 102,909 | 67 | 63,745 |
| Killarney | ... | ... | 2 | 2,800 | 2 | 2,800 |
| Total State | 213 | 113,142 | 321 | 197,323 | 108 | 84,181 |

O.

COFFEE.

DISTRICTS WHERE CULTIVATED AND YIELD—TWO YEARS.

| DIVISION AND PETTY SESSIONS DISTRICT. | Not Bearing. | | Bearing. | | | | Average per Acre (Bearing). | | 1919. Increase or Decrease—Bearing Area. | 1919. Increase or Decrease—in Produce. |
|--|--------------|--------|----------|------------------|--------|------------------|-----------------------------|-------|--|--|
| | 1918. | 1919. | 1918. | | 1919. | | 1918. | 1919. | | |
| | Acres. | Acres. | Acres. | Lb. (Parchment.) | Acres. | Lb. (Parchment.) | Lb. | Lb. | | |
| Moreton— Maroochy ... | 1 | 3 | 12 | 5,369 | 17 | 7,489 | 447 | 441 | 5 | 2,120 |
| Wide Bay— Bundaberg Maryborough ... | ... | 2 | 4 | 3,000 | 3 | 3,000 | 750 | 1,000 | 1 | ... |
| Edgecumbe— Mackay ... Proserpine ... | 1 | 1 | 8 | 1,400 | 1 | 112 | 175 | 112 | 8 | 1,400 |
| Total Edgecumbe ... | 1 | 1 | 8 | 1,400 | 1 | 112 | 175 | 112 | 7 | 1,288 |
| Rockingham— Cairns ... Atherton ... | ... | ... | 3 | 3,360 | 3 | 5,500 | 1,120 | 1,833 | ... | 2,140 |
| Total Rockingham ... | ... | ... | 3 | 3,360 | 3 | 5,500 | 1,120 | 1,833 | ... | 2,140 |
| Totals ... | 2 | 6 | 27 | 13,129 | 24 | 16,101 | 486 | 671 | 3 | 2,972 |

Q.

VINES.

SUMMARY OF AREA AND YIELD—TWO YEARS.

| Year. | VINEYARD. | | | Grapes Gathered. | Average per Acre (Bearing). |
|----------|----------------|--------------------|--------|------------------|-----------------------------|
| | Acres Bearing. | Acres not Bearing. | Total. | | |
| 1918 ... | 1,175 | 112 | 1,287 | Lb. 1,725,081 | Lb. 1,468 |
| 1919 ... | 1,096 | 107 | 1,203 | 2,194,320 | 2,002 |

Qa.

DETAILS OF PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | AREA UNDER VINES. | | | | | | | | |
|--------------------------|-------------------|--------------|---------------|---------------|--------------|---------------|-----------------------|------------------|------------------|
| | 1918. | | | 1919. | | | Increase or Decrease— | 1918. | 1919. |
| | Bearing. | Not Bearing. | Total Area. | Bearing. | Not Bearing. | Total Area. | | Grapes Gathered. | Grapes Gathered. |
| Brisbane (A) ... | Acres. 317 | Acres. 7 | Acres. 324 | Acres. 283 | Acres. 8 | Acres. 291 | Acres. — 33 | Lb. 510,587 | Lb. 582,686 |
| Brisbane (B) ... | 11 | 2 | 13 | 15 | ... | 15 | 2 | 15,114 | 31,485 |
| Bundaberg ... | 9 | 3 | 12 | 13 | ... | 13 | 1 | 10,615 | 8,949 |
| Clifton ... | 6 | ... | 6 | 5 | ... | 5 | 1 | 5,450 | 3,824 |
| Gatton ... | 6 | 2 | 8 | 4 | 2 | 6 | 2 | 8,765 | 3,432 |
| Gympie ... | 11 | ... | 11 | 7 | 2 | 9 | 2 | 27,742 | 8,480 |
| Laidley ... | 10 | 1 | 11 | 5 | ... | 5 | 6 | 17,167 | 7,851 |
| Logan ... | 12 | ... | 12 | 11 | 1 | 12 | ... | 30,656 | 22,700 |
| Lowood ... | 72 | 6 | 78 | 90 | 1 | 91 | 13 | 114,162 | 244,030 |
| Maryborough ... | 24 | 3 | 27 | 25 | 4 | 29 | 2 | 40,102 | 25,530 |
| Redcliffe ... | 7 | ... | 7 | 4 | ... | 4 | 3 | 16,062 | 12,905 |
| Rockhampton ... | 20 | 1 | 21 | 22 | 1 | 23 | 2 | 26,260 | 27,731 |
| Roma ... | 339 | 23 | 362 | 285 | 17 | 302 | 60 | 190,751 | 631,606 |
| Stanthorpe ... | 94 | 44 | 138 | 117 | 63 | 180 | 42 | 147,395 | 244,235 |
| Toowoomba ... | 34 | ... | 34 | 29 | 1 | 30 | 4 | 44,544 | 45,573 |
| Townshend ... | 14 | ... | 14 | 9 | ... | 9 | 5 | 8,200 | 1,787 |
| Warwick ... | 32 | 1 | 33 | 40 | ... | 40 | 7 | 46,989 | 39,136 |
| Wynnum ... | 16 | 2 | 18 | 16 | 2 | 18 | ... | 94,020 | 60,025 |
| All other Districts ... | 141 | 17 | 158 | 116 | 5 | 121 | 37 | 370,500 | 192,355 |
| Totals ... | 1,175 | 112 | 1,287 | 1,096 | 107 | 1,203 | 84 | 1,725,081 | 2,194,320 |

N.B.—Brisbane (B) refers to South Brisbane.

Q b.

VINES.

AVERAGE, PRINCIPAL DISTRICTS—FIVE YEARS.

| Petty Sessions District. | 1915. Average per Acre. | 1916. Average per Acre. | 1917. Average per Acre. | 1918. Average per Acre. | 1919. Average per Acre. |
|--------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Brisbane | Lb. 1,774 | Lb. 1,524 | Lb. 1,605 | Lb. 1,611 | Lb. 2,059 |
| Roma | 3,612 | 1,054 | 882 | 563 | 2,216 |
| Brisbane (B), including Wynnum | 2,799 | 2,567 | 3,195 | 4,042 | 2,952 |
| Tcowoomba | 1,262 | 1,692 | 1,288 | 1,310 | 1,571 |
| State | 2,556 | 1,671 | 1,613 | 1,468 | 2,002 |

Brisbane (B) refers to South Brisbane.

Q c.

WINE.

MAKERS, WINE MADE, AND WINE SPIRIT DISTILLED—FIVE YEARS.

| Year. | Number of Makers. | Quantity of Wine Made. | Quantity of Wine Spirit Distilled. |
|-------------|----------------------|---------------------------|--|
| 1915 | 136 | Gallons. 59,008 | Gallons. 2,839 |
| 1916 | 96 | 23,171 | 2,489 |
| 1917 | 103 | 39,125 | 1,326 |
| 1918 | 90 | 44,491 | 1,029 |
| 1919 | 80 | 48,495 | 1,360 |

Q d.

PRINCIPAL DISTRICTS WHERE MADE.

| Petty Sessions District. | Number of Makers. | Quantity of Wine Made. | Quantity of Wine Spirit Distilled. |
|---|-------------------|---------------------------|---------------------------------------|
| Brisbane (A and B), including Wynnum | 14 | Gallons. 3,820 | Gallons. ... |
| Highfields | 5 | 592 | ... |
| Logan | 3 | 600 | ... |
| Lowood | 1 | 5,000 | ... |
| Roma | 3 | 30,830 | ... |
| Toowoomba | 19 | 1,964 | ... |
| Warwick... .. | 1 | 2,000 | ... |
| All other Districts | 34 | 3,689 | ... |
| Totals | 80 | 48,495 | 1,360 |

N.B.—Brisbane (B) refers to South Brisbane.

R.
BANANAS.

DETAILS IN PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | Area. | | Produce. | | Increase or Decrease — | |
|--------------------------|--------------|--------------|------------------|----------------|------------------------|------------------|
| | 1918. | 1919. | 1918. | 1919. | Area. | Produce. |
| | Acres. | Acres. | Bunches. | Bunches. | Acres. | Bunches. |
| Brisbane (A)... | 845 | 712 | 156,842 | 132,396 | — 133 | — 24,446 |
| Cairns ... | 430 | 347 | 21,756 | 42,714 | — 83 | 20,958 |
| Cardwell ... | 1 | 5 | 412 | 108 | 4 | — 304 |
| Cleveland ... | 181 | 100 | 33,208 | 14,594 | — 81 | — 18,614 |
| Gympie ... | 887 | 1,009 | 163,155 | 107,113 | 122 | — 56,042 |
| Logan ... | 339 | 294 | 78,965 | 45,580 | — 45 | — 33,385 |
| Maroochy ... | 2,086 | 2,080 | 305,771 | 225,654 | — 6 | — 80,117 |
| Maryborough ... | 460 | 468 | 81,115 | 52,251 | 8 | — 28,864 |
| Mourilyan ... | 41 | 51 | 2,176 | 3,717 | 10 | 1,541 |
| Nerang ... | 461 | 658 | 65,112 | 109,829 | 197 | 44,717 |
| Redcliffe ... | 662 | 677 | 161,606 | 95,366 | 15 | — 66,240 |
| Rockhampton ... | 112 | 122 | 13,587 | 10,684 | 10 | — 2,903 |
| Somerset ... | 111 | 97 | 11,786 | 7,010 | — 14 | — 4,776 |
| Townsville ... | 186 | 145 | 30,700 | 28,530 | — 41 | — 2,170 |
| All other Districts ... | 1,015 | 929 | 141,450 | 80,498 | — 86 | — 60,952 |
| Totals ... | 7,817 | 7,694 | 1,267,641 | 956,044 | — 123 | — 311,597 |

R a.
BANANAS.

YIELD PER ACRE IN PRINCIPAL DISTRICTS.

| Average per Acre— Bunches. | | | | Average per Acre — Bunches. | | | |
|-------------------------------|-----|-----|-----------------|--------------------------------|-----|-----|--|
| Brisbane ... | ... | 186 | Maroochy ... | ... | ... | 108 | |
| Cairns ... | ... | 123 | Maryborough ... | ... | ... | 112 | |
| Cleveland ... | ... | 146 | Mourilyan ... | ... | ... | 73 | |
| Gympie ... | ... | 106 | Nerang ... | ... | ... | 167 | |
| Logan ... | ... | 155 | Redcliffe ... | ... | ... | 141 | |

S.
PINEAPPLES.

DETAILS IN PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | 1918. | | 1919. | | Increase or Decrease — | |
|--------------------------|--------------|----------------|--------------|----------------|------------------------|------------------|
| | Area. | Produce. | Area. | Produce. | Area. | Produce. |
| | Acres. | Dozen. | Acres. | Dozen. | Acres. | Dozen. |
| Brisbane (A) ... | 600 | 229,271 | 480 | 133,808 | — 120 | — 95,463 |
| Brisbane (B) ... | 162 | 29,210 | 139 | 25,784 | — 23 | — 3,426 |
| Bundaberg ... | 48 | 6,953 | 30 | 3,167 | — 18 | — 3,786 |
| Caboolture ... | 117 | 22,479 | 169 | 19,132 | 52 | — 3,347 |
| Cairns ... | 138 | 18,090 | 133 | 19,706 | — 5 | 1,616 |
| Cleveland ... | 908 | 175,111 | 945 | 169,474 | 37 | — 5,637 |
| Logan ... | 171 | 44,761 | 177 | 63,089 | 6 | 18,328 |
| Maroochy ... | 1,128 | 211,978 | 1,144 | 151,195 | 16 | — 60,783 |
| Maryborough ... | 150 | 29,968 | 131 | 18,996 | — 19 | — 10,972 |
| Mourilyan ... | 4 | 255 | 1 | 71 | — 3 | — 184 |
| Redcliffe ... | 50 | 13,314 | 51 | 10,458 | — 1 | — 2,856 |
| Rockhampton ... | 93 | 16,196 | 82 | 15,893 | — 11 | — 303 |
| Tiaro ... | 67 | 11,446 | 67 | 5,966 | ... | — 5,480 |
| Wynnum ... | 135 | 20,041 | 147 | 18,274 | — 12 | — 1,767 |
| All other Districts ... | 255 | 30,875 | 226 | 21,471 | — 29 | — 9,404 |
| Totals ... | 4,026 | 859,948 | 3,922 | 676,484 | — 104 | — 183,464 |

N. B.—Brisbane (B) refers to South Brisbane.

T.
ORANGES.

DETAILS IN PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | Area. | | Bearing, 1919. | Not yet Bearing, 1919. | Produce. | | Increase or Decrease — | |
|----------------------------|--------------|--------------|-------------------|---------------------------|----------------|----------------|------------------------|----------------|
| | 1918. | 1919. | Area. | Area. | 1918. | 1919. | Area. | Produce. |
| | Acres. | Acres. | Acres. | Acres. | Bushels. | Bushels. | Acres. | Bushels. |
| Atherton | 20 | 30 | 19 | 11 | 1,405 | 1,053 | 10 | 352 |
| Bowen | 181 | 169 | 149 | 20 | 6,140 | 10,376 | 12 | 4,236 |
| Brisbane (A) | 39 | 25 | 12 | 13 | 3,136 | 206 | 14 | 2,930 |
| Brisbane (B) | 20 | 20 | 12 | 8 | 855 | 208 | ... | 647 |
| Bundaberg | 65 | 61 | 50 | 11 | 9,569 | 1,503 | 4 | 8,066 |
| Caboolture | 35 | 39 | 25 | 14 | 2,153 | 667 | 4 | 1,486 |
| Cairns | 229 | 249 | 222 | 27 | 32,021 | 32,829 | 20 | 808 |
| Cardwell | 96 | 113 | 100 | 13 | 1,366 | 6,160 | 17 | 4,794 |
| Charters Towers | 30 | 29 | 26 | 3 | 3,674 | 3,439 | 1 | 235 |
| Childers | 39 | 43 | 41 | 2 | 4,140 | 893 | 4 | 3,247 |
| Cleveland | 51 | 36 | 13 | 23 | 3,444 | 593 | 15 | 2,851 |
| Cook | 69 | 68 | 46 | 22 | 4,528 | 4,344 | 1 | 184 |
| Douglas | 35 | 30 | 23 | 7 | 1,470 | 1,790 | 5 | 320 |
| Esk | 41 | 37 | 29 | 8 | 2,390 | 889 | 4 | 1,501 |
| Gatton | 83 | 73 | 69 | 4 | 4,958 | 860 | 10 | 4,098 |
| Gayndah | 37 | 34 | 25 | 9 | 3,586 | 1,355 | 3 | 2,231 |
| Gladstone | 33 | 24 | 19 | 5 | 4,510 | 1,850 | 9 | 2,660 |
| Gympie | 26 | 28 | 9 | 19 | 2,428 | 579 | 2 | 1,849 |
| Helidon | 58 | 56 | 49 | 7 | 1,789 | 465 | 2 | 1,324 |
| Ingham | 24 | 24 | 20 | 4 | 4,799 | 1,186 | ... | 3,613 |
| Ipswich | 25 | 22 | 7 | 15 | 286 | 4 | 3 | 282 |
| Laidley | 21 | 16 | 12 | 4 | 1,094 | 241 | 5 | 853 |
| Logan | 104 | 95 | 78 | 17 | 16,408 | 5,196 | 9 | 11,212 |
| Lowood | 22 | 18 | 18 | ... | 374 | 218 | 4 | 156 |
| Mackay | 29 | 40 | 25 | 15 | 1,283 | 1,972 | 11 | 689 |
| Maroochy | 1,292 | 1,484 | 729 | 755 | 111,602 | 65,317 | 192 | 46,285 |
| Maryborough | 457 | 437 | 313 | 124 | 31,467 | 12,332 | 20 | 19,135 |
| Nerang | 68 | 48 | 39 | 9 | 6,743 | 2,570 | 20 | 4,173 |
| Proserpine | 28 | 23 | 20 | 8 | 2,350 | 1,490 | ... | 860 |
| Redcliffe | 28 | 31 | 17 | 14 | 4,888 | 2,141 | 3 | 2,747 |
| Rockhampton | 162 | 164 | 127 | 37 | 11,563 | 8,337 | 2 | 3,226 |
| Tiaro | 57 | 68 | 51 | 17 | 2,257 | 2,326 | 11 | 69 |
| Toowoomba | 47 | 41 | 31 | 10 | 2,256 | 122 | 6 | 2,134 |
| Woodford | 16 | 21 | 15 | 6 | 534 | 828 | 5 | 294 |
| All other Districts | 334 | 389 | 290 | 99 | 21,771 | 11,467 | 55 | 10,304 |
| Total | 3,901 | 4,090 | 2,730 | 1,360 | 313,237 | 185,806 | 189 | 127,431 |

N.B.—Brisbane (B) refers to South Brisbane.

U.
MANGOES.

DETAILS IN PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | Area. | | Bearing, 1919. | Not yet Bearing, 1919. | Produce. | | Increase or Decrease — 1919. | |
|----------------------------|------------|------------|-------------------|---------------------------|---------------|---------------|---------------------------------|--------------|
| | 1918. | 1919. | Area. | Area. | 1918. | 1919. | Area. | Produce. |
| | Acres. | Acres. | Acres. | Acres. | Bushels. | Bushels. | Acres. | Bushels. |
| Atherton | 6 | 8 | 6 | 2 | 499 | 704 | 2 | 205 |
| Bowen | 30 | 29 | 24 | 5 | 9,698 | 6,313 | 1 | 3,385 |
| Brisbane (A) | 12 | 10 | 9 | 1 | 1,235 | 1,256 | 2 | 21 |
| Bundaberg | 14 | 12 | 12 | ... | 1,886 | 1,684 | 2 | 202 |
| Cairns | 15 | 14 | 13 | 1 | 2,320 | 2,619 | 1 | 299 |
| Childers | 5 | 2 | 2 | ... | 1,583 | 500 | 3 | 1,083 |
| Cleveland | 9 | 6 | 6 | ... | 263 | 687 | 3 | 424 |
| Douglas | 13 | 13 | 12 | 1 | 923 | 1,710 | ... | 787 |
| Ingham | 26 | 24 | 23 | 1 | 5,491 | 1,586 | 2 | 3,905 |
| Logan | 9 | 14 | 14 | ... | 417 | 2,645 | 5 | 2,228 |
| Mackay | 21 | 28 | 26 | 2 | 3,564 | 6,152 | 7 | 2,588 |
| Maryborough | 18 | 13 | 13 | ... | 533 | 3,619 | 5 | 3,086 |
| Proserpine | 18 | 15 | 13 | 2 | 2,413 | 2,573 | 3 | 160 |
| Redcliffe | 12 | 10 | 8 | 2 | 984 | 1,435 | 2 | 451 |
| Rockhampton | 35 | 34 | 32 | 2 | 4,369 | 4,600 | 1 | 231 |
| Tiaro | 6 | 8 | 6 | 2 | 1,023 | 1,034 | 2 | 11 |
| Townsville | 11 | 7 | 7 | ... | 5,741 | 4,762 | 4 | 979 |
| All other Districts | 63 | 63 | 51 | 12 | 13,775 | 9,496 | ... | 4,279 |
| Totals | 323 | 310 | 277 | 33 | 56,717 | 53,375 | 13 | 3,342 |

FRUIT CULTIVATION, ROMA STATE FARM.



CINCTURED ORANGE TREE.

SINGLE TRELLIS PLANT.

TRELLISED PEAR AND BLOSSOM.

V.

STRAWBERRIES.

DETAILS IN PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | Area. | | Produce. | | Increase or Decrease — | |
|----------------------------|--------|--------|----------|---------|------------------------|---------|
| | 1918. | 1919. | 1918. | 1919. | 1919. | 1919. |
| | Acres. | Acres. | Quarts. | Quarts. | Acres. | Quarts. |
| Brisbane (A) | 6 | 3 | 1,301 | 970 | - 3 | - 331 |
| Brisbane (B) | 1 | 2 | 490 | 836 | 1 | 346 |
| Bundaberg | 4 | 2 | 1,120 | 500 | - 2 | - 620 |
| Cleveland | 10 | 16 | 8,161 | 14,608 | 6 | 6,447 |
| Maroochy | 34 | 27 | 28,516 | 24,520 | - 7 | - 3,996 |
| Rockhampton | 2 | 2 | 2,300 | 1,500 | ... | - 800 |
| All other Districts | 11 | 13 | 7,165 | 1,950 | 2 | - 5,215 |
| Totals | 68 | 65 | 49,053 | 44,884 | - 3 | - 4,169 |

N.B.—Brisbane (B) refers to South Brisbane.

W.

APPLES.

DETAILS IN PRINCIPAL DISTRICTS—TWO YEARS.

| Petty Sessions District. | Area. | | Increase or Decrease — 1919. | Bearing, 1919. | Not Bearing, 1919. | Produce. | | Increase or Decrease — 1919. |
|----------------------------|--------|--------|------------------------------|----------------|--------------------|----------|----------|------------------------------|
| | 1918. | 1919. | | | | 1918. | 1919. | |
| | Acres. | Acres. | Acres. | Acres. | Acres. | Bushels. | Bushels. | Bushels. |
| Atherton | 2 | 4 | 2 | 3 | 1 | 16 | 90 | 74 |
| Crow's Nest | 2 | 2 | ... | 2 | ... | 133 | 20 | - 113 |
| Dalby | 2 | 1 | - 1 | 1 | ... | 15 | 18 | 3 |
| Goombungee | 1 | ... | - 1 | ... | ... | 27 | ... | - 27 |
| Highfields | 2 | 2 | ... | 2 | ... | 198 | 123 | - 75 |
| Nanango | 11 | 11 | ... | 8 | 3 | 656 | 94 | - 562 |
| Nerang | 3 | 1 | - 2 | 1 | ... | 6 | 4 | - 2 |
| Stanthorpe | 2,424 | 2,810 | 386 | 1,850 | 960 | 72,177 | 67,098 | - 5,079 |
| Toowoomba | 13 | 12 | - 1 | 10 | 2 | 518 | 658 | 140 |
| Warwick | 7 | 12 | 5 | 3 | 9 | 62 | 90 | 28 |
| All other Districts | 27 | 29 | 2 | 21 | 8 | 607 | 282 | - 325 |
| Totals | 2,494 | 2,884 | 390 | 1,901 | 983 | 74,415 | 68,477 | - 5,938 |

W a.

OTHER FRUITS.

| | Acres. | Yield. |
|--------------------------|--------|----------------|
| Apricots | 112 | 2,840 bushels |
| Cape gooseberries | ... | ... |
| Cherries | 25 | 165 bushels |
| Citrons | 14 | 17 bushels |
| Custard apples | 151 | 7,677 bushels |
| Figs | 8 | 237 bushels |
| Lemons | 310 | 11,168 bushels |
| Nectarines | 216 | 7,226 bushels |
| Passion fruit | 32 | 3,707 bushels |
| Paw-paws | 155 | 32,925 dozen |
| Peaches | 1,825 | 70,558 bushels |
| Pears | 282 | 6,128 bushels |
| Persimmons | 22 | 849 bushels |
| Plums | 719 | 11,361 bushels |
| Quinces | 44 | 491 bushels |
| Rosellas | 1 | 50 bushels |
| Limes | 1 | 6 bushels |
| Olives | 1 | ... |

X.
OTHER VEGETABLES.

RETURN FOR TWO YEARS.

| Other Vegetables. | 1918. | | 1919. | |
|-------------------------------|--------|-----------------|--------|-----------------|
| | Acres. | Produce. | Acres. | Produce. |
| Pulse { Beans | 15 | 904 bushels | 56 | 1,238 bushels |
| Peas | 55 | 1,004 bushels | 102 | 1,814 bushels |
| Green { Beans | 213 | 21,799 bushels | 153 | 12,806 bushels |
| Peas | 235 | 14,184 bushels | 139 | 8,042 bushels |
| Cabbages and Cauliflowers ... | 645 | 144,709 dozen | 700 | 147,390 dozen |
| Cucumbers | 163 | 55,896 dozen | 145 | 49,244 dozen |
| Onions | 88 | 2,212 cwt. | 194 | 3,618 cwt. |
| Tomatoes | 1,301 | 135,275 bushels | 1,580 | 159,713 bushels |
| Turnips | 49 | 190 tons | 236 | 1,415 tons |
| Carrots | ... | ... | 103 | 11,034 bushels |
| Marrows | ... | ... | 15 | 24 tons |

X a.

PRINCIPAL OTHER CROPS.

RETURN FOR TWO YEARS.

| | 1918. | | 1919. | |
|-----------------------|--------|---------------------------------------|--------|---------------------------------------|
| | Acres. | Produce. | Acres. | Produce. |
| Cocoanuts | 1,074 | { 18,836 dozen and 1½ tons copra } | 1,005 | { 17,577 dozen and 12 tons copra } |
| Broom millet | 235 | 103,585 lb. | 484 | 142,888 lb. |
| Canary seed | 1,333 | 810,700 lb. | 1,698 | 226,599 lb. |
| Indiarubber | 6 | ... | 6 | ... |
| Grass seed | 668 | 3,250 bushels | 1,275 | 22,850 bushels |
| Mangold wurzel | 35 | 182 tons | 65 | 282 tons |
| Peanuts | 153 | 169,448 lb. | 153 | 127,708 lb. |
| Sisal hemp | 10 | ... | 51 | 70 cwt. |
| Lucerne seed | 20 | 1,080 lb. | 158 | 8,000 lb. |
| Millet seed | 70 | 1,380 bushels | 285 | 3,358 bushels |
| Linseed | 4 | 1,000 lb. | 34 | 3,030 lb. |

X b.

PASTURAGE—FIVE YEARS.

| | 1915. | 1916. | 1917. | 1918. | 1919. |
|------------------------------|----------------|----------------|----------------|----------------|----------------|
| | Acres. | Acres. | Acres. | Acres. | Acres. |
| Hay | 55,174 | 112,964 | 96,431 | 54,772 | 48,843 |
| Green forage | 236,293 | 116,449 | 87,909 | 90,635 | 157,568 |
| Artificially sown pasture .. | 305,186 | 363,876 | 406,094 | 418,467 | 449,019 |
| Total | 596,653 | 593,289 | 590,434 | 553,874 | 655,430 |

Y.

HAY—TWO YEARS.

| Hay Crops. | Area. | | Increase or Decrease— | Produce. | | Increase or Decrease— |
|----------------------|---------------|---------------|-----------------------|---------------|---------------|-----------------------|
| | 1918. | 1919. | | 1918. | 1919. | |
| | Acres. | Acres. | Acres. | Tons. | Tons. | Tons. |
| Wheat | 1,902 | 11,710 | 9,808 | 1,312 | 8,121 | 6,809 |
| Oats | 1,803 | 2,488 | 685 | 1,959 | 2,532 | 573 |
| Lucerne | 48,264 | 29,348 | — 18,916 | 84,550 | 25,715 | — 58,835 |
| Other | 2,803 | 5,297 | 2,494 | 4,409 | 5,436 | 1,027 |
| Totals | 54,772 | 48,843 | — 5,929 | 92,230 | 41,804 | — 50,426 |

Z.

ARTIFICIALLY GROWN PASTURE—TWO YEARS.

| Petty Sessions District. | 1918. | | 1919. | | Increase, 1919. | Decrease, 1919. |
|----------------------------|---------|---------|--------|--------|--------------------|--------------------|
| | Acres. | Acres. | Acres. | Acres. | | |
| Atherton | 30,005 | 37,096 | 7,091 | ... | | |
| Beaudesert | 6,212 | 5,125 | ... | 1,087 | | |
| Biggenden | 16,429 | 14,554 | ... | 1,875 | | |
| Caboolture | 2,080 | 1,293 | ... | 787 | | |
| Condamine | 2,477 | 4 | ... | 2,473 | | |
| Dalby | 36,304 | 29,240 | ... | 7,064 | | |
| Dugandan | 3,292 | 3,443 | 151 | ... | | |
| Eidsvold | 402 | 1,612 | 1,210 | ... | | |
| Esk | 1,967 | 2,258 | 291 | ... | | |
| Gatton | 4,082 | 4,561 | 479 | ... | | |
| Gayndah | 21,641 | 21,651 | 10 | ... | | |
| Gladstone | 8,342 | 9,312 | 970 | ... | | |
| Goondiwindi | 7,153 | 7,414 | 261 | ... | | |
| Gympie | 68,447 | 83,721 | 15,274 | ... | | |
| Helidon | 3,142 | 3,233 | 91 | ... | | |
| Maroochy | 42,197 | 50,141 | 7,944 | ... | | |
| Nanango | 29,957 | 33,851 | 3,894 | ... | | |
| Nerang | 22,334 | 22,240 | ... | 94 | | |
| Pittsworth | 10,023 | 9,255 | ... | 768 | | |
| Redcliffe | 1,068 | 1,431 | 363 | ... | | |
| Rockhampton | 21,337 | 25,744 | 4,407 | ... | | |
| Tiaro | 3,571 | 3,985 | 414 | ... | | |
| Wienholt | 48,360 | 50,258 | 1,898 | ... | | |
| Woodford | 9,693 | 10,387 | 694 | ... | | |
| All other Districts | 17,952 | 17,210 | ... | 742 | | |
| Totals | 418,467 | 449,019 | 30,552 | ... | | |

Z a.

ENSILAGE—TWO YEARS.

| Petty Sessions District. | 1918. | | 1919. | | Increase, 1919. | Decrease, 1919. |
|--------------------------|-------------------|-------|-------------------|-------|--------------------|--------------------|
| | No. of Makers. | Tons. | No. of Makers. | Tons. | | |
| Atherton | 1 | 120 | 3 | 160 | 40 | ... |
| Beaudesert | 4 | 176 | ... | ... | ... | 176 |
| Brisbane (A) | 1 | 150 | 1 | 123 | ... | 27 |
| Brisbane (B) | 1 | 100 | 4 | 440 | 340 | ... |
| Bundaberg | 1 | 4 | ... | ... | ... | 4 |
| Cairns | ... | ... | 1 | 70 | 70 | ... |
| Childers | ... | ... | 1 | 15 | 15 | ... |
| Clifton | 1 | 25 | 2 | 160 | 135 | ... |
| Dalby | 2 | 60 | 3 | 113 | 53 | ... |
| Dugandan | ... | ... | 1 | 105 | 105 | ... |
| Esk | 8 | 925 | 2 | 96 | ... | 829 |
| Gatton | 2 | 268 | 1 | 678 | 410 | ... |
| Gayndah | ... | ... | 5 | 142 | 142 | ... |
| Gin Gin | 1 | 50 | ... | ... | ... | 50 |
| Gympie | 2 | 80 | 1 | 6 | ... | 74 |
| Harrisville | 1 | 14 | 7 | 122 | 108 | ... |
| Helidon | ... | ... | 1 | 2 | 2 | ... |
| Highfields | 1 | 40 | ... | ... | ... | 40 |
| Ipswich | 1 | 140 | 3 | 180 | 40 | ... |
| Jondaryan | 1 | 200 | ... | ... | ... | 200 |
| Killarney | 1 | 200 | 2 | 400 | 200 | ... |
| Lowood | ... | ... | 2 | 80 | 80 | ... |
| Maroochy | 1 | 90 | 4 | 160 | 70 | ... |
| Maryborough | ... | ... | 1 | 100 | 100 | ... |
| Nanango | 1 | 70 | 3 | 100 | 30 | ... |
| Oakey | ... | ... | 1 | 50 | 50 | ... |
| Pittsworth | 1 | 20 | 2 | 140 | 120 | ... |
| Proserpine | ... | ... | 1 | 1 | 1 | ... |
| Redcliffe | ... | ... | 2 | 46 | 46 | ... |
| Rockhampton | 4 | 289 | 7 | 194 | ... | 95 |
| Roma | 2 | 60 | 1 | 80 | 20 | ... |
| Toowoomba | 2 | 160 | 2 | 130 | ... | 30 |
| Warwick | ... | ... | 1 | 10 | 10 | ... |
| Wienholt | 5 | 300 | 7 | 415 | 115 | ... |
| Totals | 45 | 3,541 | 72 | 4,318 | 777 | ... |

N.B.—Brisbane (B) refers to South Brisbane.

Table No. 1.
RETURN SHOWING THE RESULTS OF THE DAIRYING INDUSTRY FOR THE YEAR ENDED 31st DECEMBER, 1919.

| District. | Total Milk Obtained. | HOW UTILISED. | | | | | ESTABLISHMENTS. | | | DAIRY CATTLE. | | 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 Milk Factories. | Sold to Cheese Factories. | Dairying. | Butter Factories. | Chese Factories. | In Milk. | Dry. | At Factories. | By Farmers. | Total. | At Factories. | By Farmers. | Total. |
| | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | No. | No. | No. | No. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | |
| <i>Moreton</i> | 1,572,298 | 100,765 | 161,249 | 30,125 | 1,009,557 | 516 | ... | ... | 4,493 | 2,256 | 38,234 | 2,256 | ... | ... | ... | ... | ... | ... | |
| Brisbane (A) | 717,263 | 15,004 | 37,635 | 71,110 | 623,519 | 167 | ... | ... | 2,107 | 954 | 6,156 | 954 | ... | ... | ... | ... | ... | ... | |
| Brisbane (B) | 2,645,113 | 92,449 | 117,011 | 2,430,311 | 5,347 | 420 | ... | ... | 6,342 | 6,465 | 44,457 | 6,465 | ... | ... | ... | ... | ... | ... | |
| Beaudeser | 406,976 | 15,722 | 22,391 | 352,114 | 16,749 | 110 | ... | ... | 1,756 | 1,183 | 7,719 | 1,183 | ... | ... | ... | ... | ... | ... | |
| Caboolture | 86,708 | 701 | 27,617 | ... | 58,359 | 100 | ... | ... | 331 | 110 | 350 | 110 | ... | ... | ... | ... | ... | ... | |
| Cleveland | 234,039 | 27,712 | 18,500 | 182,732 | 1,095 | 69 | ... | ... | 1,774 | 3,061 | 11,957 | 3,061 | ... | ... | ... | ... | ... | ... | |
| Cooyar | 768,827 | 97,616 | 49,035 | 641,728 | 2,398 | 300 | ... | ... | 5,007 | 4,186 | 36,230 | 4,186 | ... | ... | ... | ... | ... | ... | |
| Crow's Nest | 2,118,418 | 97,565 | 160,180 | 1,848,458 | 12,215 | 506 | ... | ... | 5,879 | 4,850 | 47,461 | 4,850 | ... | ... | ... | ... | ... | ... | |
| Dugandan | 2,227,528 | 70,237 | 109,808 | 798,253 | 16,997 | 334 | ... | ... | 4,710 | 1,428 | 226,684 | 1,428 | ... | ... | ... | ... | ... | ... | |
| Esk | 1,214,023 | 96,556 | 106,430 | 994,374 | 10,277 | 498 | ... | ... | 152 | 202 | 600,049 | 202 | ... | ... | ... | ... | ... | ... | |
| Gatton | 40,492 | 4,020 | 28,378 | ... | 1,537 | 28 | ... | ... | 3,547 | 3,207 | 1,716 | 3,207 | ... | ... | ... | ... | ... | ... | |
| Goodna | 1,400,575 | 30,170 | 63,634 | 1,322,317 | 13,693 | 349 | ... | ... | 2,060 | 1,590 | 39,068 | 1,590 | ... | ... | ... | ... | ... | ... | |
| Harrisville | 512,500 | 38,873 | 40,214 | 416,281 | 1,612 | 217 | ... | ... | 1,840 | 1,734 | 21,564 | 1,734 | ... | ... | ... | ... | ... | ... | |
| Heildon | 558,256 | 37,192 | 43,618 | 349,477 | 127,969 | 182 | ... | ... | 2,587 | 1,424 | 17,824 | 1,424 | ... | ... | ... | ... | ... | ... | |
| Ipswich | 763,354 | 53,606 | 56,825 | 645,363 | 2,560 | 130 | ... | ... | 3,057 | 1,758 | 22,732 | 1,758 | ... | ... | ... | ... | ... | ... | |
| Kilcoy | 1,131,777 | 95,655 | 95,233 | 935,759 | 5,130 | 414 | ... | ... | 3,788 | 1,513 | 10,413 | 1,513 | ... | ... | ... | ... | ... | ... | |
| Laidley | 1,017,768 | 27,270 | 75,262 | 834,348 | 80,530 | 317 | ... | ... | 2,886 | 2,170 | 1,964,424 | 2,170 | ... | ... | ... | ... | ... | ... | |
| Logan | 985,539 | 46,540 | 54,301 | 630,064 | 190 | 274 | ... | ... | 6,144 | 6,144 | 618,564 | 6,144 | ... | ... | ... | ... | ... | ... | |
| Lowood | 2,721,732 | 132,672 | 194,129 | 2,399,393 | 8,538 | 832 | ... | ... | 9,839 | 4,863 | 40,071 | 4,863 | ... | ... | ... | ... | ... | ... | |
| Maroochy | 2,778,836 | 97,904 | 79,975 | 2,049,224 | 454,437 | 315 | ... | ... | 4,943 | 3,165 | 25,509 | 3,165 | ... | ... | ... | ... | ... | ... | |
| Nerang | 2,617,957 | 53,981 | 60,335 | 1,092,704 | 38,437 | 312 | ... | ... | 4,951 | 1,655 | 416,474 | 1,655 | ... | ... | ... | ... | ... | ... | |
| Redcliffe | 1,323,165 | 59,805 | 61,530 | 1,066,616 | 30,247 | 28 | ... | ... | 672 | 312 | 2,547 | 312 | ... | ... | ... | ... | ... | ... | |
| Rosewood | 208,187 | 5,120 | 6,204 | 186,616 | 30,247 | 28 | ... | ... | 1,588 | 1,768 | 105,230 | 1,768 | ... | ... | ... | ... | ... | ... | |
| Southport | 801,235 | 29,979 | 36,335 | 734,671 | 250 | 203 | ... | ... | 3,174 | 1,761 | 270,164 | 1,761 | ... | ... | ... | ... | ... | ... | |
| Townshend | 633,820 | 26,937 | 35,387 | 548,776 | ... | 135 | ... | ... | 281 | 187 | 2,492 | 187 | ... | ... | ... | ... | ... | ... | |
| Woodford | 97,402 | 9,100 | 16,349 | 3,780 | 68,173 | 51 | ... | ... | 88,219 | 58,558 | 11,595,520 | 58,558 | ... | ... | ... | ... | ... | ... | |
| Wynnum | 20,665,684 | 1,417,166 | 1,746,093 | 22,122,741 | 2,669,581 | 7,172 | ... | ... | 16 | 7 | 618,517 | 618,517 | ... | ... | ... | ... | ... | ... | |
| Total Moreton | 1,089,544 | 85,162 | 60,152 | 905,276 | 34,064 | 254 | ... | ... | 1,918 | 4,416 | 357,750 | 4,416 | ... | ... | ... | ... | ... | ... | |
| <i>Wide Bay</i> | 460,591 | 87,355 | 126,161 | 213,011 | ... | 413 | ... | ... | 2,158 | 1,858 | 275,480 | 1,858 | ... | ... | ... | ... | ... | ... | |
| Biggenden | 93,194 | 27,370 | 48,941 | 15,858 | 1,025 | 157 | ... | ... | 347 | 294 | 2,484 | 294 | ... | ... | ... | ... | ... | ... | |
| Bundaberg | 99,255 | 8,374 | 9,651 | 81,230 | ... | 88 | ... | ... | 3,949 | 4,063 | 579,016 | 4,063 | ... | ... | ... | ... | ... | ... | |
| Childers | 1,324,178 | 70,299 | 52,072 | 961,310 | 1,830 | 178 | ... | ... | 1,137 | 1,150 | 15,917 | 1,150 | ... | ... | ... | ... | ... | ... | |
| Eidsvold | 228,347 | 40,452 | 60,844 | 125,221 | 47,146 | 848 | ... | ... | 17,300 | 14,046 | 1,960,214 | 14,046 | ... | ... | ... | ... | ... | ... | |
| Gayndah | 6,535,432 | 169,909 | 278,455 | 6,039,922 | ... | 98 | ... | ... | 1,875 | 887 | 475,218 | 887 | ... | ... | ... | ... | ... | ... | |
| Gin Gin | 475,429 | 35,541 | 25,850 | 413,152 | ... | 340 | ... | ... | 2,581 | 1,922 | 512,127 | 1,922 | ... | ... | ... | ... | ... | ... | |
| Gympie | 584,376 | 90,088 | 59,929 | 329,751 | ... | 25 | ... | ... | 215 | 150 | 3,225 | 150 | ... | ... | ... | ... | ... | ... | |
| Kilkivan | 54,220 | 7,740 | 7,660 | 37,870 | ... | 673 | ... | ... | 8,020 | 6,239 | 1,297,215 | 6,239 | ... | ... | ... | ... | ... | ... | |
| Maryborough | 2,605,371 | 141,858 | 153,861 | 2,234,988 | ... | 195 | ... | ... | 3,037 | 2,224 | 34,995 | 2,224 | ... | ... | ... | ... | ... | ... | |
| Mount Perry | 898,619 | 71,768 | 43,204 | 780,647 | ... | 679 | ... | ... | 9,288 | 7,501 | 1,790,469 | 7,501 | ... | ... | ... | ... | ... | ... | |
| Nanango | 3,171,725 | 149,127 | 203,676 | 2,665,491 | ... | 4,262 | ... | ... | 52,208 | 45,068 | 6,735,362 | 45,068 | ... | ... | ... | ... | ... | ... | |
| Tiaro | 17,620,281 | 985,043 | 1,130,456 | 14,793,727 | 237,565 | 4,262 | ... | ... | 8 | 8 | 470,490 | 8 | ... | ... | ... | ... | ... | ... | |
| Wienholt | 5,052 | 2,710 | 2,262 | 936,402 | 80 | 15 | ... | ... | 55 | 55 | 500 | 55 | ... | ... | ... | ... | ... | ... | |
| Total Wide Bay | 1,100,419 | 80,892 | 76,275 | 831,260 | 31,260 | 18 | ... | ... | 4,080 | 3,290 | 31,190 | 3,290 | ... | ... | ... | ... | ... | ... | |
| <i>Port Curtis</i> | 44,097 | 2,370 | 4,634 | 5,833 | ... | 491 | ... | ... | 6,838 | 7,066 | 55,907 | 7,066 | ... | ... | ... | ... | ... | ... | |
| Banana | 1,594,089 | 161,156 | 100,051 | 1,128,523 | 204,109 | 10 | ... | ... | 68 | 93 | 1,924 | 93 | ... | ... | ... | ... | ... | ... | |
| Gladstone | 9,491 | 6,996 | 2,395 | ... | 100 | 10 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Mount Morgan | 2,753,148 | 254,124 | 185,617 | 2,070,758 | 242,399 | 811 | ... | ... | 11,270 | 10,910 | 491,674 | 10,910 | ... | ... | ... | ... | ... | ... | |
| Rockhampton | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| St. Lawrence | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total Port Curtis | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

a Including 821,162 gallons of milk sent to New South Wales.

Table No. I.—continued.
RETURN SHOWING THE RESULTS OF THE DAIRYING INDUSTRY FOR THE YEAR ENDED 31st DECEMBER, 1919—continued.

| District. | Total Milk Obtained. | HOW UTILISED. | | | | | | | ESTABLISHMENTS. | | | DAIRY CATTLE. | | 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. | Butter Factories. | Cheese Factories. | In Milk. | Dry. | At Factories. | By Farmers. | Total. | At Factories. | By Farmers. | Total. | |
| | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | Gallons. | No. | No. | No. | No. | No. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | Lb. | |
| <i>Dozens—</i> | | | | | | | | | | | | | | | | | | | | |
| Altona ... | 1,101,657 | 59,681 | 30 | 76,604 | 956,710 | 2,190 | 6,442 | 235 | 1 | ... | 2,580 | 1,087 | 501,760 | 29,017 | 530,777 | 1,433,188 | 25 | 1,433,188 | 25 | |
| Clifton ... | 1,956,729 | 82,180 | ... | 109,276 | 775,889 | 2,447 | 986,927 | 398 | 1 | ... | 4,052 | 2,973 | 282,585 | 35,251 | 317,836 | ... | ... | ... | ... | |
| Condamine ... | 203,189 | 21,088 | ... | 20,803 | 159,088 | 2,190 | ... | 80 | 1 | ... | 818 | 1,718 | 112,061 | 6,507 | 118,568 | ... | ... | ... | ... | |
| Dalby ... | 2,226,010 | 137,095 | 640 | 166,576 | 1,487,596 | 18,542 | 415,561 | 696 | 1 | ... | 8,006 | 6,205 | 882,971 | 63,878 | 946,849 | 398,015 | 636 | 398,651 | ... | |
| Goombungee ... | 483,600 | 28,900 | ... | 16,600 | 379,700 | ... | 59,400 | 133 | 1 | ... | 883 | 1,523 | 356,535 | 14,450 | 370,985 | 108,670 | ... | ... | ... | |
| Goondiwindi ... | 118,301 | 9,044 | ... | 22,924 | 83,508 | 2,825 | ... | 64 | 1 | ... | 470 | 517 | 67,200 | 4,522 | 71,722 | 122,000 | ... | ... | ... | |
| Highfields ... | 708,089 | 57,410 | ... | 41,050 | 487,956 | ... | 134,273 | 210 | ... | ... | 1,613 | 1,594 | ... | 23,871 | 23,871 | 136,864 | ... | ... | ... | |
| Inglewood ... | 201,319 | 21,000 | ... | 28,450 | 120,864 | 360 | 18,055 | 103 | ... | ... | 504 | 956 | ... | 8,326 | 8,326 | 154,738 | ... | ... | ... | |
| Jondaryan ... | 779,598 | 29,601 | ... | 57,538 | 361,680 | 548 | 330,231 | 231 | 1 | ... | 2,575 | 2,041 | 66,423 | 12,354 | 78,807 | 680,997 | ... | ... | ... | |
| Killarney ... | 745,023 | 69,455 | ... | 61,603 | 589,766 | 3,539 | 20,660 | 177 | 2 | ... | 2,036 | 1,298 | 114,214 | 32,254 | 146,468 | 400,238 | ... | ... | ... | |
| Oakey ... | 1,810,998 | 74,751 | ... | 95,957 | 724,972 | 1,090 | 84,530 | 415 | 1 | ... | 4,448 | 3,074 | 367,794 | 32,444 | 400,238 | 732,312 | ... | ... | ... | |
| Pittsworth ... | 3,191,268 | 52,273 | ... | 165,883 | 333,268 | 5,304 | 264,904 | 298 | ... | ... | 6,513 | 3,197 | ... | 20,006 | 20,006 | 2,534,305 | ... | ... | ... | |
| Stanthorpe ... | 87,927 | 33,078 | ... | 61,529 | 72,099 | 3,320 | ... | 51 | 1 | ... | 268 | 52 | ... | 15,798 | 15,798 | ... | ... | ... | ... | |
| Texas ... | 89,008 | 5,775 | ... | 10,134 | 232,941 | 162,594 | 489,911 | 445 | 1 | ... | 3,780 | 2,115 | 942,869 | 26,237 | 969,106 | 684,268 | ... | ... | ... | |
| Toowoomba ... | 1,700,489 | 55,379 | ... | 125,709 | 941,261 | 44,609 | 564,959 | 611 | 1 | ... | 5,683 | 4,627 | 864,640 | 73,000 | 937,640 | 495,013 | ... | ... | ... | |
| Warwick ... | 1,905,417 | 173,091 | ... | 181,497 | 7,707,298 | 249,558 | 839,345 | 4,553 | 13 | ... | 44,655 | 33,391 | 4,594,592 | 400,262 | 4,995,154 | 7,492,449 | 661 | 7,493,110 | ... | |
| Total Downs ... | 17,307,602 | 909,801 | 670 | 1,231,133 | 7,707,298 | 249,558 | 839,345 | 4,553 | 13 | 68 | 44,655 | 33,391 | 4,594,592 | 400,262 | 4,995,154 | 7,492,449 | 661 | 7,493,110 | ... | |
| Other Districts ... | 4,509,323 | 473,750 | 60 | 658,119 | 3,027,419 | 282,109 | 67,866 | 2,154 | 3 | 2 | 14,919 | 13,888 | 1,111,209 | 167,883 | 1,279,092 | 14,240 | 60 | 14,300 | ... | |
| Grand Total, 1919 ... | 71,856,038 | 4,039,884 | 9,047 | 4,951,418 | 49,721,943 | 3,681,212 | 7,223,592 | 18,952 | 42 | 85 | 211,331 | 161,815 | 24,528,657 | 1,684,857 | 26,213,514 | 8,287,030 | 9,288 | 8,296,318 | ... | |
| Grand Total, 1918 ... | 87,580,088 | 4,286,478 | 63,495 | 5,215,456 | 64,205,672 | 4,094,412 | 8,482,210 | 19,313 | 45 | 79 | 255,039 | 126,406 | 30,669,112 | 1,702,463 | 32,371,575 | 8,573,270 | 63,430 | 8,636,700 | ... | |
| Increase, 1919 ... | ... | 256,594 | 54,448 | 264,038 | 14,483,729 | 418,200 | 1,006,567 | ... | 3 | 6 | 43,708 | 35,349 | 6,140,455 | 17,606 | 6,158,061 | 286,240 | 54,142 | ... | ... | |
| Decrease, 1919 ... | 15,724,060 | ... | ... | ... | ... | ... | ... | 391 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |

THE RESULTS OF THE DAIRYING INDUSTRY FOR THE YEAR ENDED 31st DECEMBER, 1919—continued.

Table No. III.
RETURN showing the GROSS PRODUCE of PRINCIPAL CROPS Raised in the several PETTY SESSIONS DISTRICTS of the STATE during the YEAR ended 31st DECEMBER, 1919.

| DIVISIONS AND PETTY SESSIONS DISTRICTS. | QUANTITY OF PRODUCE. | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|-------|---------|---------|--------|------|-----------|----------|--------|----------------------|---------|---------------|------------------|--------------------|-----|-----------------------|---------|------------------|---------|----------|-------------|----------|
| | GRAIN CROPS. | | | | | | POTATOES. | | | SUGAR-CANE. | | Cotton. | | ARTHWORT (Tubers). | | Tobacco (Cured Leaf). | Coffee. | Hay (All Kinds). | VINES. | Bananas. | Pineapples. | Oranges. |
| | Wheat. | Oats. | Barley. | | Maize. | Rye. | Rice. | English. | Sweet. | Pumpkins and Melons. | Cotton. | Area Crushed. | Weight Obtained. | Tons. | Lb. | Tons. | Lb. | Lb. | Tons. | Bunches. | Dozens. | Bushels. |
| <i>Moreton Division.</i> | | | | | | | | | | | | | | | | | | | | | | |
| Brisbane (A) | ... | ... | ... | 3,861 | ... | ... | 378 | 146 | 561 | ... | ... | ... | ... | ... | ... | ... | ... | 507 | 132,396 | 133,808 | 206 | ... |
| Brisbane (B) | ... | ... | ... | 771 | ... | ... | 51 | 10 | 35 | ... | ... | ... | ... | ... | ... | ... | ... | 227 | 930 | 25,784 | 208 | ... |
| Beaudesert | ... | ... | ... | 7,164 | ... | ... | 58 | 15 | 230 | ... | ... | ... | ... | ... | ... | ... | ... | 225 | 100 | ... | 56 | ... |
| Caboolture | ... | ... | ... | 1,273 | ... | ... | 143 | ... | 2 | ... | ... | ... | ... | ... | ... | ... | ... | 4 | 11,532 | 19,132 | 667 | ... |
| Cleveland | ... | ... | ... | 12 | ... | ... | 27 | 11 | 20 | ... | ... | ... | ... | ... | ... | ... | ... | 7 | 14,594 | 169,474 | 593 | ... |
| Cooyar | ... | ... | ... | 1,623 | ... | ... | 38 | 2 | 82 | ... | ... | ... | ... | ... | ... | ... | ... | 129 | ... | ... | 21 | ... |
| Grows Nest | 219 | ... | ... | 8,843 | ... | ... | 68 | 13 | 209 | ... | ... | ... | ... | ... | ... | ... | ... | 124 | ... | ... | 72 | ... |
| Dugandan | ... | ... | ... | 65,389 | ... | ... | 261 | 34 | 3,432 | ... | ... | ... | ... | ... | ... | ... | ... | 3,067 | ... | ... | 889 | ... |
| Esk | ... | ... | ... | 27,031 | ... | ... | 96 | 144 | 2,136 | 4,846 | ... | ... | ... | ... | ... | ... | ... | 1,181 | 300 | ... | 52 | ... |
| Gatton | 24 | ... | ... | 38,543 | ... | ... | 107 | 343 | 3,581 | 1,134 | ... | ... | ... | ... | ... | ... | ... | 2,860 | 624 | ... | 860 | ... |
| Goodna | ... | ... | ... | 2,038 | ... | ... | 35 | ... | 10 | ... | ... | ... | ... | ... | ... | ... | ... | 50 | ... | ... | ... | ... |
| Harrisville | ... | ... | ... | 20,411 | ... | ... | 68 | 77 | 1,740 | ... | ... | ... | ... | ... | ... | ... | ... | 3,772 | ... | ... | 119 | ... |
| Helidon | ... | ... | ... | 4,870 | ... | ... | 68 | 47 | 418 | ... | ... | ... | ... | ... | ... | ... | ... | 397 | ... | ... | 465 | ... |
| Ipswich | ... | ... | ... | 4,957 | ... | ... | 14 | 61 | 150 | ... | ... | ... | ... | ... | ... | ... | ... | 291 | ... | ... | 4 | ... |
| Kilcoy | ... | ... | ... | 9,281 | ... | ... | 123 | 64 | 394 | ... | ... | ... | ... | ... | ... | ... | ... | 274 | ... | ... | 193 | ... |
| Laidley | ... | ... | ... | 68,769 | ... | ... | 159 | 67 | 1,819 | 869 | ... | ... | ... | ... | ... | ... | ... | 3,189 | ... | ... | 241 | ... |
| Logan | 159 | ... | ... | 13,608 | ... | ... | 1,697 | 297 | 7,703 | ... | ... | ... | ... | ... | ... | ... | ... | 2,779 | 45,580 | 63,089 | 5,196 | ... |
| Lowood | ... | ... | ... | 67,289 | ... | ... | 120 | 233 | 3,043 | 636 | ... | ... | ... | ... | ... | ... | ... | 701 | ... | ... | 218 | ... |
| Maroochy | ... | ... | ... | 10,759 | ... | ... | 59 | 39 | 32 | ... | ... | ... | ... | ... | ... | ... | ... | 114 | ... | ... | 151 | ... |
| Nerang | ... | ... | ... | 7,101 | ... | ... | 216 | 10 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | 44 | ... | ... | 65 | ... |
| Redcliffe | ... | ... | ... | 4,956 | ... | ... | 346 | 366 | 90 | ... | ... | ... | ... | ... | ... | ... | ... | 138 | ... | ... | 2570 | ... |
| Rosewood | ... | ... | ... | 36,458 | ... | ... | 45 | 11 | 2,758 | ... | ... | ... | ... | ... | ... | ... | ... | 1,281 | ... | ... | 2,141 | ... |
| Southport | ... | ... | ... | 666 | ... | ... | 29 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 | ... | ... | ... | ... |
| Townshend | ... | ... | ... | 39,966 | ... | ... | 74 | 74 | 843 | ... | ... | ... | ... | ... | ... | ... | ... | 427 | ... | ... | ... | ... |
| Woodford | ... | ... | ... | 1,670 | ... | ... | 47 | 14 | 5 | ... | ... | ... | ... | ... | ... | ... | ... | 30 | ... | ... | ... | ... |
| Wynnum | ... | ... | ... | 40 | ... | ... | 24 | 38 | 28 | ... | ... | ... | ... | ... | ... | ... | ... | 40 | ... | ... | ... | ... |
| Total Moreton | 402 | ... | ... | 447,379 | ... | ... | 4,396 | 2,106 | 21,810 | 7,685 | 1,634 | 30,221 | 5,093 | ... | ... | ... | ... | 19,337 | 646,622 | 597,473 | 81,101 | ... |
| <i>Wide Bay Division.</i> | | | | | | | | | | | | | | | | | | | | | | |
| Biggenden | ... | ... | ... | 10,405 | ... | ... | 2 | ... | 18 | ... | ... | ... | ... | ... | ... | ... | ... | 93 | ... | ... | 346 | ... |
| Bundaberg | ... | ... | ... | 23,091 | ... | ... | 90 | 10 | 169 | ... | ... | ... | ... | ... | ... | ... | ... | 330 | 2,500 | 100 | 1,503 | ... |
| Childers | ... | ... | ... | 9,440 | ... | ... | 2 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 115 | 12,569 | 3,167 | 893 | ... |
| Eidsvold | ... | ... | ... | 518 | ... | ... | 5 | 13 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 17 | ... | ... | 260 | ... |
| Gayndah | ... | ... | ... | 21,145 | ... | ... | 19 | 6 | 197 | 672 | ... | ... | ... | ... | ... | ... | ... | 184 | ... | ... | 1,355 | ... |
| Gin Gin | 120 | ... | ... | 9,063 | ... | ... | 18 | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 244 | ... | ... | 1,779 | ... |
| Gympie | ... | ... | ... | 27,257 | ... | ... | 591 | 54 | 61 | ... | ... | ... | ... | ... | ... | ... | ... | 184 | ... | ... | 600 | ... |
| Kilkivan | ... | ... | ... | 2,053 | ... | ... | 15 | ... | 321 | ... | ... | ... | ... | ... | ... | ... | ... | 28 | ... | ... | 40 | ... |
| Maryborough | ... | ... | ... | 2,494 | ... | ... | 324 | ... | 77 | ... | ... | ... | ... | ... | ... | ... | ... | 738 | ... | ... | 12,332 | ... |
| Mount Perry | ... | ... | ... | 874 | ... | ... | 1 | 20 | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 70 | ... |
| Nanango | ... | ... | ... | 144,291 | ... | ... | 51 | 4 | 1,379 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 116 | ... |
| Tiaro | ... | ... | ... | 6,019 | ... | ... | 207 | ... | 55 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2,326 | ... |
| Wienholt | 50 | ... | ... | 168,262 | ... | ... | 293 | ... | 3,819 | 147 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 95 | ... |
| Total Wide Bay | 98 | 180 | ... | 424,912 | ... | ... | 1,618 | 144 | 6,116 | 1,130 | 8,809 | 62,748 | 5 | ... | ... | ... | ... | 4,548 | 186,125 | 31,898 | 22,144 | ... |
| <i>Port Curtis Division.</i> | | | | | | | | | | | | | | | | | | | | | | |
| Banana | ... | ... | ... | 11,212 | ... | ... | ... | ... | 89 | 2,182 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,473 | 1,850 |
| Gladstone | ... | ... | ... | 60 | ... | ... | 15 | ... | 12 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 70 | 162 |
| Mount Morgan | ... | ... | ... | 10,240 | ... | ... | 155 | ... | 451 | 10,784 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 15,893 | 8,337 |
| Rockhampton | ... | ... | ... | 415 | ... | ... | 14 | ... | 6 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 180 | 67 |
| St. Lawrence | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total Port Curtis | ... | 10 | ... | 21,927 | ... | ... | 380 | 117 | 546 | 12,968 | 17 | 244 | ... | ... | ... | ... | ... | 1,431 | 18,475 | 17,616 | 10,416 | ... |

Table No. VI.
AVERAGE PRODUCE PER ACRE OF PRINCIPAL CROPS IN QUEENSLAND—RETURN FOR TEN YEARS.

| Year. | GRAIN CROPS. | | | | | | POTATOES. | | Pumpkins & Melons. | Cotton Unginned. | SUGAR. | | Arrowroot (Tubers). | Tobacco (Cured Leaf). | Coffee. | Hay (all Kinds). | Grapes. | Bananas. | Pineapples. | Oranges. | Mangoes. | Strawberries. | Apples. | Market Garden. | Gardens and Orchards. |
|----------|--------------|-------|---------|-------|--------|-------|-----------|----------|--------------------|------------------|--------|-----------------------|---------------------|-----------------------|---------|------------------|---------|----------|-------------|----------|----------|---------------|---------|----------------|-----------------------|
| | Wheat. | Oats. | Barley. | | Maize. | Eye. | Rice. | English. | | | Sweet. | Tons of Cane Crushed. | | | | | | | | | | | | | |
| 1910 ... | 9.58 | 19.89 | 16.33 | 13.16 | 24.66 | 16.17 | 11.00 | 1.88 | 5.53 | 3.70 | 329 | 19.45 | 2.20 | 11.68 | 863 | 1.53 | 2,707 | 216 | 379 | 190 | 265 | 1,447 | 50 | 26 | 11 |
| 1911 ... | 6.64 | 10.38 | 9.18 | 10.07 | 23.63 | 9.68 | 26.80 | 1.70 | 5.14 | 3.05 | 309 | 16.02 | 1.81 | 8.70 | 444 | 1.54 | 2,301 | 178 | 319 | 201 | 464 | 1,133 | 70 | 26 | 11 |
| 1912 .. | 15.81 | 19.48 | 15.34 | 16.28 | 21.39 | 15.66 | 27.00 | 1.86 | 3.83 | 2.88 | 341 | 12.72 | 1.45 | 10.24 | 705 | 1.37 | 2,504 | 162 | 263 | 133 | 366 | 1,531 | 25 | 27 | 11 |
| 1913 ... | 13.34 | 13.74 | 12.42 | 14.90 | 24.97 | 10.45 | 23.60 | 1.64 | 4.47 | 3.08 | 165 | 20.29 | 2.36 | 12.91 | 1,132 | 1.36 | 2,824 | 140 | 247 | 156 | 443 | 1,590 | 59 | 26 | 12 |
| 1914 ... | 12.48 | 15.99 | 15.03 | 13.87 | 24.16 | 8.98 | 22.00 | 1.91 | 4.43 | 3.69 | 152 | 17.80 | 2.09 | 10.25 | 602 | 1.29 | 2,951 | 136 | 240 | 139 | 371 | 1,690 | 40 | 25 | 11 |
| 1915 ... | 4.42 | 7.24 | 4.83 | 8.44 | 13.68 | 20.35 | 23.00 | 1.28 | 3.61 | 2.25 | 170 | 12.20 | 1.49 | 7.51 | 588 | 0.98 | 2,556 | 148 | 248 | 132 | 262 | 1,090 | 30 | 21 | 9 |
| 1916 ... | 10.81 | 16.55 | 20.19 | 18.79 | 16.64 | 12.73 | ... | 2.18 | 3.37 | 2.99 | 324 | 20.81 | 2.33 | 10.82 | 263 | 1.29 | 1,671 | 113 | 210 | 94 | 245 | 1,059 | 31 | 22 | 12 |
| 1917 ... | 8.10 | 14.89 | 18.67 | 18.56 | 25.37 | 13.84 | 35.00 | 2.06 | 4.82 | 3.36 | 576 | 24.88 | 2.83 | 10.92 | 325 | 1.60 | 1,613 | 148 | 227 | 146 | 156 | 694 | 40 | 27 | 17 |
| 1918 ... | 4.83 | 12.19 | 6.53 | 7.50 | 27.46 | 10.00 | 24.55 | 1.72 | 4.94 | 2.53 | 500 | 15.01 | 1.70 | 13.04 | 486 | 1.68 | 1,468 | 162 | 214 | 120 | 201 | 721 | 43 | 33 | 23 |
| 1919 .. | 6.71 | 7.91 | 10.62 | 11.00 | 17.39 | 6.67 | 6.75 | 1.77 | 2.85 | 2.63 | 382 | 14.83 | 1.91 | 10.87 | 671 | 0.86 | 2,002 | 124 | 172 | 68 | 193 | 691 | 36 | 36 | 23 |
| † | 11.94 | 18.01 | 17.47 | 16.74 | 21.13 | 15.51 | 25.50 | 1.87 | 4.64 | 3.30 | 332 | 16.38 | 1.86 | 10.47 | 465 | 1.46 | 2,217 | 216 | 259 | 153 | 335 | 1,434 | 45 | 23 | 14 |

† Average for twenty years (or since statistics have been collected).

Table No. VIII.

RETURN showing the TOTAL EXTENT of LAND CULTIVATED for HAY, together with the YIELD of HAY, and the AVERAGE YIELD per ACRE in each of the several PETTY SESSIONS DISTRICTS of the STATE during the YEAR 1919.

| PETTY SESSIONS DISTRICTS. | HAY. | | | | | | | | | |
|-------------------------------|--------|-------|--------|-------|----------|--------|--------|-------|--------|--------|
| | Wheat. | | Oats. | | Lucerne. | | Other. | | Total. | |
| | Acres. | Tons. | Acres. | Tons. | Acres. | Tons. | Acres. | Tons. | Acres. | Tons. |
| Allora | 1,480 | 1,169 | 4 | 4 | 2,411 | 1,451 | 63 | 29 | 3,958 | 2,653 |
| Beaudesert | ... | ... | 26 | 50 | 105 | 171 | 3 | 4 | 134 | 225 |
| Brisbane (A) | 1 | 1 | 62 | 107 | 112 | 347 | 27 | 52 | 202 | 507 |
| Brisbane (B) | 2 | 6 | 6 | 11 | 70 | 199 | 7 | 11 | 85 | 227 |
| Clifton | 1,659 | 1,107 | 6 | 6 | 3,312 | 1,362 | 452 | 284 | 5,429 | 2,659 |
| Crow's Nest | 76 | 53 | 31 | 31 | 29 | 8 | 33 | 32 | 169 | 124 |
| Dugandan | 2 | 3 | 95 | 107 | 1,570 | 2,354 | 341 | 603 | 2,008 | 3,067 |
| Esk | 5 | 7 | 39 | 75 | 620 | 991 | 65 | 108 | 729 | 1,181 |
| Gatton | 256 | 251 | 98 | 56 | 2,912 | 1,933 | 614 | 620 | 3,880 | 2,860 |
| Gympie | 26 | 47 | 97 | 155 | 159 | 413 | 28 | 97 | 310 | 712 |
| Harrisville | 48 | 77 | 244 | 274 | 1,733 | 2,418 | 733 | 1,003 | 2,758 | 3,772 |
| Helidon | 18 | 13 | 11 | 12 | 599 | 342 | 30 | 30 | 658 | 397 |
| Highfields | 103 | 67 | 37 | 17 | 116 | 207 | 2 | 5 | 258 | 296 |
| Inglewood | 30 | 5 | ... | ... | 256 | 191 | ... | ... | 286 | 196 |
| Ipswich | 4 | 10 | 61 | 107 | 71 | 75 | 42 | 69 | 178 | 261 |
| Kilcoy | 1 | 3 | 23 | 29 | 104 | 235 | 4 | 7 | 132 | 75 |
| Killarney | 1,320 | 772 | 12 | 13 | 1,344 | 1,156 | 56 | 52 | 2,732 | 1,993 |
| Laidley | 132 | 137 | 108 | 64 | 2,738 | 2,670 | 279 | 318 | 3,258 | 3,189 |
| Lowood | 3 | 3 | 54 | 48 | 532 | 507 | 88 | 143 | 677 | 701 |
| Maryborough | 77 | 129 | 163 | 195 | 222 | 332 | 76 | 82 | 538 | 738 |
| Nanango | 129 | 56 | 222 | 145 | 973 | 626 | 182 | 151 | 1,506 | 978 |
| Oakey | 148 | 63 | ... | ... | 702 | 203 | 219 | 114 | 1,069 | 380 |
| Pittsworth | 654 | 442 | ... | ... | 1,646 | 562 | 403 | 261 | 2,703 | 1,265 |
| Rockhampton | 122 | 125 | 102 | 77 | 629 | 858 | 117 | 199 | 970 | 1,259 |
| Rosewood | 2 | 3 | 47 | 43 | 586 | 970 | 188 | 265 | 823 | 1,281 |
| Toowoomba | 124 | 103 | 122 | 109 | 829 | 334 | 165 | 118 | 1,240 | 664 |
| Townshend | 2 | 2 | 72 | 113 | 197 | 222 | 71 | 90 | 342 | 427 |
| Warwick | 3,789 | 2,896 | 304 | 216 | 3,048 | 2,090 | 612 | 257 | 7,753 | 5,459 |
| Wienholt | 67 | 51 | 18 | 3 | 383 | 681 | 63 | 63 | 531 | 798 |
| All other Districts | 1,429 | 620 | 424 | 465 | 1,340 | 1,807 | 334 | 369 | 3,527 | 3,261 |
| Grand Total { 1919 | 11,710 | 8,121 | 2,488 | 2,532 | 29,348 | 25,715 | 5,297 | 5,436 | 48,843 | 41,804 |
| { 1918 | 1,902 | 1,312 | 1,803 | 1,959 | 48,264 | 84,550 | 2,803 | 4,409 | 54,772 | 92,230 |
| Increase, 1919 | 9,808 | 6,809 | 685 | 573 | ... | ... | 2,494 | 1,027 | ... | ... |
| Decrease, 1919 | ... | ... | ... | ... | 18,916 | 58,835 | ... | ... | 5,929 | 50,426 |
| Average Yield per Acre | 0.69 | | 1.02 | | 0.88 | | 1.03 | | 0.86 | |

Table No. IX.

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 1919.

| PETTY SESSIONS DISTRICTS. | GREEN CROPS. | | | | |
|----------------------------|--------------|--------|----------|--------|---------------------|
| | Wheat. | Oats. | Lucerne. | Other. | Total of all Kinds. |
| | Acres. | Acres. | Acres. | Acres. | Acres. |
| Allora | 4,138 | 787 | 2,478 | 2,029 | 9,432 |
| Beaudesert | 109 | 579 | 1,025 | 1,467 | 3,180 |
| Brisbane (A) | 29 | 169 | 146 | 1,097 | 1,441 |
| Clifton | 5,767 | 2,623 | 5,570 | 5,001 | 18,961 |
| Crow's Nest | 266 | 1,076 | 674 | 1,951 | 3,967 |
| Dalby | 821 | 278 | 51 | 976 | 2,126 |
| Dugandan | 39 | 1,004 | 578 | 4,416 | 6,037 |
| Esk | 105 | 871 | 1,033 | 1,928 | 3,937 |
| Gatton | 482 | 588 | 196 | 1,912 | 3,178 |
| Goombungee | 163 | 39 | 98 | 110 | 410 |
| Goondiwindi | 1,225 | 45 | 5 | 109 | 1,375 |
| Gympie | 78 | 544 | 116 | 721 | 1,459 |
| Harrisville | 43 | 924 | 610 | 2,123 | 3,700 |
| Helidon | 67 | 228 | 355 | 523 | 1,173 |
| Highfields | 114 | 391 | 26 | 219 | 750 |
| Ipswich | 21 | 304 | 202 | 672 | 1,199 |
| Jondaryan | 242 | 331 | 162 | 358 | 1,093 |
| Kilcoy | 34 | 174 | 121 | 269 | 598 |
| Killarney | 2,471 | 916 | 2,518 | 3,100 | 9,005 |
| Laidley | 248 | 222 | 1,027 | 2,207 | 3,704 |
| Lowood | 21 | 549 | 336 | 1,412 | 2,318 |
| Nanango | 430 | 2,445 | 903 | 1,557 | 5,335 |
| Oakey | 1,034 | 1,782 | 2,211 | 1,363 | 6,390 |
| Pittsworth | 607 | 439 | 834 | 2,083 | 3,963 |
| Rosewood | 33 | 602 | 1,167 | 2,667 | 4,469 |
| Toowoomba | 1,024 | 3,381 | 4,766 | 2,694 | 11,865 |
| Townshend | 24 | 450 | 195 | 1,970 | 2,639 |
| Warwick | 3,893 | 1,689 | 3,837 | 3,795 | 13,214 |
| All other Districts | 7,466 | 3,815 | 3,387 | 15,982 | 30,650 |
| Grand Total { 1919 | 30,994 | 27,245 | 34,627 | 64,702 | 157,566 |
| { 1918 | 18,724 | 11,109 | 30,271 | 30,531 | 90,635 |
| Increase, 1919 | 12,270 | 16,136 | 4,356 | 34,171 | 66,933 |
| Decrease, 1919 | ... | ... | ... | ... | ... |

Table No. X.
AVERAGE YIELD PER ACRE OF CROPS IN EACH DIVISION OF THE STATE FOR THE YEAR 1919.

| 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 | 5.15 | ... | 3.36 | ... | 14.57 | 9.00 | ... | 1.76 | 2.97 | 18.50 | 549 | 10.91 | ... | 441 | 2.74 | 1.16 | 2,211 | 136 | 181 | 70 |
| Wide Bay | 3.77 | 60.00 | 6.00 | ... | 14.13 | ... | ... | 2.10 | 2.32 | 7.12 | 126 | 2.50 | ... | 1,000 | 2.75 | 1.17 | 1,135 | 106 | 114 | 41 |
| Port Curtis | ... | 10.00 | ... | ... | 8.79 | ... | ... | 1.55 | 2.29 | 14.35 | 519 | ... | ... | ... | 2.18 | 1.33 | 1,161 | 74 | 169 | 69 |
| Edgecumbe | ... | 12.00 | ... | ... | 22.69 | ... | ... | 2.36 | 2.62 | 12.47 | 957 | ... | 737 | 112 | 1.98 | 0.86 | 1,396 | 105 | 90 | 78 |
| Rockingham | ... | 54.00 | ... | ... | 42.42 | ... | 6.75 | 1.86 | 3.09 | 18.33 | ... | ... | 91 | 1,833 | 3.51 | 0.96 | 2,182 | 120 | 143 | 91 |
| York Peninsula | ... | ... | ... | ... | 21.38 | ... | ... | 1.00 | 2.56 | 16.25 | ... | ... | ... | ... | 2.22 | 4.00 | ... | 101 | 198 | 89 |
| Carpentaria | ... | ... | ... | ... | 15.61 | ... | ... | ... | 1.00 | ... | ... | ... | ... | ... | 2.25 | ... | 975 | ... | ... | 83 |
| Central-western | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| South-western | ... | ... | ... | ... | 18.00 | ... | ... | 1.67 | ... | ... | ... | ... | ... | ... | 3.00 | 1.24 | 3,143 | ... | ... | 47 |
| Central | ... | ... | ... | ... | 20.00 | ... | ... | 1.70 | 2.50 | ... | 134 | ... | ... | ... | 1.25 | 1.10 | 562 | ... | ... | 81 |
| Maranoa | 2.72 | ... | ... | ... | 5.91 | ... | ... | 1.67 | 1.00 | ... | 193 | ... | ... | ... | 3.92 | 0.41 | 2,202 | ... | ... | 101 |
| Downs | 7.41 | 7.32 | 10.65 | 11.08 | 9.86 | 2.00 | ... | 1.20 | 1.00 | ... | ... | ... | 602 | ... | 1.67 | 0.61 | 1,748 | ... | ... | 19 |
| TOTAL AVERAGE YIELD, 1919 | 6.71 | 7.91 | 10.62 | 11.00 | 17.39 | 6.67 | 6.75 | 1.77 | 2.85 | 14.53 | 382 | 10.87 | 615 | 671 | 2.63 | 0.86 | 2,002 | 124 | 172 | 68 |
| " " 1918 | 4.83 | 12.19 | 6.53 | 7.50 | 27.46 | 10.00 | 24.55 | 1.72 | 4.94 | 15.01 | 500 | 13.04 | 531 | 456 | 2.53 | 1.68 | 1,468 | 162 | 214 | 120 |
| INCREASE, 1919 | 1.88 | ... | 4.09 | 3.50 | ... | ... | ... | 0.05 | ... | ... | ... | ... | 84 | 185 | 0.10 | ... | 534 | ... | ... | ... |
| DECREASE, 1919 | ... | 4.28 | ... | ... | 10.07 | 3.33 | 17.80 | ... | 2.09 | 0.18 | 118 | 2.17 | ... | ... | ... | 0.82 | ... | 38 | 42 | 52 |

Table No. XI.
AREA, YIELD, AND VALUE OF CROPS, 1919.

| Description of Crop. | | Area. | Yield. | Value. |
|--|-----------------------------------|---------------|-----------------|-----------|
| | | Acres. | | £ |
| Cereals | Barley { Malting | 2,979 | 31,637 bushels | 8,437 |
| | { Other | 296 | 3,255 " | 868 |
| | Maize | 105,260 | 1,830,664 " | 732,266 |
| | Oats | 363 | 2,871 " | 861 |
| | Rye | 3 | 20 " | 4 |
| | Wheat | 46,478 | 311,638 " | 101,282 |
| Other Cereals—Rice | 28 | 189 " | 118 | |
| Grass Seed | | 1,275 | 22,850 " | 3,999 |
| Green Forage (all kinds) | | 157,568 | | 945,408 |
| Hay | Lucerne | 29,348 | 25,715 tons | 318,866 |
| | Oaten | 2,488 | 2,532 " | 34,055 |
| | Wheaten | 11,710 | 8,121 " | 75,119 |
| | Other | 5,297 | 5,436 " | 50,283 |
| Straw | Oaten | | 9 " | 27 |
| | Wheaten | | 3,114 " | 9,342 |
| | Other | | 29 " | 87 |
| Pulse | Beans | 56 | 1,238 bushels | 557 |
| | Peas | 102 | 1,814 " | 1,005 |
| Root Crops | Arrowroot (Tubers) | 469 | 5,098 tons | 5,098 |
| | Mangolds | 65 | 282 " | 987 |
| | Onions | 194 | 3,618 cwt. | 3,274 |
| | Potatoes | 4,432 | 7,844 tons | 183,942 |
| | Sweet | 1,095 | 3,118 " | 28,218 |
| | Cassava | 20 | 90 " | 90 |
| | Turnips (including Swede Turnips) | 236 | 1,415 " | 8,207 |
| | Other (Yams) | 50 | 60 " | 210 |
| | Carrots | 103 | 11,034 bushels | 1,970 |
| Grapes, Productive | For table use | 1,096 | 1,374,172 lb. | 25,766 |
| | For wine | | 820,148 " | 15,378 |
| | For drying purposes | | | |
| | | | (Wine made) | |
| | | | 48,495 gallons | |
| " Unproductive | | 107 | | |
| Sugar-cane, Productive | | 84,877 | 1,258,760 tons | 2,342,072 |
| " Unproductive | | 63,592 | | |
| Tobacco | | 321 | 197,323 lb. | 16,599 |
| Market Gardens | | 1,752 | | 63,486 |
| Orchards and Fruit Gardens | Almonds | | | |
| | Apples | 1,901 | 68,477 bushels | 49,931 |
| | Apricots | 112 | 2,840 " | 3,053 |
| | Bananas | 7,694 | 956,044 bunches | 258,929 |
| | Cherries | 25 | 165 bushels | 96 |
| | Citrons | 14 | 17 " | 6 |
| | Custard Apples | 151 | 7,677 " | 5,918 |
| | Figs | 8 | 237 " | 92 |
| | Gooseberries (Cape) | | | |
| | Lemons | 310 | 11,168 bushels | 10,703 |
| | Mangoes | 277 | 53,375 " | 19,126 |
| | Nectarines | 216 | 7,226 " | 5,961 |
| | Olives | | | |
| | Oranges | 2,730 | 185,806 " | 107,613 |
| | Passion Fruit | 32 | 3,707 " | 3,676 |
| | Pawpaws | 155 | 32,925 dozens | 11,935 |
| | Peaches | 1,825 | 70,558 bushels | 49,832 |
| | Pears | 282 | 6,128 " | 5,005 |
| | Persimmons | 22 | 849 " | 345 |
| | Pineapples | 3,922 | 676,484 dozens | 191,670 |
| | Plums | 719 | 11,361 bushels | 10,130 |
| | Quinces | 44 | 491 " | 135 |
| | Rosellas | 1 | 50 " | 18 |
| Strawberries | 65 | 44,884 quarts | 9,850 | |
| Limes | 1 | 6 bushels | 1 | |
| Other (Private, &c.) | 748 | | 15,511 | |
| Unproductive | 2,377 | | | |
| Other Crops | Broom Millet | 484 | 142,888 lb. | 3,110 |
| | Cabbages | 700 | 147,390 dozens | 79,836 |
| | Canary Seed | 1,698 | 226,599 lb. | 5,665 |
| | Cocanuts | 1,005 | 17,577 dozens | 2,197 |
| | Coffee | 24 | 16,101 lb. | 604 |
| | " Unproductive | 6 | | |
| | Cotton | 72 | 27,470 " | 687 |
| | Cowpea | 14 | 211 bushels | 106 |
| | Cucumbers | 145 | 49,244 dozens | 4,514 |
| | Green Beans | 153 | 12,806 bushels | 5,763 |
| | Green Peas | 139 | 8,042 " | 4,457 |
| | India Rubber | 6 | | |
| | Lucerne Seed | 158 | 8,000 lb. | 600 |
| | Millet Seed | 285 | 3,358 bushels | 756 |
| | Peanuts | 153 | 127,708 lb. | 3,459 |
| | Pumpkins and Melons | 11,743 | 30,924 tons | 315,425 |
| | Sisal Hemp | 51 | 70 cwt. | 196 |
| | Tomatoes | 1,580 | 159,713 bushels | 131,763 |
| | Miscellaneous— | | | |
| | Linseed | 34 | 3,030 lb. | 51 |
| | Chillies | 1 | 211 bushels | 158 |
| | Marrows | 15 | 24 tons | 275 |
| | Sunflower | 5 | 20 cwt. | 40 |
| Total under Crop | 563,762 | | £6,297,079 | |
| Land in fallow | 253,642 | | | |
| Area under permanent artificially-sown grasses | 449,019 | | | |
| New ground broken up during season | 10,164 | | | |
| Previously cropped land lying idle during season | 160,973 | | | |
| Total area of arable land | 1,437,560 | | | |

Price, 4s. 6d.]

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