QUEENSLAND AGRICULTURAL JOURNAL

VOL. X. SEPTEMBER, 1918. PART 3.

Agriculture.

COTTON-SEED FOR DISTRIBUTION.

The season has now arrived when cotton-seed may be sown to the best advantage, as, during the increasing warm weather, and stimulated by the seasonable rainfall which may be expected in September and October, the young plants will make rapid progress and yield an early crop. Although the seed may be sown as late as November, it is preferable to sow as soon as possible after the late frosts, in order to obtain the most satisfactory returns. We may recall the remarkable success achieved by cotton-growers in 1907, who sowed about the months of August and September. The following were some of the authenticated results per acre:—Wallumbilla, 2,240 lb.; Tallegalla, 4,250 lb. and 3,527 lb.; Vernor (Brisbane Valley Line), 3,006, 1,473, and 1,300 lb.; Mackay, 1,368 lb. Similar results were obtained in 1915, but only on a limited scale. The Department of Agriculture and Stock has now a quantity of first-class cotton-seed for free distribution to present and intending growers, who are advised to make early application for a supply, stating how many acres they propose to plant. The seed will be supplied free of cost and railage paid; 10 lb. of seed per acre will be allowed to provide for replants or any other contingency. An advance of 2d. per lb. for the year 1919 will be made upon all raw cotton received by the department, when it will be ginned and marketed on the owners' account, and any surplus after sale, after deducting charges, will be paid to the growers *pro ratâ*. Consignments are to be forwarded addressed to the Under Secretary, Department of Agriculture, Brisbane, who should be advised of the despatch.

EXHIBITION NOTES, 1918.

THE EXHIBITS OF THE DEPARTMENT OF AGRICULTURE AND STOCK AT THE EXHIBITION OF THE QUEENSLAND NATIONAL ASSOCIATION, BOWEN PARK, AUGUST, 1918.

Ever since the inception of the great National Show in Brisbane, over forty-three years ago, the record of the work of the National Association has been one of steady progress, and this year has seen a result which might well be considered phenomenal, both in the number and quality of the various exhibits, in the general arrangements, especially for the accommodation of the greatly increased numbers of live stock, and in the attendance of visitors from far and near. In this respect, each succeeding year has scored a record over the previous year. War, involving an increase in the price of almost every commodity of life, heavier taxation, and the calls upon the people for subscriptions for assisting in every possible manner the army of Queensland soldiers who have made, and are yet making, an undying name for themselves and for their country in the sanguinary battlefields of France, Egypt, Gallipoli, Mesopotamia, and elsewhere—all this has not had the effect of causing the National Show to be neglected. The attendance this year amounted to 155,000, and the gate-takings each day made an aggregate of £7,005. The weather during the whole week was perfect, a slight fall of rain on the last day serving merely to lay the dust. Pages full of interest to the public might be written on the exhibits, but the space available in this journal being limited, we must ask our readers to study the voluminous reports on the exhibits and prize awards, so ably presented by the daily Press, city and country.

DEPARTMENT OF AGRICULTURE AND STOCK.

It may be remarked apropos of the scope of work of the Agricultural Department that the world's war has focussed attention on the primary producer, and recognition of the important part played by the latter in the production of raw materials will establish his position more firmly than ever in the future as an indispensable adjunct and factor in the world's progress. As nations cannot starve, it is obvious when the Councils of Empire meet to discuss the question of feeding the teeming millions of consumers, and provide for the debt which humanity is shackled with for all time, that the producer must receive the consideration due to the indispensable nature of his calling.

This State, above all others, enjoys a versatility of production which will focus attention on its development. For quite a number of reasons, cultivation methods under pioneering conditions are seldom, if ever, thorough, but it goes without saying that the new era, born of present day developments, will bring in its quota of changes to the farmer, who has many difficult problems ahead of him to solve; not the least of which is the upward trend in the cost of production and the uncertainty existing as to the values of produce and stock, the sales of which represent his income. The closest co-operation is needed between the primary producer and the scientist, and it is in this latter direction that ample scope exists for the activities in field and laboratory of the trained staff of the Department of Agriculture. Science may be described as merely a knowledge of underlying principles and causes. Its application in the direction of improvement of animals and plants, and in the elucidation of the problems confronting the producer, is intimately associated with the work which the several subsections of the Department of Agriculture and Stock have in hand. It is not possible, of course, at an exhibition to illustrate all the work which is being dealt with, but an attempt has been made in the Court to demonstrate the practical bearing and utility of the department in its relation to primary production.

DESCRIPTION OF EXHIBITS.

SUGAR CANE.

The collection of canes from the Experiment Station at Bundaberg (one of a number of stations controlled by the Bureau of Sugar Experiment Stations) was classified and the characteristics of each variety described. The importance attached to the selection of the best canes for Queensland conditions is evidenced by the fact that prior to 1904 over 500 different kinds were introduced from other countries, and from 1905 to 1916 another 360 new varieties were brought here, most of them being from New Guinea. These were tested at the Experiment Stations.

In 1895 the Agricultural Department deputed the present Entomologist (Mr. Henry Tryon) to visit Papua. This officer brought 66 varieties with him, and if

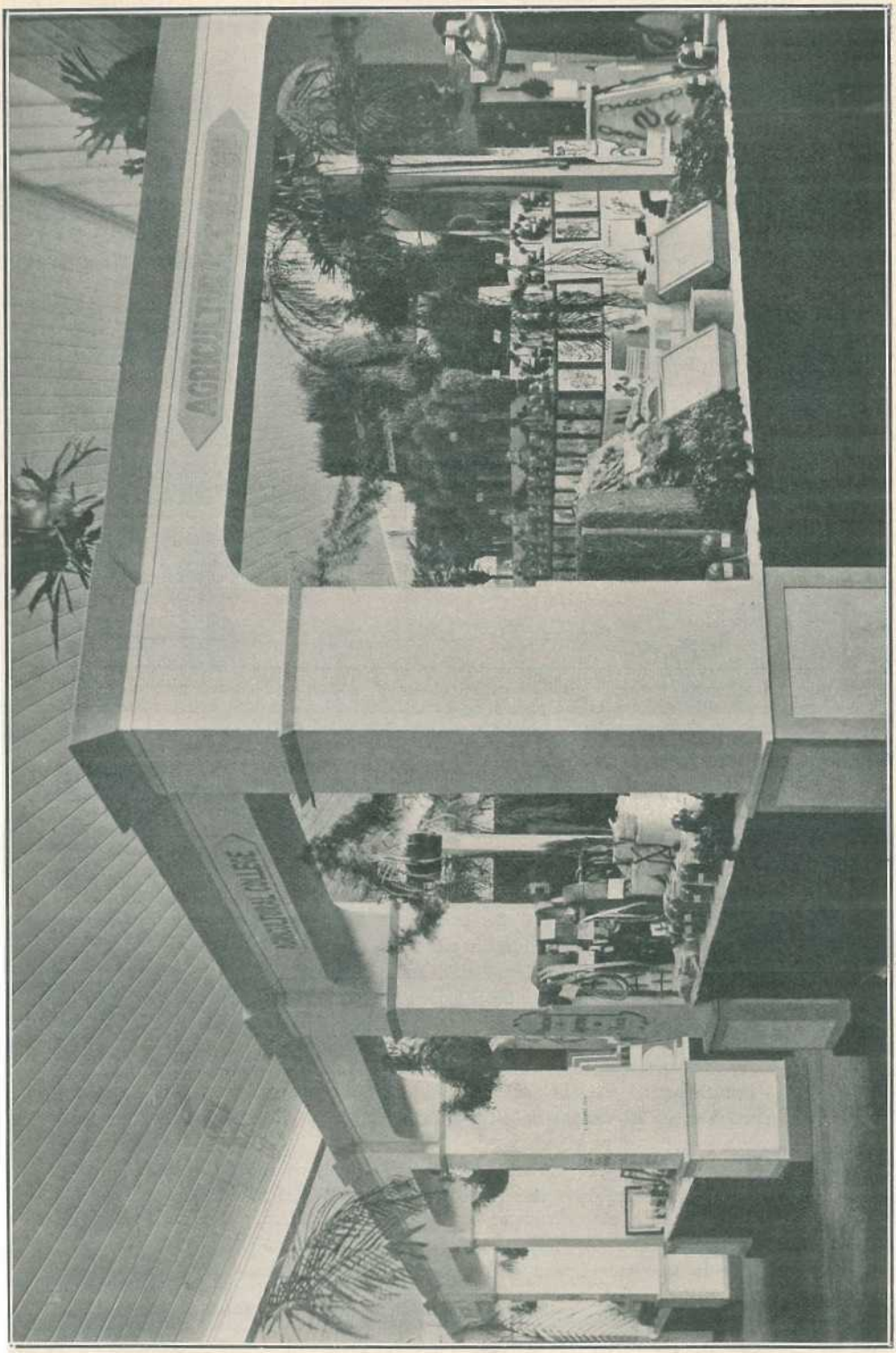


PLATE 14.—VIEW OF COURT, DEPARTMENT OF AGRICULTURE AND STOCK.

any proof of the value of such introductions is necessary, it may be stated that to-day the standard cane of North Queensland (Badila) is one of those then introduced.

This cane carries only a small percentage of fibre and is exceedingly rich, as will be seen by the analysis:—

Brix Total Solids.	Per cent. Sucrose in Juice.	Per cent. Glucose in Juice.	Per cent. Sucrose in Cane.	Quotient of Purity.	Available Sugar.
22·6	21·4	0·21	18·6	95·0	17·85

The method of testing these introductions, as well as that of seedlings raised in Queensland, is to grow the canes for a period of years and over a number of ratoon crops, each variety being analysed no less than four times in each year during the months of June to September. Those showing high percentages of sugar, which have proved to be good croppers and absolutely free from disease, are made available to farmers and plantations; others, light in weight and difficult to cut, being valueless from the farmer's point of view, are discarded.

Five of the original New Guinea varieties, tested over a "plant" and five "ratoon" crops, gave the following results:—

—	Total Cane per Acre. Six Crops.	Total Sugar per Acre. Six Crops.
	English Tons.	English Tons.
15 Badila	270·5	50·2
24	255·1	46·3
24A	266·7	45·6
24B	257·5	42·2
40	253·4	38·8

In addition to the introduction and testing of canes, soil investigations are undertaken at the Mackay and Bundaberg Experiment Stations and analyses made of fertilisers, limestones, waters, sugar-canes, and sugar mill products.

A new station is being established for the North of Innisfail.

The depredations of the cane grub, the larvae of the Lepidiota beetle, have led to the establishment of Entomological laboratories at Meringa, near Cairns, the centre of the worst grub-infested region in the North. The work is in charge of Dr. J. F. Illingworth, formerly Professor of Entomology at the College of Hawaii, and embraces the following:—

Morphological study of reproductive organs of beetles, with relation to the period of ovipositing and the number of eggs produced.

Morphological study of the fungus parasites.

Breeding of the various local parasitic and predaceous insects in cages.

Introduction and breeding of beetles parasites from other countries.

Experimental methods for the rapid multiplication and wide distribution of our fungus parasites.

Introduction of bacterial and fungus enemies of the beetles from other countries.

A further study of various light-traps for the beetles.

A further study of repellents.

Field and laboratory experiments in the use of poisons for the grubs.

Field experiments to determine the relation of fertilisers to resistance; using green manure, stable manure, meatworks refuse, nitrate of soda, &c.

It is estimated that 100,000 persons are directly or indirectly connected with the sugar industry in Queensland, and as the last season's crop was valued alone at £7,000,000 for raw sugar (£9,500,000 refined), these figures will afford some idea of its importance and of the value of the work of Experiment Stations in assisting to combat the many difficulties which beset the producers.

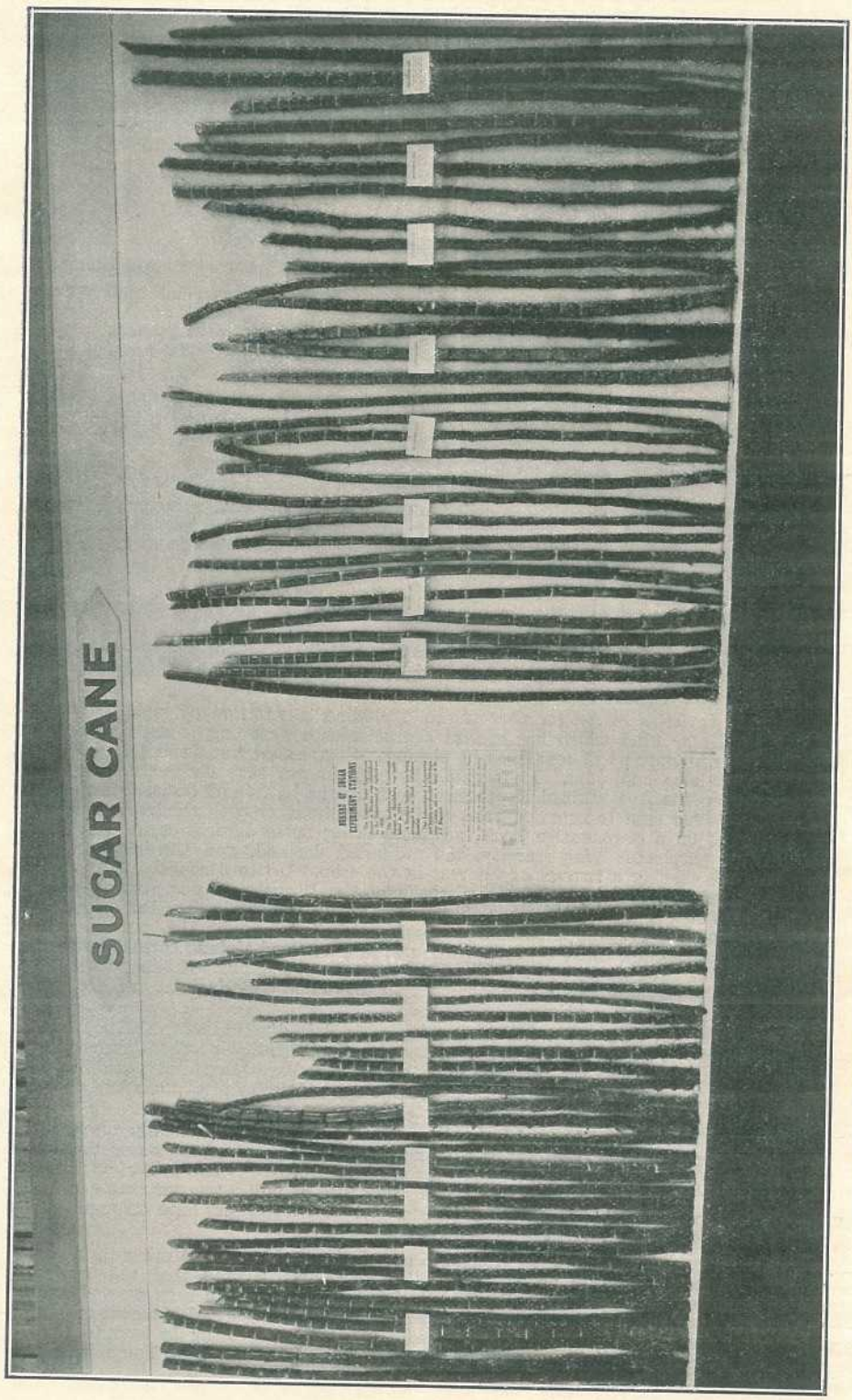


PLATE 15.—EXHIBIT OF VARIOUS SUGAR CANES RAISED AT THE BUNDABERG SUGAR EXPERIMENT STATION.

AGRICULTURE OTHER THAN SUGAR.

In this section a great variety of products was staged and proved eloquent of the potentialities of the State in agricultural production.

Prominence was given to Queensland's principal cereal, maize, and the work of Departmental officers engaged in the improvement of varieties now under cultivation. This has the merit of an undertaking which must soon exercise an influence for the better on the quality and quantity of grain produced in the State.

Statistical information has been prepared showing the following:—

Yields recorded for 15 years, 1900 to 1915.

Maize selection on performance.

Shelling percentages of different varieties.

Comparisons in yield from 1914 to 1918 in the corn growing competition.

In the latter chart the average yields show a decided improvement each year, viz.—

	Per Acre.		Per Acre.
1914-15	39.3 bushels.	1916-17	62.2 bushels.
1915-16	51.3 „	1917-18	85.3 „

The principles of selection for type and productivity are illustrated, special attention being given to the factors and characteristics to be looked for in improving crop yields.

Samples of manufactured products and by-products of maize were exhibited in order to show some of the commercial uses to which the grain can be put.

The wheat exhibit comprised a collection in grain and sheaf, principally from the Roma State Farm and experiment plots, and served to demonstrate that, to produce high quality wheats suitable for Queensland conditions, they must be raised and selected here in order to secure the best for the different soils and environment peculiar to our climatic conditions.

The system in vogue in the Department is to carry out field and variety tests in different districts of the State, with the most promising varieties raised and proved beforehand at the Roma State Farm, where wheat breeding is specialised in.

Flour and by-products from wheats tested in the agricultural laboratory served to complete this section.

Several varieties of cotton were shown, including a selection of pods or bolls of one particular kind which has special characteristics stamping it as a suitable one for the employment of machines in picking. Samples of lint from this year's ginning were also exhibited. It is generally well known that on the decline of cotton-growing the Agricultural Department took up the matter of resuscitating the industry. Cotton seed is supplied free, and the resultant crop is received, ginned, and marketed on a co-operative basis, advances being made against cotton sent in for ginning purposes. War scarcity, the unlimited demand, and the high prices realisable are causing a revival of interest in the crop. Up to 31st July this year, 130,600 lb. of raw cotton have been received by the Department for ginning purposes. Sales so far have been made this season at 1s. 1d. per lb. for lint, a price which will pay the growers handsomely. Last year's lint brought 11d. per lb., and a concrete case is cited where a grower, who put in 8 acres of Upland cotton, secured a net return of £154 as a set-off against the cost of production. Ginning expenses at the rate of a farthing per lb. for raw cotton, railage and handling charges, are not included in the amount mentioned.

Sisal hemp on exhibition, raw and manufactured in the form of binder twine and ropes, was a sufficient indication of the excellent quality of the Queensland-grown article. Although the industry is in quite an embryo stage, the possibilities are manifest when it is known that the present quotation for sisal fibre has more than doubled since the war.

Broom millet formed the subject of an educational display, specially prepared to draw attention to the possibilities existing in the State for raising quantities of first quality "fibre" to meet the shortage the Commonwealth is now suffering from. Prime hurl is worth £90 per ton in Sydney. As crops of half-a-ton per acre can be expected under favourable climatic conditions, prospective growers have an excellent chance ahead of them, provided prices keep up.

A small exhibit of Japanese Upland rice and rice paddy, representing 60 acres of crop harvested recently at Tolga, North Queensland, showed that this cereal can be produced to perfection in the State. As good returns have been secured and the crop is capable of being harvested and prepared for market with labour-saving machinery, the future of the industry seems assured, and colour is lent to this optimistic opinion by the fact that other farmers in the vicinity of Tolga intend planting additional areas this season.

GRAIN OR DRY-DISTRICT SORGHUM.—These drought-resistant plants have not yet been taken up for stock feeding purposes to the extent which their excellent cropping and utility deserves. In America several million acres are cropped annually. The grain of these sorghums is large and the yields exceptionally high: drought-resistance, and ability to produce crops of grain under trying conditions where maize would fail, stamp them as worthy of attention by poultry farmers, dairymen, and pig raisers. Horses are very fond of the seed, which, from a feeding standpoint, is midway between the wheat and maize. Yields obtained upon Departmental plots ranged from 85 to 103 bushels per acre, the latter quantity being secured from Cream Milo. A system of improvement and selection of high-yielding strains is being carried on by the Department, and seed ears, sheaves, and grain of several varieties were on exhibition.

TOBACCO.—Pipe and Turkish leaf from Inglewood and cigar leaf from Bowen represented samples of the high-class tobaccos which are grown in the districts named. The Department has imported seed of the most favoured kinds from America to enable growers to secure supplies.

FODDERS.—A collection of fodders suitable for green feed, hay, or ensilage has been made, comprising sorghums of sorts, some of which yielded up to 32 tons per acre of green feed on a field test plot; Soudan grass, and other popular drought-resistant fine-stalked sorghums; also Setarias and Panicums representing suitable catch crops of rapid growth which are deserving of every attention from stock-owners.

Farm and garden seeds were in great variety, indicating that many kinds can be satisfactorily grown in the State, a matter which deserves more consideration than it now receives. Cowpeas, standard varieties and others, raised by cross fertilisation, illustrated a branch of work in hand at the Roma State Farm which gives promise of improved kinds for green manuring, fodder, and seed purposes. The merits of the plant entitle it also to more attention, as it is suitable for a variety of purposes, not the least of which is its natural richness as a food for pigs when kept under the paddock system.

Latterly some recognition has been given to flax (linseed) growing in Queensland, more on account of the value of the plant for oil-producing purposes than for fibre; consequently an exhibit of different varieties was made.

Buckwheat was also shown in sheaf and seed to draw attention to the plant, which is useful for honey-producing purposes in a minor degree, and for pig-raising and stock-feeding purposes.

The Juvenile Corn Growing Competition and the excellent collection of maize ears sent in to be judged for uniformity of type and character of grain was, in its class, a feature of the exhibition. The average yield, 85.3 bushels per acre, obtained in this competition stamps it as being the most successful from the standpoint of yield of any so far held. The winner of the competition is E. V. E. Burton, of Booie, who secured the phenomenal return of 169.6 bushels per acre. The second and third highest aggregate reached 153.3 and 145.1 bushels per acre, secured by two brothers named Gon Chee at Killarney.

ENSILAGE.—Several samples taken from silos and stacks represented a class of succulent fodder which all dairymen should have on hand as a set-off against dried-out pastures. The stacks from which the ensilage was taken were constructed under the supervision of Departmental dairy inspectors, whose efforts in this direction appear to be very much appreciated by stockowners.

An interesting exhibit of sugar-cane ensilage, representing 40 tons made in a reinforced concrete silo at Kairi State Farm, North Queensland, showed a new use for cane, in which form it makes a highly palatable fodder.

The *Seed Exhibit* drew attention to the Pure Seeds Acts, which prescribe standards of purity and germination for agricultural and vegetable seeds, and many farmers now avail themselves of the services of the Seed Laboratory before either buying or selling seeds for sowing. The work in this direction is ever on the increase, and the National Show gave farmers and others an opportunity to examine a standard collection of seeds, and to correct many errors that creep in by the misnaming of well known varieties.

It is possible for many people to somewhat resemble the small boy, who, after three weary weeks in learning the alphabet, was asked by his teacher to name a certain letter. After some moments' thought, he replied that he knew him by sight, but did not know his name. The named collection of weed seeds, if examined for a few minutes, should be the means of giving much information.

In order to get into close touch with farmers and others interested in seeds, an officer of the Department was in attendance at the exhibit, and it was suggested that farmers, if possible, make it a point to have a few minutes with him during the week.

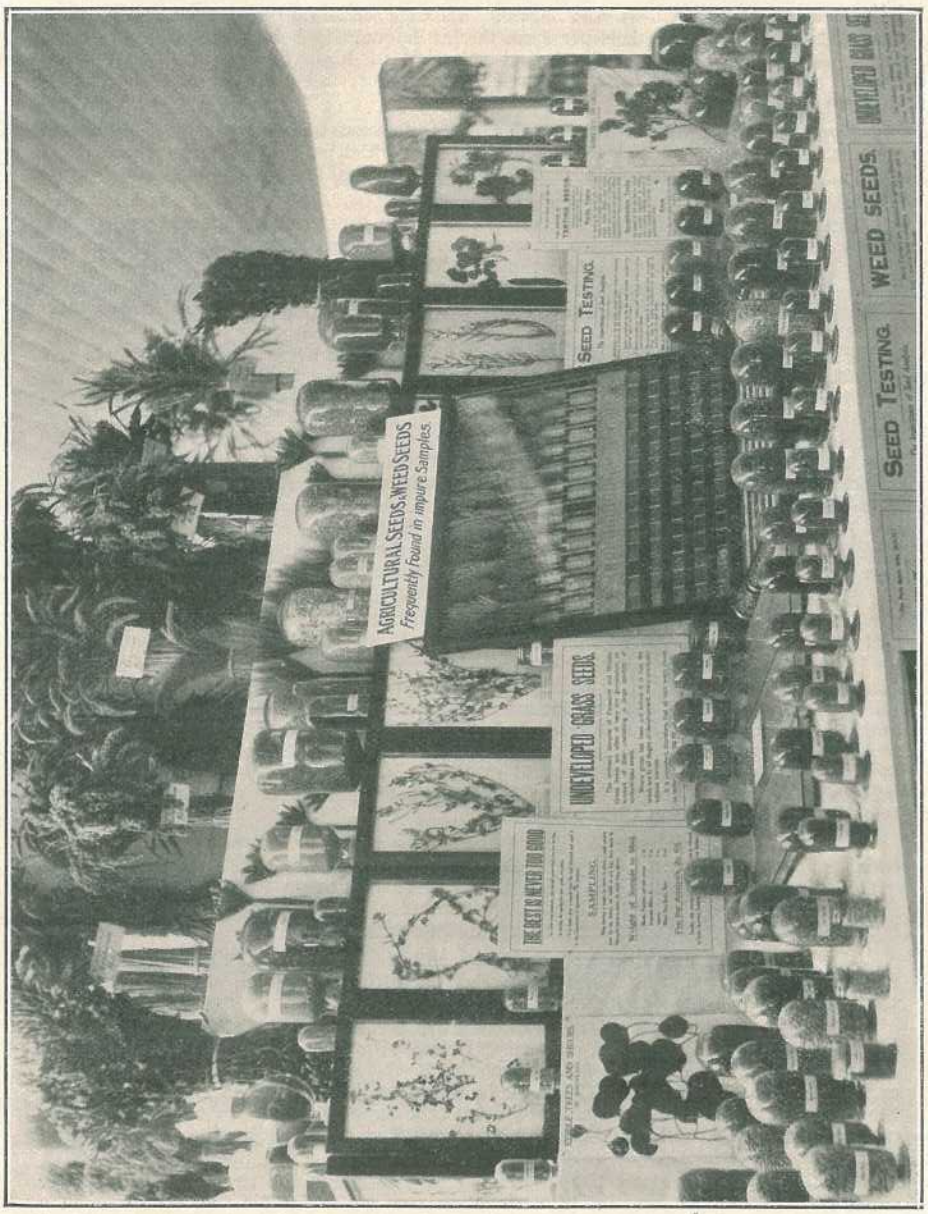


PLATE 16.—PURE SEEDS AND SEED-TESTING EXHIBITS.

The simple method of seed testing demonstrated is one of the easy ways in which all cereals could be tested for germination. In the farmer's own interest, he cannot afford to buy or sow any but the best, and much good would result if all buyers placed quality before price, and obtained a thorough knowledge of the article before either buying or selling.

Seeds are the most variable article the farmer has to do with, and farming, like any other business, cannot afford to leave doubtful points to chance.

The ingenious author of "Gulliver's Travels" mentions the high repute in which those Lilliputians were held who made two blades of grass grow where only one grew before. It is a somewhat lengthy journey from the regions of Lilliput to Queensland, yet one of the wild chimeras of choosing for employments persons qualified to exercise them appears to have been solved in the excellent educational display of the Department of Agriculture and Stock at the National Show.

QUEENSLAND AGRICULTURAL COLLEGE.

This year the College was represented in the Agricultural Court by an exhibit illustrating various features of the instructional work carried out for the students—the Dairy Factory, Sheep and Wool, Seed Testing, Saddlery, Blacksmithing, and Farm sections.

In the Live Stock Division the College was represented by the following:—

Dairy Cattle: Ayrshires, Holsteins, Guernseys, and Jerseys, a total of twelve animals. Amongst the Ayrshires "Auntie's Lass," last year's reserve champion, was brought down; also "Prim," last year's champion Holstein cow, and a young Holstein bull, receintly imported from New Zealand. In all cases the stock were good and they well represented the quality of dairy stock that are being bred at the College.

In the pig section, twelve animals were exhibited, representing two breeds, Berkshires and Middle Yorkshires, which included animals recently procured in the South, and others College-bred.

With the poultry section the College again had its full-size model poultry pens on exhibition in Petrie's Paddock. Since erecting these pens at last year's National Exhibition, the College has adopted the design for all new poultry buildings, and in actual practice these classes of pens have proved themselves in every way efficient.

Besides this, there was a large exhibit of crossbred table poultry. Some of the male birds had been caponised and were shown alongside the entire birds to illustrate the many advantages of caponising. In fact, the whole exhibit in this section was intended to stimulate interest in table poultry and to demonstrate the value of caponising. A brief pamphlet on this latter subject was available for distribution.

WOOL EXHIBIT.

The exhibit this year comprised a number of fleeces of farmers' wool grown mainly on coastal areas; also representative fleeces of pure-bred British breeds which are being used in raising fat lambs. A number of cases were shown which contained samples of various breeds of wool grown in Queensland; also staples of South Australian rams' wool from sheep which are being used to improve the Gindie State Farm flock. Decorative panels of scoured merino, crossbred black wool, and crossbred greasy wool, were most informative.

The fullest possible information was given, on plainly printed placards, of matters interesting to sheep farmers, some of which may be mentioned hereunder:—

Signs of Worms in Sheep.
Arsenical Drench for Wormy Sheep.
Suggestions for Combating the Blow Fly in Sheep.
A résumé of the results of the handling by the Department of small farmers' wool clips for the past year.

The matter of worms in sheep has been a very serious question in nearly all parts of Queensland this year, and it is safe to say that more losses have occurred from this cause than any other, especially in the case of animals under two years of age. Generally, it has been found that serious losses have occurred before advice was sought; this being due to the fact that, outside the districts which have hitherto not been free from the trouble, there is little or no knowledge regarding internal The instructions given on the matter of recognising the plague were short and clear.

In the second placard, one method of treatment effectively used by the Department was given. This takes the form of a prescription containing arsenic and Epsom salts. Further information in regard to this matter was supplied by an official who was in attendance at the exhibit.

Closely allied to the question of internal parasites, such as stomach worms, is the matter of external parasites, such as the blow-fly. In the experiments conducted by the Department for the past four years several positive facts have emerged.

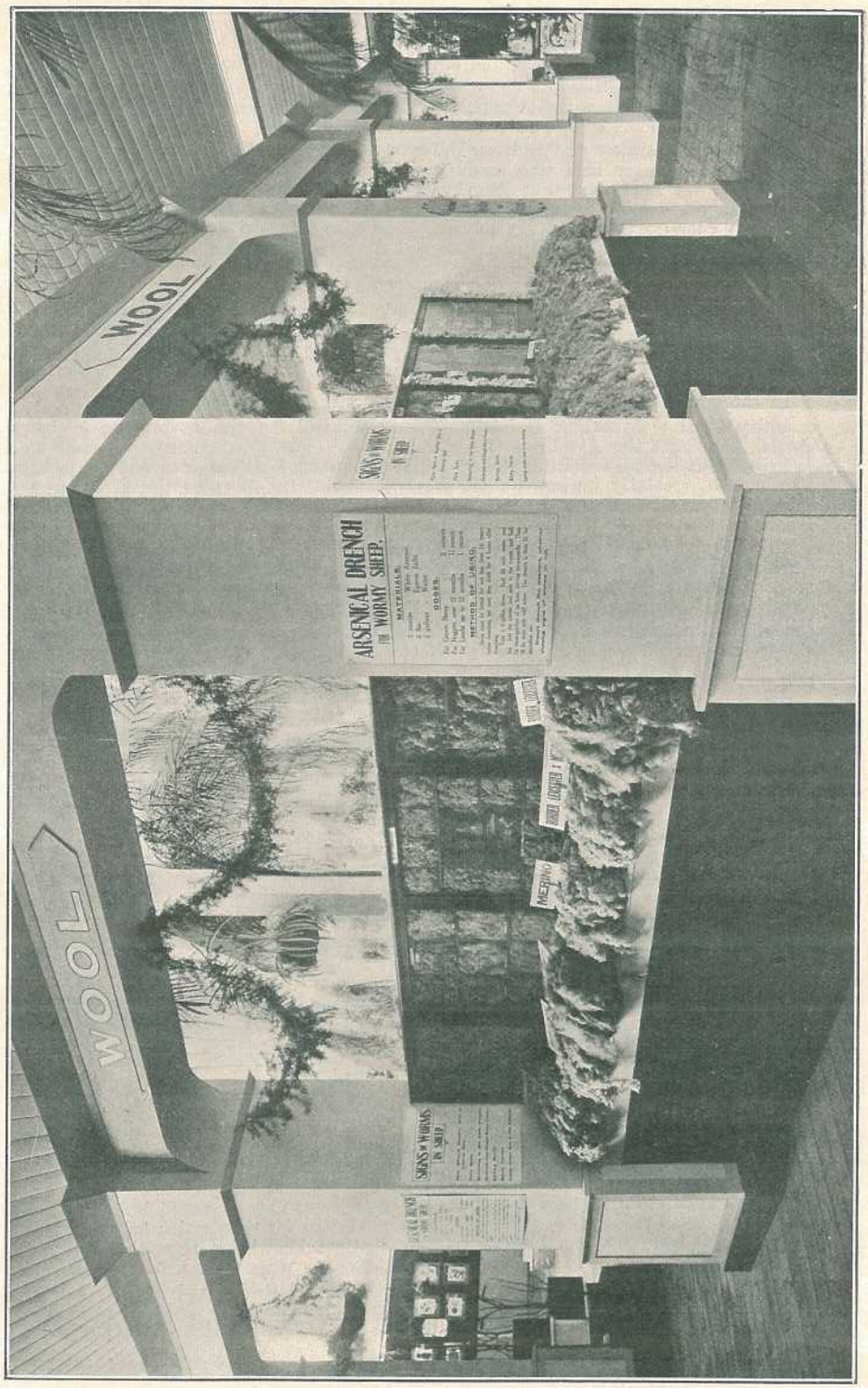


PLATE 17.—WOOL EXHIBIT.

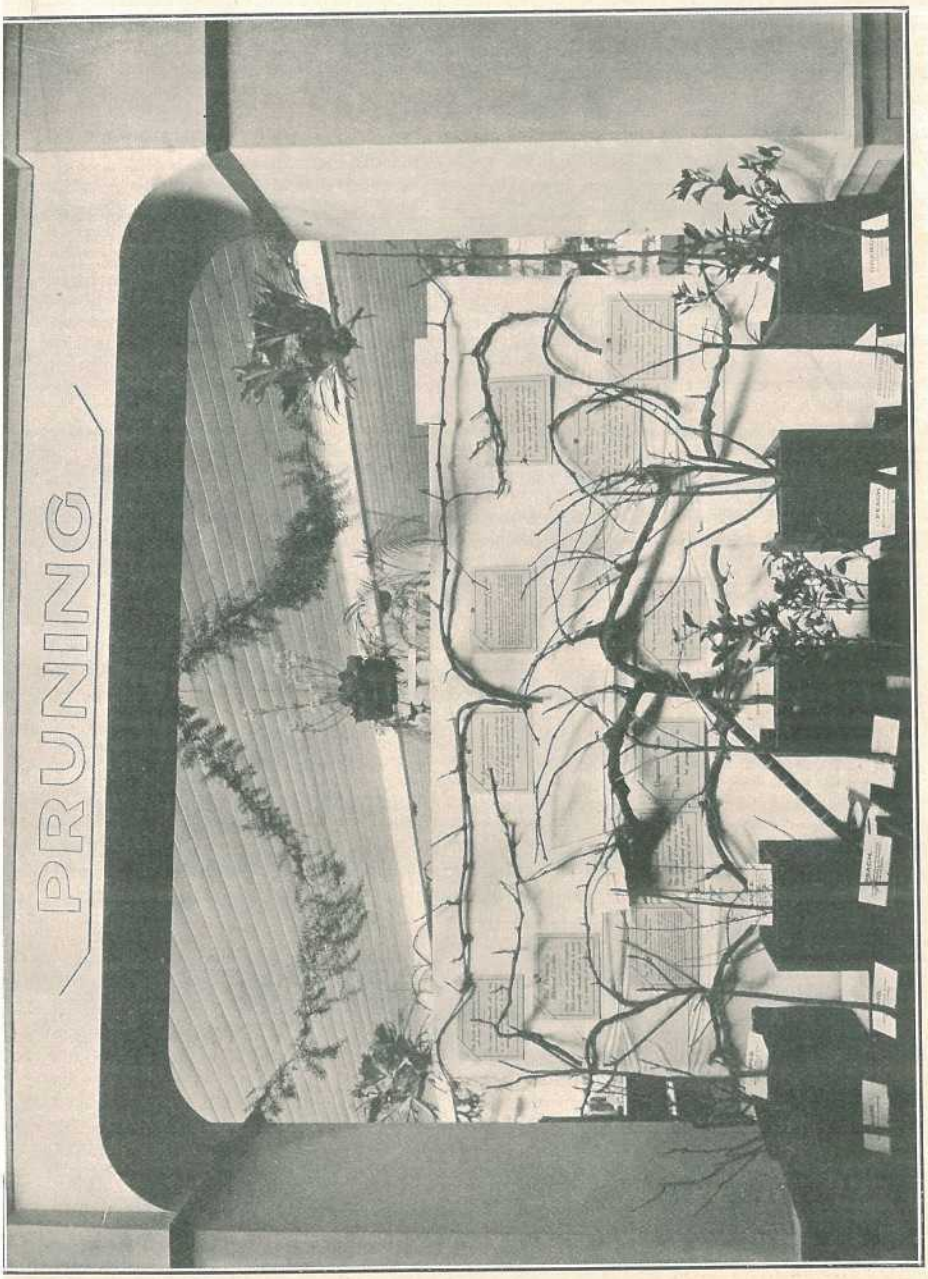


PLATE 18.—AN OBJECT LESSON IN PRUNING VINES AND FRUIT TREES.

First, that a healthy sheep is less liable to be struck by flies, and if struck, is less liable to die. Therefore, the first duty of a sheep farmer should be to see that, at least, his sheep are not dying of stomach worms.

Secondly, the use of poisonous dips is clearly of advantage. In the latest figures supplied by an experiment now being conducted, the gross infestation by flies in a flock of nearly 1,000 stud merino ewes is shown to be 7.32 per centum. Of those treated in various ways with poisonous dips, the different flocks of 50 sheep showed infestation from .0 per centum up to 14 per centum, while the controls which were quite untreated showed an infestation of 30.3 per centum. This result agrees with former experiments held in quite another district.

Other advice also appeared on the placards, representing the results of practical experience which are given for the benefit of sheepowners.

Thirdly, though some years show that even a small infestation on an animal is very likely to cause death, this year the whole body of an animal may be involved and yet the animal lives. This points either to the fact that a special organism, or a special kind of fly, is absent this year. This matter will be thoroughly investigated.

Another placard showed that a fairly large number of farmers have availed themselves of the departmental scheme for handling small farmers' clips, about 360 bales having been dealt with, which represents the pooled clips of 122 farmers. General satisfaction has been expressed, and it is confidently hoped that the business will expand. To that end the Department is now fitting out a thoroughly equipped wool-sorting shop at the offices, William street. This will be ready for the coming season in a short while.

Attention has been called by the Wool Committee to the poor get-up of many Queensland clips. This adds seriously to the difficulty of putting a fair value on a consignment, and it is for this reason that mixed clips of merino and crossbred, such as the smaller sheep farmers possess, should be graded if the best results are to be attained. This the Department is aiming to do for farmers with under 1,500 sheep. Added advantages to the farmer are: lower charges per lb. for commission, brokerage, &c., skilled manipulation of his wools, and an immediate advance of 60 per centum on receipt of wool at the Departmental Stores, William street. Full particulars were shown of the scheme in the placard. The value of the wool industry to Queensland was shown by figures for 1917-18—312,418 bales of wool were assessed in Queensland, somewhere in the neighbourhood of £5,500,000 sterling. The difference between a good "get-up" and a bad, may sometimes be 2d. per lb. Therefore, the importance to owners of having their wool well treated is obvious.

DISPLAY OF PRUNING, PROPAGATION, ETC.

This section of the Horticultural Branch had for its object the instruction of amateurs and young orchardists in the methods of propagating, pruning, training, and treatment of young fruit trees from the seed bed and nursery row to the transplanted tree. The exhibit also comprised examples of various systems of pruning and training grape vines and orchard trees. It illustrated also how to treat seedlings and maiden stocks and showed the progress of budded and grafted plants and cuttings up to the time of their permanent establishment in the orchard.

EXHIBIT OF WEEDS, GRASSES, AND FODDER PLANTS.

The attention of agriculturists, pastoralists, and horticulturists was invited to a representative collection of weeds mounted and framed, comprising over 100 kinds, a large percentage of which, it may be noted, are not indigenous but have been introduced at different times by various agencies. Some came as ornamental plants and have strayed from cultivation; others in straw or hay that had been used as packing material, or mixed with flower or vegetable seeds. This latter source is now controlled by the operations of the Pure Seeds Acts. Amongst those introduced as garden plants may be mentioned the *Ageratum* or "Billy Goat Weed"; *Argemone mexicana,* the prickly or Mexican poppy; the lantana, and the *Asclepias curassavica,* redhead or milky cotton bush; all these plants are still listed in European seed catalogues for sale. *Erigeron linifolius,* the rag weed; *Tagetes glandulosa,* stinking rodger; and *Bidens pilosa,* the cobbler's pegs, are shown; they are well known troublesome weeds of newly-cleared land or neglected cultivations. *Phytolacca octandra,* the ink weed, an American pest, and *Erechthites,* the Commonwealth weed from Brazil, are a nuisance on newly fallen scrub land that is being allowed to dry for burning, as the dense succulent growth of these pests smothers what would otherwise be an excellent burn-off. All these weeds, most likely, came in seeds imported for garden or field culture. The khaki weed from South Africa is another unwelcome visitor. It has a dense-growing trailing habit, and, being armed with sharp burrs, it causes great annoyance to stock when dry. A notable weed—weed only when in places where it is not required, such as on tennis or other lawns—

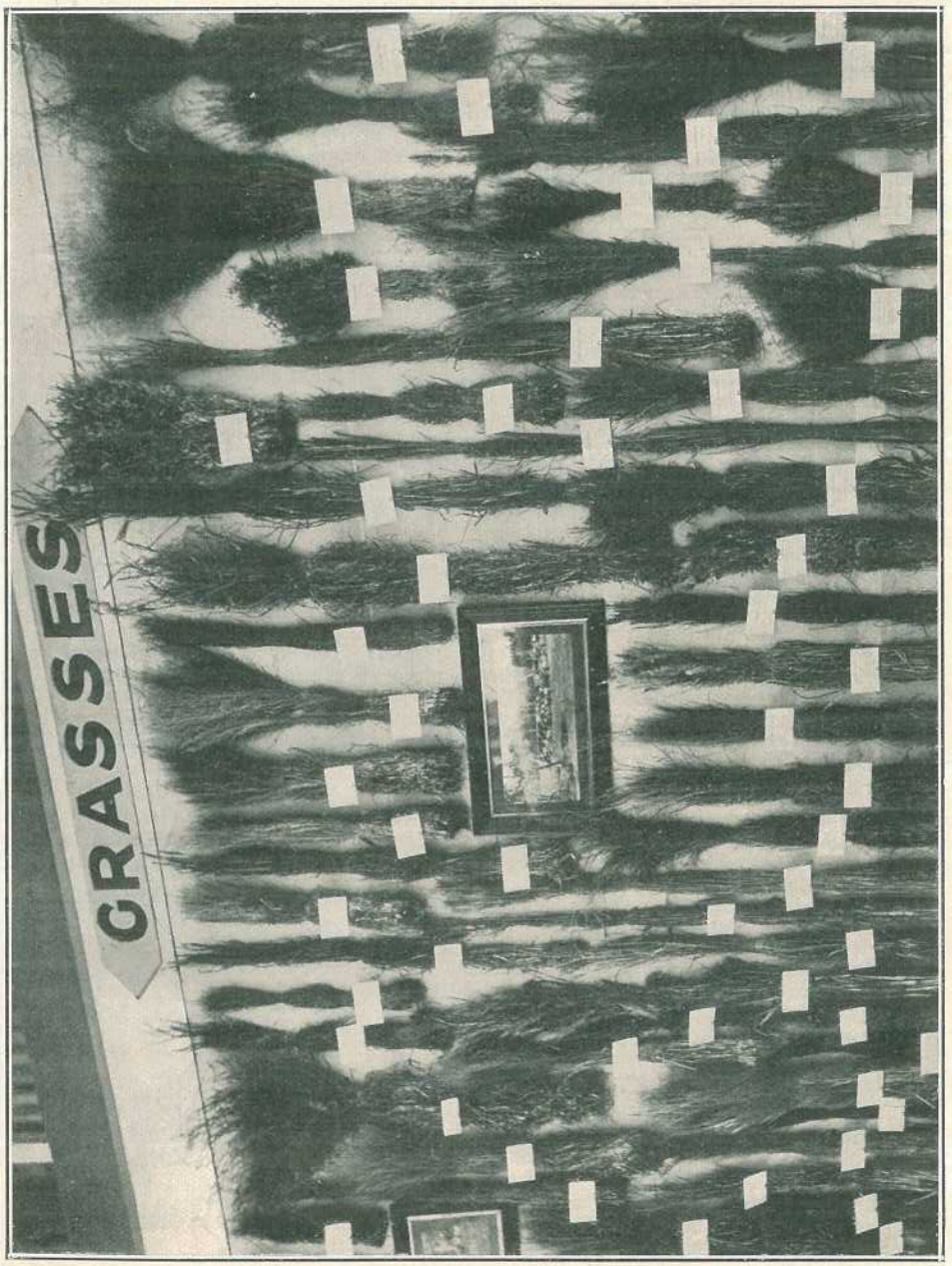


PLATE 19.—PORTION OF EXHIBIT OF NATIVE GRASSES.

Stylosanthes mucronata, is very common about Townsville, growing flat on the ground, forming a thick carpet. On analysis by the Agricultural Chemist, at the instance of the late Mr. G. Tucker, Deputy Chief Inspector of Stock, it was found to be quite equal to lucerne as a fodder; and milking cows do really well upon it. In the collection was a number of weeds that are truly noxious on account of their poisonous properties, and they should be taken special notice of by stockowners. Amongst these may be mentioned *Gastrolobium grandiflorum*, the wallflower or heart-leaf poison bush; *Eremophila maculata*, the native fuschia; the Datura or thorn apples, and *Erythrophoeum Laboucherii*, the iron-wood; this latter is very poisonous, even goats having been known to die within a few hours after eating it. Many of the Cassias are often sent in under various names, such as wild senna, arsenic bush, &c., as being harmful to stock. They are not likely to be poisonous, but coming as they do, from the family that produce the cascara and senna leaves, are mostly all purgative in their action. Each specimen was labelled with the botanical and common name, and information was also given as to its uses and properties.

Grasses.—A large collection of grasses was shown in fair-sized sheaf form, and as they show that our State well deserves its reputation of having very rich native pastures, a brief reference to some of the more noticeable kinds might be made. The *Andropogon* or blue grass family is well represented with several kinds. *Andropogon sericeus*, the blue grass, and *A. crianthoides*, the satin-top, are both very quick to respond to a shower of rain after a dry spell. The *Astreblas* or Mitchell grasses were shown in four kinds—viz., the common Mitchell, the curly, the wheat-ear or bull, and the wire Mitchell. These are the great stand-by grasses of our inland plains country, keeping good as they do in a dry state for a very long time, and it is wonderful to see how the apparently dead tussocks of these grasses respond to rain after quite a long drought. The *Anthistirias* contain the well-known kangaroo grass, *A. ciliata*, and the tall-oat grass, *Anthistiria avenacea*, both rather coarse in growth, but when young relished by stock. A near ally, the red Flinders, *Iseielma Mitchellii*, is often found growing in the shelter of the Mitchell grass; it is a favourite food of sheep and cattle when in a dry state, and if cut and stacked makes splendid hay. A large number of Panicums and Setarias were shown. These are all good fodder grasses, and the seeds are much sought after by the galah, cockatoos, and other birds. Attention was drawn to the blady grass and its suitability for paper-making. The *Eriochloa* contain the early spring grass and the dairy grass. Both are amongst the very first to grow after rain, and are soft, succulent, good cattle grasses. Several Paspalums were shown, and native Sorghums, although coarse in growth, are good feed for cattle when young. Grasses that are a pest under certain conditions are *Heteropogon contortus*, the bunch spear grass; some of the Aristidas, the three-awned spear grass; and *Stipa setacea*, called the Southern spear grass; they are all very objectionable to the woolgrowers.

NAMING OF SPECIMENS.—The Department is always willing to assist interested persons by identifying and reporting on any specimen that may be sent in.

Forage Plants.—A remarkable and valuable feature of Australian vegetation is the large number of trees, shrubs, and herbage generally, apart from grasses, of the inland country, that are edible for stock. The collection shown by the Department, gathered in the Charleville and Wallumbilla districts, proved interesting and instructive to pastoralists and stockowners generally. Those of special note are the mulga, kurrajong, apple-tree, wild orange, native pomegranate, beelah, emu bush, mustard bush, whitewood, myall, and several saltbushes. These and many others have helped to keep stock not only alive but in good condition during long spells of dry weather when grass was very scarce.

It is desirable that more attention should be paid to these valuable plants.

YEERONGPILLY STOCK DISEASES EXPERIMENT STATION.

Collection of specimens illustrative of the various diseases (common and obscure) of cattle, sheep, horses, pigs, and other animals. These include tuberculosis, actinomycosis, pleuro pneumonia, tick fever, contagious mamitis, strangles, blackleg, swine fever, &c.

Another interesting section is that dealing with certain investigations into the souring of hams and bacon, commonly known to butchers as bone taint. This very serious trouble is caused by a specific germ, a spore-bearing bacillus.

This germ will grow readily in the absence of fresh air, and at very low temperatures. During its growth in and around the bone it generates gas. This was well seen in the culture tubes of pork gelatine media. Coloured drawings of this bacillus were also shown.

A special feature is made of blackleg vaccine, prepared at the Laboratory at Yeerongpilly, and where the closest scrutiny is given to the instruction supplied with each lot of vaccine, 100 per cent. results are obtained.

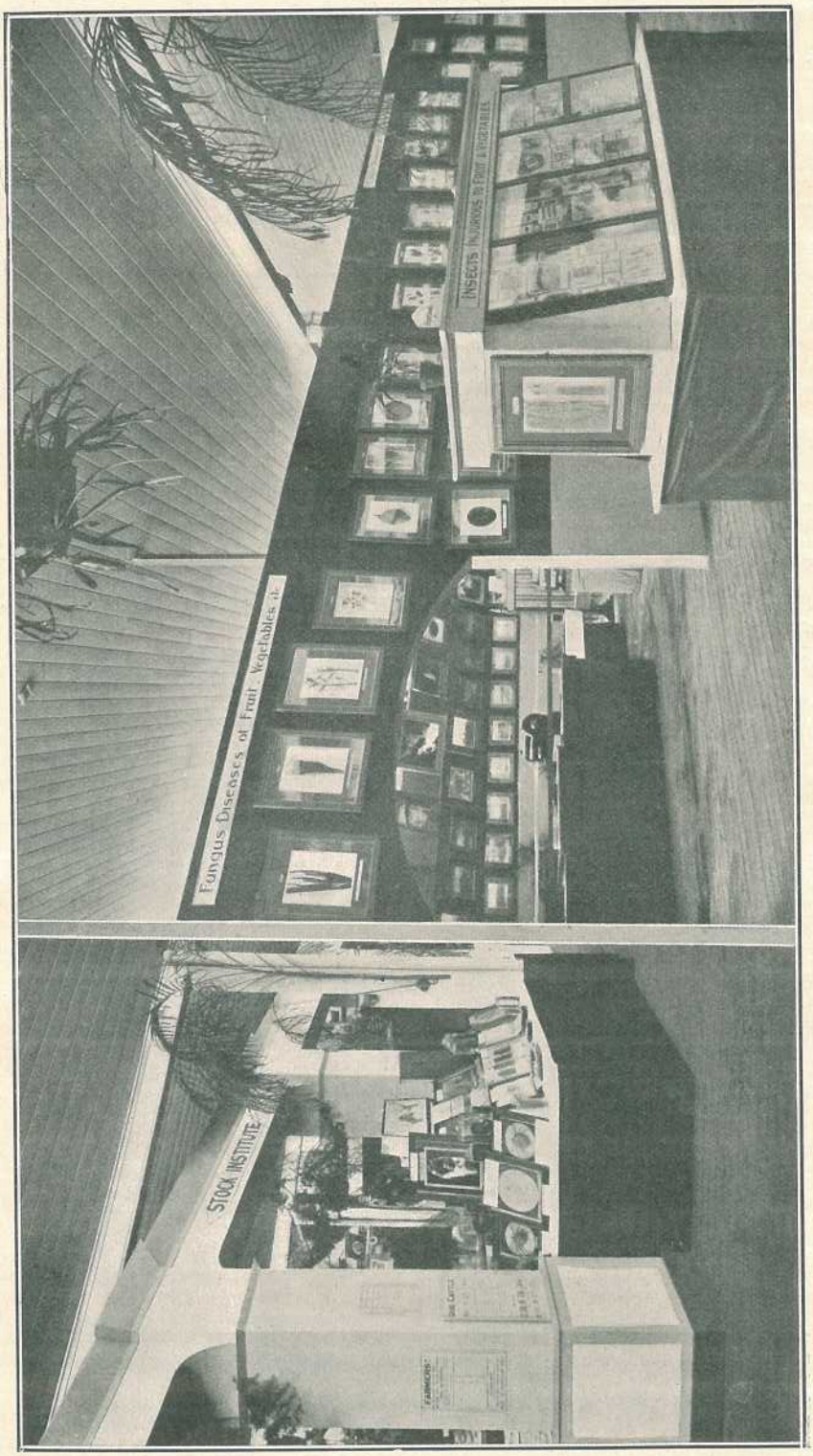


PLATE 20.—EXHIBITS OF THE STOCK INSTITUTE AND PORTION OF THE ENTOMOLOGICAL EXHIBIT.

During the past seven years, of 45,000 calves treated with this vaccine, only thirty animals were reported to have died subsequently from blackleg disease.

An interesting and instructive part of the exhibit was that dealing with the progress of tick eradication in the United States of America. This comprised several coloured maps showing the country originally tick-infested, and that cleaned up during the past eleven years. On 1st July, 1906, there were 728,565 square miles tick infested, and on 1st December, 1917, 379,312 square miles, or more than one-half, were released from quarantine restriction.

Other exhibits of the Laboratory were specimens of pure cultures of lactic acid bacteria for the purpose of making starters to be used in the manufacture of cheddar cheese; also cultures of penicullum mould, used in the manufacture of stilton and similar cheeses.

CORNGROWING COMPETITION.

Amongst the main staples of agricultural production in Queensland, next to sugar, maize is one which, considering the large area of the State in which this cereal can be profitably produced, should take a high place. It may truly be said that the maize-belt means the whole State. Hence, it is a universal crop with farmers in all parts, be the climate temperate, sub-tropical, or tropical. It is practically the first crop a farmer can plant on newly-cleared scrub land, and yields good returns even when its cultivation on such lands demands laborious hoe work. On all the coast lands, on the rich hillsides of the Dividing Ranges, and over the whole vast extent of the Darling Downs, away out towards Cunnamulla and Thargomindah, on the Maranoa, the Fitzroy, the Mary, the Gilbert, and the Barron Rivers, away out at Camooweal—in fact, everywhere—maize is king. Vast quantities are raised in the Far North on the Atherton scrub lands. Notwithstanding the indisputable fact that climatic conditions are everywhere favourable to the production of heavy crops, what do the statistics published year after year reveal as to the average yield of maize throughout the State? In 1916 the average was only 16.64 bushels per acre. During the ten years from 1907 to 1916, the highest average yield was 24.97 bushels in 1913; in 1909 and 1915, the average was recorded to be 18.96 and 13.68 bushels per acre, respectively. The highest total production for any single year amounted to 4,260,073 bushels in 1914 from 176,372 acres, the average being 24.16 bushels per acre.

With the object, *inter alia*, of increasing the per acre yield of this important crop, the Department of Agriculture and Stock, in 1914, inaugurated a corngrowing competition to encourage an interest in the improvement of our methods of maize cultivation, and, as a preliminary, the co-operation of the school children of the farming districts of the State was enlisted. This competition was open to all under the age of eighteen years who were resident in Queensland. Competitors had absolute freedom as to the choice of ground and cultivation methods. The department supplied the necessary seed, which was of the same variety in each district. Prizes valued at £5, £2, and £1 were given for each district, with special prizes to the value of £10, £5, and £3, which were to be awarded to the competing growers who should stand first, second, and third in the entire competition. The response was excellent, not less than 296 nominating themselves, amongst whom were 15 girls.

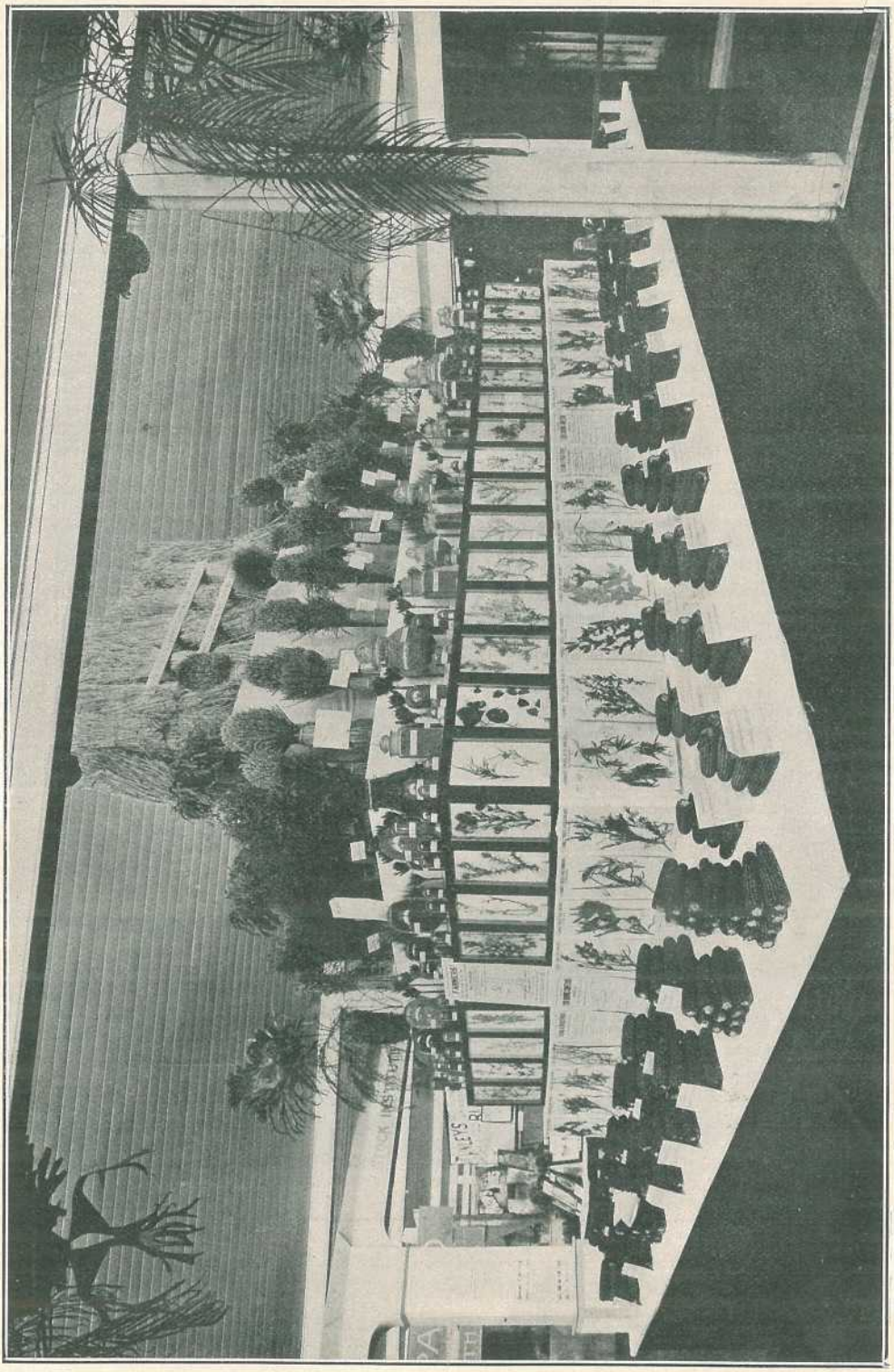
Notwithstanding the bad climatic conditions after the competition grain was planted, some very good yields resulted, as much as 92 bushels per acre having been reached, and other competitors produced from 31 to 69 bushels. In the second year's competition, which was keenly contested, the returns ranged from 39 to 92 bushels per acre. Still higher records are shown as a result of the competition in 1916-1917, several of the juvenile growers raising over 100 bushels up to 107 bushels per acre. Taken as a whole, this year's (1918) competition has been the most satisfactory of any yet held, the yield being exceptionally high (as much as 169 bushels per acre) as will be seen by the following table of results:—

Out of 136 competitors who planted up their plots 67 compiled with the rules and regulations. Taken as a whole, this year's competition has been the most satisfactory of any yet held, as the yields are exceptionally high throughout. A summary of the yields is as follows:—2 plots returned from 30 to 40 bushels per acre; 4, 40 to 50 bushels; 6, 50 to 60 bushels; 14, 60 to 70 bushels; 8, 70 to 80 bushels, 3, 80 to 90 bushels; 10, 90 to 100 bushels; 6, 100 to 110 bushels; 5, 110 to 120 bushels; 5, 120 to 135.9 bushels; 3, 145 to 169.6 bushels. (No yields were recorded between 135.9 and 145 bushels per acre.) The average yield for the competition plots is 83.5 bushels, whilst that of the State is under 25 bushels per acre.

Mr. H. C. Quodling (Director of Agriculture) states that the returns in these competitions for the last four years show a distinct average rise, thus demonstrating the advantage of using high-class seed in order to improve production. The average yield in the competition in 1914-15 was 39.3 bushels per acre; this rose to 51.3 bushels in 1915-16, then to 62.2 bushels in 1916-17, and now to 85.3 bushels in 1917-18.

Prizes were offered for the yield per acre, quality of the grain, and uniformity of ear, and the keeping of records showing field data. Following were the results:—

PLATE 21.—MAIZE EXHIBITS, INCLUDING MANUFACTURES FROM MAIZE.



JUVENILE CORNGROWING COMPETITION, 1917-18.

Out of 136 competitors who planted up their plots, 67 complied with the rules and regulations.

Taken as a whole this competition has been the most satisfactory of any yet held, as the yields are exceptionally high throughout.

A summary of the yields is as follows :—

2 plots returned from 30 to 40 bushels per acre.
4 plots returned from 40 to 50 bushels per acre.
6 plots returned from 50 to 60 bushels per acre.
14 plots returned from 60 to 70 bushels per acre.
8 plots returned from 70 to 80 bushels per acre.
3 plots returned from 80 to 90 bushels per acre.
10 plots returned from 90 to 100 bushels per acre.
6 plots returned from 100 to 110 bushels per acre.
5 plots returned from 110 to 120 bushels per acre.
5 plots returned from 120 to 135·9 bushels per acre.
3 plots returned from 145 to 169·6 bushels per acre.

(No yields were recorded between 135·9 and 145 bushels per acre.)

The average yield for the competition plots is 83·5 bushels, whilst that of the State is under 25 bushels per acre respectively.

RESULTS OF THE COMPETITION.

SPECIAL PRIZES.

Name and Address.	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, 10 Points.	Total Maximum Points, 100.	District Prize.
No 4 District—							
E. V. E. Burton, Booie ..	18	169·6	74·8	8·6	6·0	89·4	1st, £10
No. 5 District—							
G. E. Gon Chee, Killarney ..	16	153·3	67·6	10·1	5·5	83·2	2nd, £5
No. 5 District—							
Hector Gon Chee, Killarney ..	18	145·1	64·0	10·3	5·5	79·8	3rd, £3

DISTRICT PRIZES.

DISTRICT No. 1.

A. G. Marks, Alberton	14½	113·9	50·2	10·6	9·0	69·8	1st, £5
L. S. Rachow, Alberton ..	13½	74·4	32·8	10·2	6·0	49·0	2nd, £2
W. O. Griffiths, Mount Forbes	15¼	63·0	27·1	10·0	6·0	43·1	Divided
R. H. Morrison, Purga, *via* Ipswich	13	68·9	30·3	9·3	3·5	43·1	3rd Prize, £1
E. Prenzler, Kulgun	16¼	51·4	22·6	10·1	7·5	40·2	..
N. Kriedmann, Alberton ..	10½	63·9	28·1	9·8	2·0	39·9	..

DISTRICT No. 2.

A. H. Sims, Gheerulla, Eumundi	11¼	109·6	48·4	11·0	8·0	67·4	1st, £5
Isabella Guldbransen, Samford	18	111·9	49·3	10·3	3·5	63·1	2nd, £2
A. H. Pickering, Gheerulla, Eumundi	14	105·6	46·5	11·0	4·0	61·5	3rd, £1
R. H. Pickering, Oakey Creek, Eumundi	14	98·2	43·3	10·2	5·0	58·5	..
S. A. McGinn, Oakey Creek, Eumundi	16	94·3	41·5	10·6	4·5	56·6	..
W. S. Bray, Lawnton	13¾	78·4	34·5	11·6	3·5	49·6	..
W. Guldbransen, Samford ..	16½	80·1	35·3	9·8	3·5	48·6	..
J. S. Bray, Lawnton	15¼	72·9	32·1	11·5	3·5	47·1	..
August Reck, Coominya ..	14½	74·3	32·7	10·5	3·0	46·2	..
Geo. Thorpe, Mount Pleasant	15	67·2	29·6	9·6	3·0	42·2	..

DISTRICT No. 3.

Geo. Jannusch, Haden ..	17½	123·0	54·2	10·5	5·5	70·2	1st, £5
H. Thies, Pinelands, Crow'sNest	14	120·4	53·1	10·5	6·0	69·6	2nd, £2
H. Morgenstein, Pinelands ..	15	119·5	52·7	11·0	4·5	68·2	3rd, £1
Hermann Jannusch, Haden ..	16½	110·4	48·7	10·6	5·0	64·3	..
L. Smallbone, Pinelands ..	17½	94·5	41·6	10·2	7·0	58·8	..
William Jannusch, Haden ..	13½	100·1	44·1	9·8	4·0	57·9	..
D. H. Bade, Ma Ma Creek ..	14	99·7	43·9	9·7	4·0	57·6	..

RESULTS OF THE COMPETITION—*continued.*

SPECIAL PRIZES—*continued.*

Name and Address.	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, 10 Points.	Total Maximum Points, 100.	District Prize.
		DISTRICT No 3—*continued.*					
E. F. Smallbone, Pinelands, Crow's Nest	13¾	96·3	42·4	10·3	4·5	57·2	..
C. Dow, Ma Ma Creek, Grantham	13	63·5	28·0	10·2	2·0	40·2	..
		DISTRICT No. 4.					
E. V. E. Burton, Booie ..	18	169·6	74·8	8·6	6·0	89·4	1st, £5
W. J. Maynard, Goodger, Kingaroy	15	133·4	58·8	10·2	6·5	75·5	2nd, £2
S. L. Marshall, Wooroolin ..	14¾	111·3	49·1	10·7	7·0	66·8	3rd, £1
Eli W. Hayden, Booie ..	..	99·9	44·0	10·2	6·0	60·2	..
Arthur Gray, Wooroolin ..	14¾	98·2	43·3	9·7	4·5	57·5	..
Helen Franklin, Coolabunia ..	18	90·3	39·8	11·1	3·0	53·9	..
J. F. Wyvill, Yarraman Creek	16¼	84·2	37·1	9·7	6·0	52·8	..
W. G. Wyvill, Yarraman Creek	13	77·2	34·0	10·2	6·0	50·2	..
G. H. Maynard, Goodger, Kingaroy	14	81·3	35·8	10·0	4·0	49·8	..
R. E. Pickles, Coolabunia ..	14	73·6	32·4	10·2	4·0	46·6	..
Theo. Howell, Wondai ..	12¾	52·7	23·2	10·2	4·5	37·9	..
W. H. Simpson, Eden Vale, Kingaroy	13¾	54·2	23·9	9·5	3·0	36·4	..
J. L. Horne, Goomeri	16¼	43·5	19·1	9·6	4·0	32·7	..
		DISTRICT No. 5.					
G. E. Gon Chee, Killarney ..	16	153·3	67·6	10·1	5·5	83·2	1st, £5
Hector Gon Chee, Killarney ..	18	145·1	64·0	10·3	5·5	79·8	2nd, £2
Willie Gon Chee, Killarney ..	13¾	135·9	59·9	10·3	3·0	73·2	3rd, £1
Isabella Wilkie, Killarney ..	13	105·5	46·5	11·1	7·0	64·6	..
T. C. Williams, Plainby ..	15½	112·1	49·6	10·0	3·5	62·9	..
P. C. Arthur, Plainby	14	67·5	29·7	10·1	3·5	43·3	..
A. E. Masters, Goomburra ..	13	61·4	27·0	10·4	4·7	41·4	..
R. Harland, Plainby	9	66·9	29·5	9·8	2·0	41·3	..
J. J. Gallagher, Clifton ..	11¾	64·7	28·5	9·7	2·0	40·2	..
E. Ardron, Goomburra ..	14¼	57·8	25·5	10·2	2·0	37·7	..
		DISTRICT No. 6.					
F. H. Lieberam, Gurgeena ..	17	104·4	46·0	11·3	4·5	61·8	1st, £5
E. E. Lieberam, Gurgeena ..	15½	98·1	43·2	11·0	4·5	58·7	2nd, £2
J. D. Sandow, Binjour Plateau	15½	69·1	30·4	9·8	2·5	42·7	3rd, £1
Fritz Eggerling, Mundowran ..	16	65·9	29·0	9·8	2·0	40·8	..
Chas. Eggerling, Mundowran	12¾	65·9	29·0	9·7	2·0	40·7	..
Richard Eggerling, Mundowran	11½	64·9	28·6	9·8	2·0	40·4	..
A. Bjorndahl, Reid's Creek, Gayndah	14	40·0	17·6	10·1	2·0	29·7	..
		DISTRICT No. 7.					
E. C. Hartland, Rosalie Plains	12¾	75·5	33·3	10·6	4·0	47·9	1st, £5
M. M. Steger, Evergreen, *via* Oakey	14½	70·7	31·1	10·0	2·5	43·6	2nd, £2
A. J. Beitz, Roma	13	59·4	26·2	9·8	4·5	40·5	3rd, £1
W. York, Wallumbilla	14½	41·1	18·1	10·0	5·5	33·6	..
G. E. Regan, Roma	16¾	33·2	14·6	9·4	4·5	28·5	..
P. Kieseker, Roma	16½	35·6	15·7	9·6	2·0	27·3	..
		DISTRICT No. 8.					
Mary Wilson, Yeppoon ..	16½	63·8	28·1	11·1	4·0	43·2	1st, £5
W. B. Philp, Mount Larcom ..	17	48·6	21·4	9·6	4·0	35·0	..
		DISTRICT No. 9.					
H. C. Downs, Tarzali	12	129·7	57·2	9·6	4·0	70·8	1st, £5
K. E. Downs, Tarzali	13½	100·8	44·4	9·6	3·5	57·5	2nd, £2
I. G. Downs, Tarzali	10½	97·5	43·0	9·5	3·5	56·0	..
H. C. Mazlin, Atherton ..	7¼	55·7	24·5	10·4	3·0	37·9	..

The steady progress shown in the above results of the corngrowing competition affords ample evidence of their great value. Similar competitions have had a stimulating effect in the largest maize-producing country in the world—viz., the United States of America—and it is almost certain that they will have a similar beneficial result in Queensland. A writer in the Brisbane "Daily Mail" alluding to the Juvenile Corngrowing Competition, says:—

"In maizegrowing, on account of it being so easily cross-fertilised, special attention must be given to the care of seed. The truth of this is shown by the experience in this State under the old system of experiments carried out by the school teachers, who often tested different varieties in a small plot, and consequently the seed became mixed. This result could only be expected. Much more valuable have been the boys' maize competitions, which have been so successful in Queensland and which should be encouraged in every way possible. Not only have splendid yields been obtained, in some cases phenomenal—as much as 135 bushels per acre being obtained, as compared with the average of the State of between 21 and 22 bushels—but the competitions have aroused keen interest amongst the older folks, and thus led to improved methods on the farms. Those who desire to encourage better methods of farming in as far as maizegrowing is concerned in this State could not find a better means of doing so than by assisting these competitions. The success that has accompanied the Boys' Corn Clubs in the United States is famous, and the same lines should be followed here. Not only is the younger generation more plastic material to work than the older, already settled in the ways of a lifetime, but the education of the latter, bringing with it practical and inescapable results, have their effect upon all but the most hidebound of fathers, and gradually the methods learnt and proven by the boy's experience are adopted on his father's farm. The more young Queenslanders we have taking part in these maizegrowing competitions, the higher will be the average yield of this crop in this State in ten years' time."

DISTRICT EXHIBITS.

A AND B GRADES.

The district exhibits in many items showed remarkable improvement over those of previous years. As Mr. John Reid, chief steward of the section, said at the distribution of the prizes, these exhibits were doing good work by increasing the number of men on the land, and also had the effect of drawing attention to Queensland land. They afforded educational advantages for the thousands of people who visited the Show. Special reference was made by Mr. Cadell to the Darling Downs exhibit, but all were the finest he had seen.

Before distributing the prizes, the chairman (Mr. John Macdonald) said that, according to schedule, if there were fewer than four competitors, the prize money totalled £250. The association, however, was satisfied, and would distribute £300 amongst the A Grade exhibitors. The prize money had been worked out on points, and had been allotted as follows:—A Grade: Darling Downs, £111 3s. 10d.; Wide Bay and Burnett, £99 8s. 7d.; Central Queensland, £89 7s. 7d.; total, £300. B Grade: Crow's Nest, £69 10s. 2d.; Gympie, £63 8s. 6d.; Wallumbilla, £61 11s. 10d.; Kingaroy, £54 14s. 7d; Northern Downs, £50 14s. 11d.; total, £300. The Chairman then handed to the representatives cheques for the amounts stated, and also handed to the district fruit exhibit representatives cheques as follows:—Landsborough and Caboolture, £37 18s.; Palmwoods, £37 2s. To Mr. Nystrom he handed a cheque for £50.

Mr. R. S. Archer (president of the Rockhampton Agricultural Society) proposed the toast of the winners, and said it was no disgrace to Wide Bay and Burnett and Central Queensland to be beaten by the Darling Downs.

This year, the Northern Rivers (N.S.W.) were not represented, and it was suggested that an interstate competition be organised by the Royal Agricultural Society, Sydney, and the National Association, Brisbane, in conjunction. This would attract people from all over the Commonwealth.

ONE-FARM EXHIBIT.

Last year there were three competitors, Mr. O. C. Williams, of Crow's Nest, Mr. J. A. Nystrom, of Booie, Kingaroy, and Mr. Allan, of Gympie. In that year, as in the previous year, Mr. Williams was successful. On this occasion Mr. Nystrom was the only exhibitor. Judging by the variety and excellence of his display, he thoroughly understands how to make the most of the capabilities of his land, and any other competitors would have had a hard tussle to wrest the prize from him. The prize was very deservedly awarded to him.

In the course of an interview with the Press representatives, Mr. J. Bain, Secretary of the National Association, said that he regarded the whole Show as

having been an unqualified success, and his feelings of gratification were shared by the members of the Association's Council. To this we may add that Mr. Bain's share in the achieved success, has, as shown by previous exhibitions during his tenure of office, very largely contributed, owing to his tireless energy, forethought, and courtesy to exhibitors and to the public. He further said, speaking of the district and one-farm exhibits:—

"Only those intimately connected with the promotion of district and one-man-farm exhibits have the faintest conception of the colossal work which these exhibits entail upon a few individuals. Were this known, even to a minor degree, they would necessarily feel compelled to admire the splendid workers who have staged the displays which we have on view to-day. We are more than pleased to again welcome Central Queensland after an absence of several years, and trust that this visit will only be a forerunner of another one, where the experience gained at this Show will be of such a nature that they will be enabled to carry off the blue. Strong efforts will be made next year to go even further afield. We hope to receive an exhibit from the Atherton Tableland and Cairns districts. The promotion of these exhibits has already started, and the assurance has been given that Bowen will be represented next year."

BUTTER AWARDS.

EXPORT CLASSES.

The competition in the thirty-days' class was very keen amongst the twenty-seven competitors, amongst whom were several interstate factories. The first prize was awarded to the North Coast Co-operative Dairy Co., Ltd., Murwillumbah, which obtained 94 points out of the possible 100. The Downs Co-operative Dairy Co., Ltd., Toowoomba, was a close second with 93½ points, while another New South Wales concern, Dungog Co-operative Butter Factory, Ltd., was third with 93 points. The other factories' points ranged from 91½ down to 84. In the six weeks' storage class, Dungog, New South Wales, Co-operative Butter Factory was first with 95 points. the Downs Co-operative Dairy Co., Ltd., Toowoomba, second with 94, and Wide Bay Co-operative Dairy Co., Ltd., Gympie factory, third, with 93½ points. There were twenty-six entries in this class—the North Coast Co-operative Dairy Co., Ltd., was not a competitor. The other factories' points ranged from 92½ down to 86. In the eight-weeks' storage class, Dungog Co-operative Butter Factory, Ltd., New South Wales, was again first with 95 points, and the Downs Co-operative Dairy Co., Ltd., Toowoomba, was for the third time placed second with 94 points. The Maleny Co-operative Dairy Co., Ltd., with 93½ points was third, and the Queensland Farmers' Co-operative Co., Ltd., Laidley factory, fourth with 92½.

ONE BOX, THIRTY DAYS' STORAGE.

	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
North Coast Co-operative Dairy Co., Ltd., Murwillumbah	60	19½	6½	4	4	94
The Downs Co-operative Dairy Co., Ltd., Toowoomba	59½	19½	6½	4	4	93½
Dungog Co-operative Butter Factory, Ltd., Dungog, N.S.W.	58	20	7	4	4	93
Queensland Farmers' Co-operative Co., Ltd., Grantham	57½	19½	6½	4	4	91½
Queensland Farmers' Co-operative Co., Ltd., Booval	57	19½	6½	4	4	91
The Downs Co-operative Dairy Co., Ltd., Dalby	57½	18½	7	4	4	91
The Wide Bay Co-operative Dairy Co., Ltd., Gympie	57	19½	7	4	3½	91
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	57	19	6½	4	4	90½
Queensland Farmers' Co-operative Co., Ltd., Boonah	57	19	6½	4	4	90½
North Coast Co-operative Dairy Co., Ltd., Tweed Heads	56½	19½	6½	4	4	90½

ONE BOX, THIRTY DAYS' STORAGE—*continued.*

	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible Points	65	20	7	4	4	100
Queensland Farmers' Co-operative Co., Ltd., Laidley	56	19	7	4	4	90
North Coast Co-operative Dairy Co., Ltd., Uki, N.S.W.	56	19½	6½	4	4	90
Caboolture Co-operative Dairy Co., Ltd.	56	19	7	4	3½	89½
Gayndah Co-operative Dairy Co., Ltd. ..	56	19	6½	4	4	89½
Maleny Co-operative Dairy Co., Ltd. ..	56	19	6½	4	4	89½
The Warwick Butter and Dairy Co., Ltd., Allora	56	19	7	4	3½	89½
Singleton, N.S.W., Central Co-operative Dairy Co., Ltd.	56	18	6½	4	4	88½
Maclagan Co-operative Dairy Co.	54	19	7	4	4	88
The Warwick Butter and Dairy Co., Ltd., Texas	55½	19	6½	3	4	88
The Logan and Albert Co-operative, Beaudesert	55	18½	6½	4	3½	87½
Goombungee Co-operative Dairy Co., Ltd.,	55	18	6	4	4	87
Killarney Dairy Co., Ltd.	55	18	6	4	3½	86½
Kin Kin Co-operative Dairy Co., Ltd. ..	54	19	6	4	3½	86½
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	54	19	6½	4	3½	86
Maryborough Co-operative Dairy Co., Ltd., Biggenden	53	19	6	4	3½	85½
Oakey District Co-operative Butter Co.,	53	18	6	4	3½	84½
Terror's Creek and Samson Vale Dairy Co., Ltd., Dayboro	53	18	6	3½	3½	84

ONE BOX, SIX WEEKS' STORAGE.

Dungog (N.S.W.) Co-operative Butter Factory, Ltd.	60	20	7	4	4	95
The Downs Co-operative Dairy Co., Ltd., Toowoomba	59½	19½	7	4	4	94
The Wide Bay Co-operative Dairy Co., Ltd., Gympie	59	20	7	4	3½	93½
The Downs Co-operative Dairy Co., Ltd., Clifton	58	19½	7	4	4	92½
The Warwick Butter and Dairying Co., Ltd., Allora	57½	20	7	4	4	92½
Maclagan Co-operative Dairy Co. ..	58	19½	7	4	3½	92
Singleton Central Co-operative Dairy Co., Ltd.	58	18½	6½	4	4	91
The Warwick Butter and Dairying Co., Ltd., Warwick	57	19½	6½	4	4	91
Gayndah Co-operative Dairy Co., Ltd. ..	57	19	6½	4	4	90½
Queensland Farmers' Co-operative Ltd., Laidley	57	18½	6½	4	4	90
Maleny Co-operative Dairy Co., Ltd. ..	56	19	7	4	4	90
The Downs Co-operative Dairy Co., Ltd., Dalby	57	19	6½	3½	4	90
Queensland Farmers' Co-operative, Ltd., Boonah	55	19½	6½	4	4	89
Kin Kin Co-operative Dairy Co., Ltd. ..	56	18½	6½	4	4	89
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	55	19	6½	4	4	88½
The Warwick Butter and Dairying Co., Ltd., Texas	54	19½	7	4	4	88½
The Queensland Farmers' Co-operative Dairy Co., Ltd., Booval	55	19	6	4	4	88
Killarney Dairy Co., Ltd.	54	19	6½	4	4	87½

ONE BOX, SIX WEEKS' STORAGE—*continued.*

	Flvaour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible points	65	20	7	4	4	100
Queensland Farmers' Co-operative, Ltd., Grantham	54	19	6½	4	4	87½
Caboolture Co-operative Dairy Co., Ltd.	53	19½	6½	4	4	87
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	55	18	6	4	3½	86½
The Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	53½	19	6	4	4	86½
Terror's Creek and Samson Vale Dairy Co., Ltd., Dayboro'	55	18	6	4	3½	86½
Maryborough Co-operative Dairy Co., Ltd., Biggenden	53	18½	6½	4	4	86
Goombungee Co-operative Dairy Co., Ltd.	54	18	6½	4	3½	86
Oakey District Co-operative District Butter Co., Ltd.	53	18	6½	4	4	85½

ONE BOX, EIGHT WEEKS' STORAGE.

Dungog, N.S.W., Co-operative Butter Factory, Ltd.	60	20	7	4	4	95
The Downs Co-operative Dairy Co., Ltd., Toowoomba	59½	19½	7	4	4	94
Maleny Co-operative Dairy Co., Ltd. ..	59	19½	7	4	4	93½
Queensland Farmers' Co-operative Co., Ltd., Laidley	58	19½	7	4	4	92½
Maclagan Co-operative Dairy Co., Ltd.,	57½	19½	7	4	4	92
Singleton, N.S.W., Central Co-operative Dairy Co., Ltd..	57½	19½	6½	4	4	91½
Gayndah Co-operative Dairy Co., Ltd.	57	19½	7	4	4	91½
Downs Co-operative Dairy Co., Ltd., Clifton	57	20	7	4	3½	91½
The Warwick Butter and Dairying Co., Ltd., Texas	57	20	7	4	3½	91½
Queensland Farmers' Co-operative, Ltd., Booval	57	19	7	4	4	91
Queensland Farmers' Co-operative, Ltd., Boonah	57	19	7	4	4	91
Maryborough Co-operative Dairy Co., Ltd., Kingaroy	56½	19	7	4	4	90½
Downs Co-operative Dairy Co., Ltd., Dalby	56½	19	7	4	4	90½
Goombungee Co-operative Dairy Co., Ltd.	56	19	7	4	4	90
Wide Bay Co-operative Dairy Co., Ltd., Gympie	56½	19½	6½	4	3	89½
Queensland Farmers' Co-operative Co., Ltd., Grantham	55	19	6½	4	4	88½
Caboolture Co-operative Dairy Co., Ltd.	54	19½	7	4	4	88½
Stanley River Co-operative Butter Co., Ltd., Woodford	56	18½	6	4	4	88½
The Warwick Butter and Dairying Co., Ltd., Allora	54	19	7	4	4	88
Oakey District Co-operative Butter Co., Ltd.	54	18½	6½	4	4	87
The Logan and Albert Co-operative Dairy Co., Ltd., Beaudesert	53	19	6½	4	4	86½
Kin Kin Co-operative Dairy Co., Ltd. ..	55	18½	6	4	3	86½
Maryborough Co-operative Dairy Co., Ltd., Mundubbera	54	18	6	4	4	86
Terror's Creek and Samson Vale Dairy Co., Ltd., Dayboro	54	18	6	4	4	86
Warwick Butter and Dairy Co., Ltd., Warwick	53	18½	6	4	4	85½

ONE BOX FRESH FACTORY MADE, FOR LOCAL CONSUMPTION.

	Flavour.	Texture.	Colour.	Salting.	Packing.	Total.
Possible Points	65	20	7	4	4	100
Queensland Farmers' Co-operative, Boonah	60	19½	7	4	4	94½
Logan and Albert, Beaudesert	60	19	7	4	4	94
Queensland Farmers' Co-operative, Booval	58½	19½	7	4	4	93
Wide Bay Co-operative, Gympie	59	19½	7	4	3½	93
North Coast Co-operative, Tweed Heads ..	58	20	7	3½	4	92½
Queensland Farmers' Co-operative, Grantham	58	19	7	4	4	92
Maryborough Co-operative, Kingaroy ..	58	19½	6½	4	4	92
North Coast Co-operative, Uki	58	19½	6½	4	4	92
Caboolture Co-operative Co.	58½	19	7	4	3½	92
Dungog (N.S.W.) Co-operative	57	19½	7	4	4	91½
Goombungee Co-operative	57	19½	7	4	4	91½
Maclagan Co-operative	58½	19	6½	4	3½	91½
North Coast Co-operative, Murwillumbah	57½	19½	6	4	4	91
Queensland Farmers' Co-operative, Laidley	57	18½	7	4	4	90½
Downs Co-operative, Toowoomba ..	55	20	7	4	4	90
Warwick Co-operative, Warwick	56½	19½	6½	3½	4	90
Warwick Co-operative, Allora	56½	19½	6½	3½	4	90
Singleton Central Co-operative	56	19	6½	3½	4	89
Gayndah Co-operative	55	19	6½	4	4	88½
Maleny Co-operative	55	19	6½	4	4	88½
Oakey District Co-operative	54	19	6½	4	4	87½
Kin Kin Co-operative	54	19	6½	4	3½	87
Maryborough Co-operative, Mundubbera ..	55	18	6	3½	3½	86

Special prize (trophy, value £10 10s.), presented by Messrs. Henry Berry and Co. Proprietary, Limited, for one box salt butter, 56 lb., salted with Australian salt.

Queensland Farmers' Co-operative, Boonah	60	19½	7	4	4	94½
Logan and Albert, Beaudesert	60	19	7	4	4	94
Warwick Co., Texas	59	19	7	4	4	93
Queensland Farmers' Co-operative, Booval	58½	19	7	4	4	92½
Queensland Farmers' Co-operative, Grantham	58½	19	7	4	4	92½
Wide Bay Co-operative, Gympie	58	19	7	4	4	92
Goombungee Co-operative	57	19½	7	4	4	91½
Maclagan Co-operative	57½	19½	7	4	3½	91½
Queensland Farmers' Co-operative, Laidley	57	19½	6½	4	4	91
Downs Co-operative, Dalby	57	19	7	4	4	91
Warwick Co., Warwick	56	20	7	4	4	91
Downs Co-operative, Toowoomba ..	55	20	7	4	4	90
Warwick Co., Allora	55	20	7	4	4	90
North Coast Co-operative, Uki	56	19½	6½	4	4	90
North Coast Co-operative, Tweed Heads ..	55	20	7	4	4	90
Dungog (N.S.W.) Co-operative	55	19½	6½	4	4	89
North Coast Co-operative, Murwillumbah	55	19½	6½	4	4	89
Maleny Co-operative	54	19½	7	4	4	88½
Gayndah Dairy Co.	54	19	6	4	4	87
Kin Kin Co-operative	54	19	6½	4	3½	87
Singleton Co-operative	55	18½	6	3	4	86½

Special Prize (£5 5s.) presented by the Farmers' Co-operative Distributing Co. of Queensland, for the factory securing the greatest aggregate number of points in all classes, and special prizes for butter.

	Total.
Dungog (N.S.W.) Co-operative	463½
Downs Co-operative, Toowoomba	461½

CHEESE.

There was an exceptionally heavy exhibit in this section, which was divided into six classes, besides a trophy competition. The judge, Mr. M. Wallace, had thus an arduous task to perform. Our space will not admit of the publication of the details of the award, but the results as to prize-winners were as follow:—

Greenmount Dairy Co., Ltd., A factory and B factory, were placed first and second in the two export cheese, white, 70-80 lb. with 95 and 94½ points respectively out of a possible 100. For the two export cheese, 70-80 lb., coloured, the Pittsworth Dairy Co.'s Springside factory with 94½ points was first, and Maclagan Valley Co. Dairy Co.'s Kaimkillenbun factory second with 93½ points. For the two medium cheeses, not exceeding 40 lb. over 2 and under 3 months old, there was a close decision, the Southbrook Co-operative Dairy Co. being placed first with 94½ points, Maclagan Valley Co-operative Dairy Co., Kaimkillenbun, second with 94 points, and the Warwick Butter and Dairying Co.'s, Ltd., Victoria Hill factory, and the Pittsworth Dairy Co.'s Springside factory equal, third, with 93½ points, with Tummaville Co-operative Co., Ltd., 90 points, close fourth. In two medium cheeses not exceeding 40 lb., over six weeks and under two months' old, Irongate Co-operative Dairy Co., Ltd., was first with 94½ points, Ramsay Dairy Co., Ltd. (*viâ* Cambooya), second, with 94, and Goombungee Dairy Co., Ltd., third, with 93½ points. It will thus be seen that right through the four classes the winning competitors not only obtained high points, testifying to the excellence of the cheese, but there was in all remarkably close competition. Details are as follows:—

ADDITIONAL AWARDS.

The judging of the remaining classes of the cheese section was concluded by Mr. M. Wallace. In the class for two loaf cheeses not exceeding 12 lb., over two months and under three, the first prize was awarded to Southbrook Co-operative Dairy Co., Ltd., with 95 points out of a possible 100. The judge noted in his book that the winning exhibit was the best cheese he had seen. The second and third places were gained respectively by the Ramsay Dairy Co., Ltd., with 94 points, and Pittsworth Dairy Co.'s Yarranlea factory, with 93½ points. Some of the other factories were very close up. In the class for two loaf cheeses not exceeding six weeks and under two months' old, Tummaville Co-operative Dairy Co., Ltd., was first with 93½ points, and Goombungee Co-operative Dairy Co., Ltd., second with 93 points. For the trophy of cheese there were five entries, and the judge gave the blue ribbon to the Rosalie Cheese Factory, Glencoe, with 98 points. Greenmount Co-operative Dairy Co.'s butter factory was second with 95 points, and Southbrook Co-operative Dairy Co., Ltd., third, with 94 points.

Two Export Cheeses, 70-80 lb., to be not more than three weeks' old prior to storing, white suitable for English market. Exhibits to be placed in cold stores six weeks prior to 12th August. First prize, £5 5s., presented by Mr. C. E. McDougall, Lyndhurst, Warwick.

Two loaf cheeses not exceeding 12 lb., age over two months and under three months.

——	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Southbrook Co-operative	47	24½	14½	9	95
Ramsay Co.	46	24½	14	9½	94
Pittsworth Co., Yarranlea	45½	24½	14	9½	93½
Pittsworth Co., Pittsworth	45	23½	14	9½	92
Pittsworth Co., Springsure	44	23	14	9	90
Pittsworth Co., Scrubby	45	23½	14	9	91½
Dungog Co-operative	44	23½	13½	9	90
Irongate Co-operative	46	24	14	9	93
Mount Tyson Farmers'	43	23½	13½	9	89
Goombungee Co-operative	43	23½	14	9	89½
Southbrook Co-operative	45	23½	13½	9	91
Queensland Farmers' Co-operative, Rosevale ..	38	22	12½	8½	81
Greenmount A	45	22½	13½	8½	89½
Greenmount B	45	22½	13½	8½	89½
Gayndah Co-operative, Byrnestown	44	23	12	8	88
Rosalie Cheese Factory	44	22½	12½	9½	88½

Two loaf cheeses not exceeding 12 lb., age over two months and under three months—*continued.*

	Flavour.	Texture.	Colour.	Finish.	Total.
Possible points	50	25	15	10	100
Rosalie Cheese Factory	44	23½	13½	9½	90½
Warwick Co., Bony Mt.	44	23½	13½	8½	89½
Warwick Co., Victoria Hill	43	23	13½	9	88½
Warwick Co., Elbow Valley	45	24	13½	8½	91
Warwick Co., Talgai	43	23	13½	9	88½
Lauriston Co-operative	44	23½	14	9½	91
Biddeston Co-operative	42	23½	14	9	88½
Biddeston Co-operative	45	23½	13½	9	91
Downs Co-operative, Hodgson's Vale	44	23	13	9	89
Downs Co-operative, Koondai	44	23½	13½	8½	89½
Downs Co-operative, Westbrook	43	23	13	9	88
Maclagan Valley	45	23½	13½	8½	90½
Rock Creek	44	22⅓	13	9	88½
Tummaville Co-operative	45½	24	13½	9½	92½
Irongate Co-operative	46	23½	13⅓	9	92
Rosalie Factory, Jondaryan	45½	23½	13½	9½	92
Sugarloaf Co-operative	46	24	14	9	93
Two loaf cheeses, not exceeding 12 lb., over six weeks and under two months old.					
Tummaville Co-operative	46	24	14	9½	93½
Goombungee Co-operative	46	24	14	9	93
Pittsworth Co.	44	23	13½	8½	89
Pittsworth Co., Yarranlea	42	22	13½	8½	86
Pittsworth Co., Springside	44	23½	14	9	90½
Pittsworth Co., Scrubby	45	23½	13½	9	91
Pittsworth Co., Linthorpe	41	23	13½	9	86½
Dungog Co-operative	44	23	13½	9	89½
Irongate Co-operative	45	23	14	9	91
Mount Tyson Farmers'	44	23½	13½	9	90
Ramsay Co.	45½	23½	13½	9	91½
Standard Co., Wellcamp	41	22	12½	8½	84
Southbrook Co-operative	44	23	12½	9	88½
Queensland Farmers' Co-operative, Rosevale ..	38	21	13½	8½	80
Greenmount A Factory	44	23	13	8½	88½
Greenmount B Factory	45	23	13½	9	90½
Greenmount No. 1 Factory	44	23½	13½	9	90
Gayndah Co-operative, Glen Eden	43	23½	13½	8½	88½
Gayndah Co-operative, Byrnestown	45	23½	12½	8½	89½
Rosalie Factory, Glencoe	44	23½	13½	9½	90½
Rosalie Factory, Glencoe	44	23½	13	9½	90
Warwick Co., Bony Mt.	44	23½	13	8½	89
Warwick Co., Victoria Hill	44	23½	13½	8½	89½
Warwick Co., Elbow Valley	45	23½	13½	8½	90½
Warwick Co., Talgai	44½	23½	13½	9	90½
Lauriston Co-operative	45	23½	13½	9	91
Bideston Co-operative	44	23½	13½	9	90
Standard Co., Wellcamp	40	21	12	9	82
Downs Co-operative, Hodgson's Vale	45½	23½	13½	9½	92
Downs Co-operative, Koondai	42	23½	13	8½	87
Downs Co-operative, Westbrook	43	23	13	8½	87½
Maclagan Co-operative, Kaimkillenbun	45	23½	14	9	91½
Maclagan Valley Co-operative	43	23	14	8½	88½
Rocky Creek Co.	43	23½	13½	9	89
Rosalie Factory, Jondaryan	43	23½	13½	9	89
Sugarloaf Co-operative	45	24	13½	9½	92

TROPHY OF CHEESE.

Rosalie Cheese Factory, Glencoe	98
Greenmount Co-operative Dairy Co., Ltd., B Factory	95
Southbrook Dairy Co., Ltd., Southbrook	94

MILKING TESTS.

THE RESULTS.

Judges—Messrs. R. W. Winks and L. Anderson.

COW, 4 YEARS OLD AND OVER, AVERAGING THE GREATEST DAILY YIELD OF BUTTER FAT FOR 48 HOURS.

——	Weight of Milk.	C. Butter.	No. of Points for Butter, 24 hours.	Lactation Points.	Total Points.
1. Henry Benbow's Joyce	122·8	5·903	48·5	..	48·5
2. D. Dunn's Blossom III of Valley View	82·15	4·95	39·6	7·1	46·7
3. M. Laurence's Charmer II of City View	89·11	4·337	34·7	..	43·9
B. O'Connor's Shamrock of Hillview..	125·5	4·159	33·25	..	33·25
B. O'Connor's Charm of Glenthorn ..	139·6	5·061	40·5	..	40·5
F. L. Nott's Tot of Booran	89·5	3·280	26·25	1·5	27·75
Nestle and A.S.C.M. Co.'s Maggie II, of Numba	101·2	4·313	34·5	..	34·5
Paul Moore's Lovely of Sunnyside ..	108·1	4·643	37·15	..	37·15
W. F. Hamel's Ginger	81	3·17	25·35	8·1	33·45
Marquardt Bros.' Champion	71·9	3·362	26·9	10	36·9
P. Biddle's Handsome of Home Park ..	70·8	3·001	24	..	24

COW, 4 YEARS AND OVER, AVERAGING GREATEST DAILY YIELD OF BUTTER FAT FOR 48 HOURS.

1. Henry Benbow's Joyce	122·8	5·903	..	..	..
2. B. O'Connor's Charm of Glenthorn	139·6	5·001	..	..	..
3. D. Dunn's Blossom III of Valley View	82·15	4·95	..	..	..
Marquardt Bros.' Champion	71·9	3·362	..	..	..
F. L. Nott's Tot of Booran	89·5	3·28	..	..	..
M. Laurence's Charmer II of City View	89·11	4·337	..	..	..
Nestle and A.S.C.M. Co.'s Maggie II of Numba	101·2	4·313	..	..	..
D. Dunn's Jemima II of Valley View	94·13	3·284	..	..	..
Paul Moore's Lovely of Sunnyside ..	108·1	4·643	..	..	..
W. F. Hamel's Ginger	81	3·17	..	..	..
C. Bloss's May	62·15	3·949	..	..	..
B. O'Connor's Shamrock of Hillview..	125·5	4·159	..	..	..
Biddle's Handsome of Home Park ..	70·8	3·001	..	..	..

COW OR HEIFER, UNDER 4 YEARS, AVERAGING THE GREATEST DAILY YIELD OF BUTTER FOR 48 HOURS.

1. E. Burton's Oxford Golden Girl ..	77·1	3·557	..	..	..
2. W. T. Savage's Ruby of White Park	96·12	3·472	..	..	..
3. W. Middleton's Cherry of Devon Court	60	2·83	..	..	..
B. O'Connor's Narrell of Oakvale ..	70·1	2·693	..	..	..
B. O'Connor's Mona of Oakvale ..	49·10	2·175	..	..	..
W. F. Hamel's Fancy	55·8	2·75	..	..	..

COW OR HEIFER, UNDER 4 YEARS, AVERAGING THE GREATEST DAILY YIELD OF BUTTER FAT FOR 48 HOURS.

1. E. Burton's Oxford Golden Girl ..	77·1	3·557	28·45	3·9	32·35
2. B. O'Connor's Mona of Oakvale ..	49·10	2·175	17·4	10	28·4
3. W. T. Savage's Ruby of White Park	96·12	3·472	27·75	..	27·75
W. Middleton's Cherry of Devon Court	60	2·83	22·65	..	22·65
R. O'Connor's Narrell of Oakvale ..	70·1	2·693	21·5	4·8	26·3
W. F. Hamel's Fancy	55·8	2·715	21·7	4·8	26·5

COWYIELDING THE LARGEST SUPPLY OF MILK IN 48 HOURS.

——	Weight of Milk.	C. Butter.	No. of Points for Butter, 24 hours.	Lactation Points.	Total Points.
1. B. O'Connor's Charm of Glenthorne	36·12	32·1	38·11	31·14	139·6
2. Henry Benbow's Joyce	32·12	28·4	31·8	30	122·8
3. Paul Moore's Lovely of Sunnyside..	28·1	26·8	28·6	25·2	108·1
*B. O'Connor's Shamrock of Hillview	34·4	29·13	31·8	29·12	125·5
Nestle and A.S.C.M. Co.'s Maggie II. of Numba	28·8	24·13	25·3	22·10	101·2
D. Dunn's Jemima II of Valley View..	29·8	22·6	22·1	20·14	94·13
D. Dunn's Blossom III of Valley View	27·8	19	18·11	17·12	82·15
W. F. Hamel's Ginger	21·4	19	20·2	20	81

*Judge's note stated butter fat contents of milk below that prescribed in schedule.

National champion butter fat test (Brisbane Newspaper Company's, Ltd., trophy), for cow (any breeding) averaging the greatest yield of butter for 48 hours :—

Henry Benbow's Joyce. Weight of milk, 122·8 ; commercial butter, 5·903.

BACON, HAMS, AND LARD.

In both these classes there was good competition, and the exhibits were shown to great advantage. They were judged by Mr. G. S. Stening, Sydney, who pronounced them to be generally excellent in quality. Details of the result were as follows:—

HAMS.

——	Flavour.	Texture.	Fat and Lean.	B'chering.	Smoking.	Colour.	Total.
Possible points	45	10	10	10	10	15	100
HAMS, 6, factory cured—							
J. C. Hutton, Brisbane	41½	9½	9½	9½	9½	14	93½
J. C. Hutton, Brisbane	42	9½	9	9½	9½	13½	93
Q'land Co-operative, Murarrie ..	40½	9½	9	9½	9½	14½	92½
Q'land Co-operative, Murarrie ..	40½	9½	9	9½	9½	14½	92½
Q'land Co-operative, Murarrie ..	40½	9	9½	9½	9½	14½	92½
J. C. Hutton, Melbourne ..	42	9½	9	9	9	13½	92
D. Downs, Willowburn	39	9	9	9½	9	14	90
D. Downs	38	9	8½	9½	9	14	88

BACON.

Possible points	45	10	10	10	10	15	100
BACON, 6 sides, factory cured—							
Q'land Co-operative, Murarrie ..	41½	9½	9½	9½	9½	14½	94
Q'land Co-operative, Murarrie ..	42	9½	9	9½	9	14	93
J. C. Hutton, Brisbane	42½	9	9	9	9	14	82½
Queensland Co-operative ..	41½	9½	8½	9½	9½	14	92½
J. C. Hutton, Brisbane	42½	9	8½	9	9	14	92
J. C. Hutton, Melbourne ..	41½	9½	8½	8½	9	14	91
D. Downs, Willowburn	38½	8½	8½	9½	9½	14	88½
D. Downs, Willowburn	38½	8½	8½	9	9	14	87½

LARD.

LARD IN BLADDERS, 14 LB.

	Flavour.	Texture.	Colour.	Appearance.	Total.
Possible points	40	25	25	10	100
J. C. Hutton, Brisbane	37	25	25	9	96
Queensland Co-operative, Murarrie	36	24½	23½	9½	93½
Queensland Co-operative	36	24	23	9½	92½
Queensland Co-operative	35	24½	24	9	92½

SAUSAGE, SMOKED, 14 LB.

J. C. Hutton, Brisbane 1
Queensland Co-operative, Murarrie 2

SWINE AWARDS.

The cult of the pig is not the least important part of the dairy and general farmer's business. The most favoured animals of this class are, the Improved Berkshire, the Large Black, the Middle Yorkshire, the Essex, and the Tamworth. At one time, such breeds as the Prince Consorts, China-Poland, and other small blacks and whites were favoured, but of late years these latter have not been much in evidence, and have been conspicuous by their absence from urban and country shows. At this year's Show at Bowen Park, however, there were shown by an exhibitor from New South Wales three China-Poland sows of American origin. Of all breeds there were 141 entries. Details of the awards were as follows:—

For boars, Macfarlane Brothers secured champion, and Mr. W. J. Warburton's Northgate Queen was champion for sows. The same owner's Northgate Duchess was the champion of the Yorkshire breed, and Mr. D. W. Evans "scooped the pool" for Tamworths with his Knowles Queen.

The judge, Mr. H. M. Warburton, of Mittagong, New South Wales, said that the swine, generally speaking, were of excellent quality, and the numbers were considerably greater than in previous years. There was an all-round improvement on last year's exhibits, this being due, no doubt, to the increasing interest in this line. The Berkshires and Yorkshires were well to the fore, and there were some good specimens of the Tamworth breed, also Poland-China. It had been a very great pleasure to have before him such high-class animals.

DAIRY CATTLE.

Amongst the exhibitors of Ayrshires the first prize and the championship in the cow class was awarded to Jeannette III., the property of Mr. John Anderson, whilst Mr. J. H. Fairfax obtained second honours.

The Jerseys made a splendid display. An imported Jersey bull from Grasmere Jersey Stud, Merry Mike, took first honours in the aged class, and champion in his division. Larkspur, an imported cow exhibited by Messrs. W. and D. Carr, won first and championship.

In Holsteins (senior class for cow in milk) the first prize went to Mr. G. Neuman, of Wyreema, for his splendid cow Holly I. of St. Albans. In the senior bulls class Nestles's Farms took the first prize and the championship with Duke of Amsterdam.

In Guernseys the principal winner was Mr. G. H. Crowther.

The champion bull of the Illawarra breed was Diamond Boy of Blackland, owned by Mr. R. T. Ward. A typical milker, Charm of Glenthorne, carried off the championship for her owner, Mr. B. O'Connor.

The Herefords, in the opinion of good judges, could hardly be excelled in any part of the world. The prize for champion cow was carried off by Mr. James Sparkes, also Tindal, champion bull. The reserve champion in bulls went to Mrs. Lumley Hill, and the reserve in cows to Messrs. McConnel and Son.

Devons were few in number. Neither in North or South Devons was there any competition. Mr. J. T. Abbott carried off the prizes for the former, and Mr. T. A. Chirnside for the latter.

Aberdeen Angus were fairly represented and prizes were equally divided.

Only two exhibits of Sussex, a cow and a heifer, were present, both the property of Mr. Jas. T. Turner.

BEEF CATTLE.

The 1918 Brisbane Exhibition attracted a record in beef cattle, not only as regards numbers, but the improvement in quality was very marked; I do not think that a finer show of Shorthorns has ever been seen in Brisbane. The Lomas Pastoral Estates champion bull Grand Duke of Clifton was an exceptionally fine animal, very massive and full of quality, and would be hard to beat in any show ring in Australia. He competed here with some very fine specimens of the Shorthorn breed. The younger Shorthorns were generally vry fine animals and bred from the best strains.

The Herefords, or ballys as they are commonly called, were a very strong and improved section this year, and there is no doubt that this breed is rapidly coming into favour. The champion Gunyan bull Magnitude was well named. He is an immense bull weighing over 1 ton 4 cwt., of great length and depth and remarkably well proportioned. There were many excellent cattle of this breed shown.

The Devons were a very fair lot.

The Aberdeen Polled Angus was well represented and there were a number of very fine cattle exhibited. Special mention might be made of Mr. J. A. McIntosh's first prize cow Annie Laurie, which is true to type and high class. This cow was bred by Mr. H. B. Williams, of New Zealand, who has sent quite a number of fine Angus cattle to Queensland.

The show sales of stud cattle were most interesting and instructive. There is no better judge than the buyer, and although prices were not quite so high or so uniform as last year, sellers of good quality cattle have every reason to be satisfied. Medium and plain cattle were rather hard to dispose of at sellers' values, but with a few exceptions they appeared to realise their market value.

Any cattle naturally immune or inoculated twice against tick fever were in good demand and easily sold. It seems that it would pay sellers to inoculate twice whenever possible before offering for sale.

Quite a number of stud cattle from the Southern States and New Zealand brought fair prices, although, by reason of the knocking about in transit, the majority of the animals were rather out of condition, and it behoves Southern breeders to get the condition hard on their stock before shipping if they wish to keep a bit of bloom on them for the sales. Some breeders were in the Brisbane market this year for the first time.

A new breed, South Devons, from Victoria, realised good prices. Young bulls brought up to 150 guineas and heifers to 131 guineas. These are great framed cattle, a little coarse in the bone, but there is plenty of frame to build the meat on. They were from imported stock and are said to be exceptionally heavy milkers and give a big return of butter. If so, these cattle should be the very thing to cross with our finer breeds to produce a dual purpose animal. It will be interesting to watch the result of crossing with this breed.

J. T.

COTTON INDUSTRY.

After many years of somnolence, the cotton industry shows abundant evidence of reviving, if one may judge by the relatively large quantity of cotton treated on farmers' account by the Department of Agriculture. Most of the agricultural sections at the Show made much use of cotton grown in many districts in decorating the pillars and trophies. This crop was a very paying one during the American Civil War, in 1870, and subsequently, when a cotton spinning mill was established at Ipswich. After a long lull, the Department of Agriculture elaborated a scheme which, it was hoped, would revive the industry, and also set up a cotton ginnery in

PLATE 23.—COTTON EXHIBIT.

Brisbane for the purpose of ginning all cotton consigned to the Department, which undertook to take, gin, and market all cotton sent to the departmental gin, making the growers an advance of 2d. per lb., supplying all seed gratis, and finally dividing all profits made by sale of the ginned cotton amongst the suppliers. Many farmers took advantage of this, and are so satisfied with the returns that far larger areas will be placed under cotton this spring.

HORTICULTURE.

The horticultural display at the Exhibition was well worthy of a visit; the excellent grouping and tasteful arrangement of the various beautifully variegated and scented flowers made an admirable and pleasing effect, interspersed with splendid ferns and other foliage plants. Mr. Bartels, as usual, had a beautiful exhibit of orchids, in the cultivation of which he is a pastmaster, and was the chief exhibitor, Mr. Jarrott being the only other exhibitor of these beautiful and, in many cases, enormously valuable plants. Mr. W. T. Bick's collection of palms was very striking. As for sweet peas, the exhibits all round were conspicuous for their size of bloom and beauty of colour. Messrs. Allan, Brewster, Barber, Phillips, and others exhibited magnificent blooms. Mr. Phillips took nine first prizes for his exhibit. Carnations, roses, and pansies were much in evidence, and gave evidence that flower-gardening has become a favourite hobby, if we may so call this delightful occupation, amongst a large number of city and suburban residents.

RECORD ATTENDANCE AT THE EXHIBITION.

On the fifth day of the Show, as a result of the unfavourable weather, the attendance and gate receipts showed a drop as compared with the corresponding day of last year, the takings being £935, as compared with £1,183 on the fifth day of the 1917 Show, a falling off of £248. The total for the five days this year was £7,005 as against £6,435 for the first five days of last year. The adult attendance on that day was estimated at about 15,000, and there were probably not less than 20,000 on the grounds during the day, or an approximate attendance of about 155,000 people for the five days of this year.

SALT FOR PIGS.

Last July, Mr. Thurlow. Inspector of Slaughter-houses, visited a piggery in the Enoggera district, and found that the pigs were suffering from some ailment. On inquiry and investigation he found that the owner had become possessed of a lot of damaged salt salmon which he intended and had used for feeding his pigs. It was at once seen that this salt food was the cause of the whole trouble, and, as salt is most dangerous to pigs, Mr. Thurlow strongly recommended the disuse of the salmon. Six of these pigs had died, and but for his fortunate visit, the owner would probably have lost the whole of his herd, amounting to some 300. Another pig-raiser in the district was about to purchase some of the damaged salmon, but fortunately heard in time of the above occurrence; hence, he did not buy and thus escaped a possibly severe loss.

CLOVER EIGHT FEET HIGH.

A unique crop of clover has been grown by Mr. A. Sommerlad, of Tenterfield, the results of which have justified the grower in his fifteen years of testing this variety. The clover, which is known as sweet or Bokhara clover (*Melilotus alba*), reached an average height of 8 ft., some portions of the crop being feet higher—a magic growth for clover. Mr. Sommerlad has about 50 acres of it in his cultivation paddocks, and cattle have grazed on it with the best results. It is quite safe to feed to dairy cattle, as they do not become blown on it. He has allowed about 10 acres to go to seed, which has been harvested for seed. It is a biennial plant, but if allowed to seed at the end of the second year it becomes permanent.—Exchange.

THE GROWING OF LUCERNE.

[CONTINUED FROM AUGUST JOURNAL.]

BROADCASTING LUCERNE.

The usual practice is to broadcast lucerne seed; and for the purpose the small hand broadcasting machines are to be recommended. In order to secure regularity of seeding, it is, of course, necessary to select a tolerably calm day for the purpose; moreover, the seed should be divided up into two even lots, each of which should be sown over the whole surface, but at right angles to the other. The seed should be broadcasted over a lightly-rolled surface, and subsequently rolled in, preferably with a ribbed rolled. It is important to remember that lucerne seed should never be buried deeply; hence, if a harrow is used for covering purposes, only the very lightest of harrows should be resorted to. In my experience, a ribbed roller is infinitely superior for the purpose to any harrow.

QUANTITY OF SEED TO BE SOWN TO THE ACRE.

Opinions differ as to the quantity of lucerne seed that should be sown to the acre; some apparently favour light seeding, others heavy seeding. Personally, I am from conviction an advocate of relatively heavy seeding, chiefly because I am satisfied that heavy yields are very largely dependent on a dense stand of plants from the very outset. Hence, when broadcasting lucerne, I recommend a seeding of 20 lb. to the acre, 10 lb. sown in one direction, followed by 10 lb. sown at right angles to the first direction. This seeding will appear heavy to many. It should be recollected, however, that the best of lucerne-seed has not a value of much above 88 per cent., if we take into consideration impurities and defective grain. Moreover, when seed is broadcasted, a certain proportion is always lost from the depredations of insects, birds, &c. Briefly, so far as I am concerned, I have never found 20 lb. of seed to the acre too much. I must add, however, that many lucerne-growers recommend 12 lb. of seed to the acre as sufficient for all purposes.

DRILLING LUCERNE.

Broadcasting is not the only method of sowing lucerne in use; at times it is drilled. Drilling lucerne presents special advantages when the crop is not irrigated. The plants are then set out in rows sufficiently far apart to admit of regular summer tillage between cuts. The usual distance is 18 in. to 24 in. Naturally, drilling involves the use of far less seed than broadcasting; I believe that 8 lb. to 10 lb. of good seed to the acre should be amply sufficient.

When drilling lucerne-seed, special precautions should always be taken not to bury the seed too deeply; and with this object in view it is always advisable to drill over a rolled surface. The seed itself should be sown in mixture with bonedust at the rate of 1 cwt. to the acre.

GOOD SEED CHARACTERISTICS.

Lucerne-seed is at all times more or less costly; hence it behoves us to see that we are supplied with the best kind of seed procurable. Prior to the war, several types of lucerne-seed were usually on the market, among others Hunter River seed from New South Wales; Province seed, usually imported from France; various types of American seed; and, finally, seed of South Australian origin.

Of these different types, Hunter River seed was usually the most popular. Conditionally on the seed chosen being fresh, well-developed, and tolerably free from impurities, personally I do not think that there was ever much to choose between the different types. I must add, however, that in my own experience some seed of American origin appeared to give the best results from the point of view of total yields, at the Roseworthy Agricultural College. Unfortunately, when I approached the seedsmen who had supplied this seed with a repeat order they were unable to meet it.

At the present time we are thrown back on local supplies; and, so far as I know, providing the seed complies with the usual standards of quality I do not think that we have much to complain of. Good lucerne-seed should be haricot-bean-shaped, bright-yellow in colour, plump, and well developed. A small proportion of impurities is unavoidable in the best of samples; it should not, however, exceed 2 per cent. to 3 per cent. The seed should always be guaranteed free from dodder.

On a germination test, it is generally probable that not more than 90 per cent. of the lucerne-seed will germinate; and, allowing for impurities, this will give to ordinary good seed a cultural value of 87 per cent. to 88 per cent. Preference is sometimes expressed for two-year-old seed, on the ground that it germinates more regularly. Personally, however, whenever obtainable, I prefer seed of the preceding season.

FIRST-YEAR TREATMENT OF LUCERNE-FIELD.

If lucerne has been broadcasted in autumn, there is nothing that can be done to the field until the first growth is ready for cutting. If, on the other hand, the lucerne has been drilled in, it can, and should be, horse-hoed as soon as the rows of lucerne are sufficiently distinct for the purpose.

As has already been stated, in spite of careful fallowing, and all the more if fallowing has been neglected or omitted, weeds will spring up very freely in a recently-sown lucerne-field; and during the winter months these weeds will make stronger growth than the lucerne. I have known fields in which, by August, the lucerne, although well germinated, was barely visible. This condition of affairs is apt to frighten those who sow lucerne in autumn for the first time; I know of one grower to whom I had recommended the practice who proceeded to plough up the field rather than endeavour to control the weeds on the lines I shall indicate.

In spite of weeds, if in the early autumn the lucerne had germinated regularly, it will in the spring still be found there beneath the shelter of the weeds, and all that we need to do is to proceed to get rid of the weeds by using the mower freely and repeatedly. The first cut given in August will prove a very effective check to them; a second cut given in September will give the lucerne the start which it requires, and will enable it to smother out completely the weeds as the temperatures rise. It may be taken for granted that the third cut will be pure lucerne, without any weed admixture. Moreover, no summer weed has any chance of growth in a recently established lucerne-field.

If a recently sown lucerne-field is carefully handled and irrigated, five to seven cuts, including the two initial weedy ones, may be taken in the course of the first season; and each cut, if dried, will average within the neighbourhood of 1 ton to the acre. I must insist very strongly that whatever may be the practice adopted later on, on no account should a lucerne-field be grazed, however lightly, in the first winter of its development. This injunction applies not only to sheep, which are particularly dangerous, but also to larger forms of live-stock.

GENERAL TREATMENT OF LUCERNE-FIELD.

When the field enters upon the second year of its growth, the general treatment becomes normal. By this time the roots of the plant have become thoroughly well established, and the plants generally may be looked upon as being at the maximum of their productivness. Among general cultural operations essential to success in lucerne-growing, we may dwell upon the following:—

SPRING DRESSING OF MANURE.

We must recollect, particularly when irrigation is practised, that the drain on the land by a lucerne crop is very considerable; hence, if we look to the continuance of high yields from year to year, we must be prepared to dress the field regularly in the opening spring months.

Lucerne, like most leguminous plants, benefits chiefly by dressings, both of phosphates and potash salts. Potash, however, is a very costly manure, nor, indeed, is it obtainable at the present time. On the other hand, in the great majority of our northern soils, at all events, potash appears to be very abundantly present; the only difficulty is that it is not always readily available to the roots of plants; for this purpose it has, as a rule, to be transformed into sulphate. This result can be secured very readily and cheaply, by a suitable dressing of gypsum. Gypsum has the effect of mobilising the potash salts, and of enabling them to circulate freely and reach the deep roots of lucerne plants. Hence, in the spring months of the year, I recommend a dressing of 3 cwt. to 4 cwt. of gypsum to the acre, and about 2 cwt. of superphosphate.

Subsequently to this dressing the lucerne-field can, with great advantage, be run over with a spring-tine cultivator, in order to break through the surface crust and open up the soil. Little or no damage will be done to lucerne plants. The use of farmyard manure is sometimes recommended as a suitable top dressing for lucerne. Personally, I do not agree with this practice, providing always that a sufficient dressing of farmyard manure had been given prior to seeding.

GROWTH AND YIELDS OF LUCERNE.

The growth and yield of lucerne vary much with circumstances, the chief of which are probably temperature and an adequate water supply. Taking the latter for granted, the greater the heat the more rapid the growth of lucerne and the heavier its total yearly yield. Between August and April, under exceptionally favourable conditions of soil, temperature, and water, as much as 10 to 11 cuts of

lucerne have been secured, at intervals of three to four weeks' time. Under average conditions, however, five to six cuts, at intervals of five to seven weeks, are more usual.

Green lucerne loses about 75 per cent. of its weight on drying; and we may reckon that each well-grown cut of lucerne will correspond to about 1 ton of hay. As a rule, irrigation waters should be applied immediately after a cut; but in many circumstances, a second watering given between two cuts will lead to appreciably higher results. Needless to add that irrigation water must be tolerably free from saline matter; probably not more than 100 grains of total salt to the gallon is safe, even in very well-drained land.

When lucerne is subject to irrigation, total yields are, of course, very much lighter, and depend, even when the water table is within easy reach, almost exclusively on summer rainfall. Personally, I am of the opinion that unirrigated lucerne should always be drilled in rows, and tilled regularly after each cut. In these circumstances three to four cuts in one season may often be secured.

BEST TIME TO CUT LUCERNE.

The usual recommendation is that lucerne should be cut when about one-half of the field is in bloom. It is, perhaps, true that at this stage lucerne is better relished by livestock as yet unaccustomed to it. It is highly questionable, however, whether at this stage, lucerne has the best possible feeding value; in my opinion it is apt to be too hard and fibrous. Personally, I prefer cutting the crop just as the first flowers begin to appear.

Lucerne, as is well known, may be fed in the green state, which, perhaps, is the most economical way of handling it. It involves, however, bringing out every morning the mower for the day's requirements. Livestock new to lucerne do not always take to it readily at first in the green state, and it is generally advantageous to allow it to wilt slightly before offering it to them.

If all lucerne available cannot conveniently be handled in the green state, it can be converted into hay. Or, again, this practice may be adopted as a general rule. The making of hay offers no particular difficulties; in the warmer months of the year it is fit to be shifted in a couple of days. The chief difficulty to be avoided is a tendency to brittleness in the hay, and, as a result, a loss of leaf when carelessly handled; hence, when the weather is warm, it is usually safer to handle lucerne hay in the cooler hours of the morning.

GRAZING LUCERNE.

There is not the slightest doubt that if we have in view the highest possible total yields and length of life, that it is inadvisable to graze a lucerne-field at any time; in other words, grazing both reduces the apparent productiveness of a lucerne-field and its life. Nevertheless, we are bound to admit that grazing lucerne during the winter months of the year frequently offers high economic advantages, which, it may be, make ample compensation for its disadvantages. I, for one, confess that whenever possible during the winter months, I have always turned a lambing flock into a lucerne-field more than twelve months old; and it is a practice which I recommend to others. It goes without saying that when this practice is followed the field calls for careful watching; at no time should it be allowed to get too bare, and whenever the surface becomes too wet the flock should be temporarily removed.

HOW LONG SHOULD A LUCERNE-FIELD HOLD OUT?

There are some who appear to entertain the belief that a lucerne-field, once sown, should continue productive almost indefinitely, and who attribute to carelessness or neglect any tendency to falling away on the part of the field. Undoubtedly care and attention will, within certain limits, lengthen the period of profitable productiveness of a lucerne-field; nevertheless, Nature has set certain limits beyond which we cannot go. It is true, perhaps, that individual lucerne plants appear to persist for an almost indefinite number of years, but it would be rash to assume that the sum-total of individual plants which constitute the lucerne-field will be able to do the same. As a matter of fact, if the field is to be reasonably productive, individual plants are far too crowded to be able to occupy the same land for any length of time; from year to year individual plants will gradually die out throughout the field, which becomes correspondingly thinner and thinner, with corresponding yields lighter and lighter, until, if we take the cost of irrigation into consideration, the field no longer pays for handling. Eventually, as is often the case in the opening stages of growth, the sparsely clad field may carry more weed growth than lucerne.

The average lucerne-field may be taken to be at its best in the second year of growth; and thereafter it slowly declines. There are some fields, particularly if overgrazed, that are not worth irrigating after their fifth year; and there are very few

that are worth irrigating after their tenth year. Hence, when laying out land for irrigation purposes, it is as well to have within reach a sufficient area to bring in alternate periods, under lucerne at one time and under some other type of crop at another time. When the lucerne-field is played out, or when it no longer pays to waste water on it, it should be ploughed up and either grazed or brought under some other type of crop for a number of years. In the meantime, a new area of land could be placed under lucerne.

It is very unwise to sow lucerne a second time on old lucerne land at too short an interval between two crops. No less than four to five years should intervene between two lucerne crops. In the intervening years irrigated crops, such as maize or sorghum, can be grown, or ordinary winter crops, such as any one of the cereals.

LUCERNE AS A PURELY GRAZING CROP IN RELATIVELY DRY AREAS.

Hitherto I have dealt with what might be called the orthodox methods of handling lucerne; but, as farmers, even in relatively dry districts, we can often put it to other important uses. We can, with great advantage to ourselves, treat it as a purely grazing crop. In this connection, I shall describe a practice which I successfully followed for several years at Roseworthy.

Every season I used to sow about 20 acres of lucerne in an ordinary cereal hay crop. The hay crop was first drilled in, in the ordinary way; we then broadcasted lucerne over the selected area at the rate of 6 lb. to 8 lb. to the acre, and the seed was subsequently lightly rolled in. When sown in this fashion, the lucerne plants grow up in the shelter of the hay crop, and make a very fair showing by hay harvest time. Occasional failures are, it is true, unavoidable; but, if due care be taken, general conclusion is, that lucerne should not be grazed too soon after the removal of the hay crop; time should be given to it to harden and to get a firm hold of the ground. Generally speaking, the first grazing should not take place before April. In the years that follow, the lucerne can, of course, be grazed whenever it is found convenient to do so. In this connection, grazing lucerne laid down in this way will be found exceptionally useful in relatively wet summers, in which the dry feed is more or less spoilt. Naturally, in summers such as these, the growth of the lucerne is above the average. Personally, I generally endeavoured to reserve these lucerne-fields for the autumn grazing of lambing flocks.

The constant grazing to which these fields are subject, tends to shorten considerably the life of the plants. Generally speaking, grazing lucerne-fields should be broken up and brought back into the ordinary cropping rotation in their third or fourth year; hence, if you make it a practice to put down 20 acres under lucerne every year, you will usually have from 60 acres to 80 acres of lucerne at your disposal for grazing purposes, and this will represent an exceedingly valuable farming asset in any district.

FLAX AND LINSEED.

For many years unsuccessful attempts were made to establish the flax-growing industry in Victoria. It had been boomed and bonused, and experimented with, only to prove time and again that, on old-world lines of practice, which involved costly and laborious methods, it was unsuited to our Australian conditions of agriculture, and had to give place to more remunerative crops, just as happened to the cotton-growing industry in Queensland in the seventies, at the close of the Franco-Prussian war. But in both cases, time and the perseverance of certain believers in the ultimate successful establishment of these industries overcame all difficulties. It had always been held and practised, and adopted in the early experiments in Victoria, that a crop of good fibre and seed could not be obtained from the same field; that, in order to get good fibre, the crop had to be harvested when in blossom, before the seed had ripened, and, above all, that it had to be hand-pulled—a very costly and laborious process. Eventually, however, three young settlers, the Wollf Brothers, of Traralgon, proved that both seed and fibre can be obtained from the same crop, after the seed had thoroughly ripened, and that so unnecessary is hand-pulling, that fibre which will command the top price when submitted to expert dealers in flax and other fibres is produced when the reaper and binder is turned into the flax fields, cutting down the crop at the rate of 10 or 12 acres a day. The old process of pit-retting (that is, steeping the straw for several weeks in pits of water) has been discarded, and the much more simple one substituted of spreading it out on the grass in the autumn, to let the dew and rain do the work, and instead of rippling out the seed, two wooden rollers are employed, one above the other, and between these two men can feed the sheaf-heads without untying the binder knot, and thresh out the seed perfectly, at the rate of over two acres a day.

RETURNS PER ACRE.

So far back as 1903, the pioneers of the industry, Messrs. Wolff Bros., had 120 acres under flax. Their gross returns from this area in seed and fibre amounted to £2,000, or at the rate of £16 16s. per acre. After paying away in rent, cost of cultivation, and all the processes of harvesting, threshing, and fibre manufacture, over £8 per acre, they realised the handsome net profit of £8 10s. per acre. Samples of the dew-retted flax were sent to some of the largest flax buyers in Europe, and an offer was received from a Belgian firm of £45 per ton, delivered in Melbourne. The prices obtained from local Melbourne buyers ranged from £40 to £45 per ton.

The average return of seed was 14 bushels per acre, which sold readily in pre-war days at £14 per ton, for linseed oil making, working out at 7s. 6d. per bushel, which, together with the flax, gives a gross return of £16 16s. per acre, the net return being £8 10s. per acre.

TIME TO SOW.

Spring sowing, as in Europe, is found to be a mistake in Australia. The time to sow here is in May. If sown broadcast the quantity of seed required per acre is 1¼ bushels. Of two varieties, the White Belgian and the Riga, the latter is to be preferred. It gives a greater quantity of fibre and seed per acre, and if got in early there is no fear of any worm attacking the seed pods.

METHODS OF CUTTING AND THRESHING.

In cutting with the binder, the knives must be kept sharp—sharp as razors. This enables the work to be done at the rate of 10 or 12 acres per day, the sheaves being beautifully even, and not at all tangled. There is much less loss of seed by shaking out than is the case with many other cereal crops. After standing in the stooks in the paddock for about a fortnight it can be either threshed, and the straw stacked, or stacked as it is, and threshed at leisure. A primitive and cheap method of speedy threshing without injury to the seed may be thus described:—

Two wooden rollers, each two feet in diameter, set one above the other, on spindles. The spindle of the upper one works in slot-holes with a perpendicular play of about two inches, and to the spindle of the lower one is attached a wooden pulley, on which is placed a belt from a five-horse-power oil engine which drives the "breaker," and the "scutcher." It is driven at the rate of 140 revolutions per minute. One man feeds in the sheaves without untying them, and another man or boy takes them away. The seed, being all threshed out, is then cleaned ready for market by being put through an ordinary grain winnower. Two men, with this machine, can thresh out the crop at the rate of from two to three acres per day. Previous to the war, 6d. per bushel was paid for threshing (by contract), and 2d. per bushel for cleaning. One bushel weighs 56 lb. Rates of wages since the war are higher, but so also is the price of flax and linseed.

MANUFACTURING THE FIBRE.

The method of preparing the fibre is equally simple. The crop remains in the stack till March. It is then carted out and spread on the grass land. One acre of grass land provides room for two acres of the crop. The bundles, after the seed has been removed, are untied, and spread out evenly in a thin layer on the ground, and if there have been good rains or heavy dew, the straw is ready for turning in about a fortnight. The turning over is quickly done with a long pole.

After turning, the straw is left out for another fortnight or three weeks. Then it is gathered up loose in thin round stooks to dry for two or three days; then tied into handy bundles, carted and re-stacked close to the shed where the flax is manufactured. All this latter work must be done in dry weather.

THE COST OF THE MACHINERY

is not heavy even in these war times. The "breaker" costs about £35, the "scutcher" £40, and both are driven by the same oil-engine.

It should have been stated that the breaker (£35) consists of four fluted iron rollers in two sets, which turn half round and back. The straw is passed between the two sets, which break out the woody material in the stems and leave the fibre with a lot of woody particles adhering to it. Then the scutcher, which is simply a set of wooden blades revolving rapidly behind an iron shield, cleans them off and leaves the fibre fit for market. The fibre, when quite dry, is put up in 14-lb. bundles and then packed in wool bales holding about 5 cwt.

UNLIMITED MARKETS.

The value of imports of linseed into Great Britain amounts to between £4,000,000 and £5,000,000 annually; linseed cake for cattle-feeding to £1,500,000;

and flax to over £2,500,000. In 1913-14, just before the war, the gross linseed imports into the United Kingdom for the twelve months were 3,274,000 quarters, and the total American imports of linseed for 1914, 1915, and 1916 respectively, were 231,163 tons, 370,909 tons, and 327,451 tons. A market is also assured in New South Wales, one firm in the linseed oil trade (Messrs. Meggitt, Ltd., Sydney) guarantee a market for at least 10,000 tons annually, at prices ranging from 6s. to 10s. per bushel in the near future. As shown above, an average net profit per acre, based on a yield of 14 bushels per acre, should amount to £8 10s.. To this must be added the value of the flax, which in the British markets is to-day worth over double the pre-war prices. The price of linseed in the London commercial reports is quoted as from £28 to £30 per ton, or up to 14s. per bushel. Mr. D. MacPherson, when manager of Biggenden State Farm, 50 miles from Maryborough, wrote as follows on experiments made at the farm in 1910 in flax-growing:—

"Recent developments in the methods of harvesting and treating the fibre and seed of the flax plant make it probable that this crop will be found to be a distinctly paying one for Queensland. As the seed may be drilled or broadcasted, and the crop cut with a binder, it follows that these operations need not run into greater expense than they do for wheat, while the cash returns should be greater, as both seed and straw are of value.

"In the 'Victorian Agricultural Journal,' May, 1906, the price of flax seed or linseed is given as 8s. per bushel, and the same journal estimates the value of the fibre from 1 acre at £11 5s., and the cost of dew retting at 15s. per acre, and manufacturing £3 10s. Dew retting is, however, not always practicable here, as in some seasons there is practically no dew.* This trouble is, however, likely to be soon overcome; and, if not already so, it soon will be possible to market the flax straw unretted.

"From experiments carried out at this farm during the past three years, I am convinced that anyone having the necessary implements for handling wheat could also grow flax; and, so long as the market value of linseed did not go below that of wheat, would receive a better return per acre, even if the seed only were marketed, owing to the more certain yield from the flax.

"Then, if we take into consideration the value of the fibre, and this is really the main product of the plant, and estimated in the Victorian Journal to be worth over £11 per acre, it must be admitted that there is every probability of the crop being a paying one. Another consideration, and one that should have considerable weight with us, is that the crop is less dependent on climatic conditions than any of the cereals.

"Should the season be a wet one, it is probable that the crop of seed will ripen unevenly, and in this way a proportion of seed may be lost; but, even so, the yield of seed will still be a creditable one, and the crop of fibre will be extra heavy.

"If, on the other hand, it strikes dry weather, neither the seed nor the fibre will be any the worse for eight or ten weeks of comparative dry weather before cutting.

"Again, flax likes a warm free soil, and, as the soil on this farm is very stiff and heavy, it is more than likely that the results obtained here may be improved upon.

"I give the results from an experimental plot planted here on the 3rd April, and cut on the 30th September. Also, the rainfall for the months between planting and harvesting. It may be mentioned that the seed did not germinate till after the rains that fell in the last week of May, so that the crop takes only four months from germination to harvest.

"The plot sown contained 3 perches. A portion of this was cut before the seed was properly ripe for fibre samples, &c.

"From the remainder (exactly 64 sq. yds.), 22 lb. of clean plump seed and 47 lb. of threshed straw was obtained, or at the rate of 27 bushels (60 lb. per bushel) of seed, and 31 cwt. 3 qr. of straw, to the acre.

"I have, so far, been unable to get the fibre content of the straw.

"Rainfall—April, .34; May, 4.02; June, 5.24; July, 1.55; August, .96; September, .27.

"I have grown flax here for the three past seasons, and the crop has every time given satisfactory results.

"The last two seasons the large-seeded Russian variety was grown, and the season before that the Riga."

*In Germany and Switzerland, we have seen the flax spread out on the grass, and watered from watering-cans. Dew is not an absolute necessary for dew-retting.—Ed., "Q.A.J."

MARKET GARDENING.

EXPERIMENTS IN CONNECTION WITH THE DESTRUCTION OF INSECT PESTS OF THE TOMATO.

In May, 1917, the Director of Fruit Culture, Mr. A. H. Benson, with the view of assisting tomato-growers to prevent the serious losses of these crops due to the ravages of the tomato moth, by destroying the larvæ, made arrangements for a series of experiments to test the efficacy of certain sprays and various forms of lantern traps at Wynnum. The results were published in the February (1918) issue of the Journal, since when numerous inquiries are frequently being received (presumably from non-subscribers to the Journal) by the department, respecting the best method of preventing the ravages of tomato moths. It is, therefore, thought advisable to reprint, with useful additions, the article of February last, as follows:—

The experiments were carried out on two plots, one owned by Mr. H. Randall, Wynnum West, and the other by Messrs. Hargreaves and Sons, Manly. They were initiated to ascertain the most effective means of combating the grubs or larvæ which destroy a large proportion of the tomato crop almost every year.

There were two main objectives—

1. To find the most effective means of destroying the eggs and larvæ on the plants;
2. To find the best means of trapping the moths.

The following insecticides were used:—*Arsenate of Lead* (Sherwin-Williams Brand).—This was mixed with water at the rate of ½ lb. to 16 gallons (about four kerosene tins). The ½ lb. arsenate was first made into a thin cream by adding a little water gradually and afterwards adding the remainder of the water. This quantity, 16 gallons, could be applied by an autospray pump, worked by one man, in about 2½ hours, and was found sufficient to treat one-quarter of an acre of tomato plants. Between 3.30 p.m. and dusk was found the best time of the day for spraying. The mixture must be kept in motion whilst being applied.

Paris Green and Lime.—One pound Paris green to 6 lb. finely sifted slacked lime. This was well mixed, and it was found that it should be applied on a calm day by means of a sulphuring machine or by tying the mixture in a small bag or piece of bagging and shaking or beating it over the plants. This quantity was found sufficient for one-quarter acre; the quantity to be applied would depend largely on the size of the plants and the calmness of the weather.

Two applications of each of the insecticides were made—first, when the first lot of flowers had withered, and the second about four weeks later; but it was found that three, or even four, applications would be beneficial at intervals of about three weeks.

The arsenate of lead showed slightly better results than the Paris green and lime.

Various lights were tried for trapping moths at night as follows:—

1. Bicycle carbide lamp with trays specially arranged. This proved unsatisfactory, and was abandoned early in the experiments.

2. Ordnary naked carbide lamps with kerosened trays underneath.
3. Ordinary hurricane lamps (kerosene), also with kerosened trays underneath.

The common hurricane lantern was found the most satisfactory light for the purpose. Details as to construction of trays and setting up lanterns are given and illustrated in the February issue of the Journal, page 67. The lantern was so arranged that the moths would rebound from the glass globe into the kerosene-covered water in the tray. About half an inch depth of water under a thin layer or film of kerosene was found sufficient for destroying the moths in the tray.

STAGING VEGETABLES FOR SHOW.

Somewhere about the year 1910 (says "South African Gardening," June, 1918), vegetable growing and showing had been raised to such a pitch of excellence in the British Isles, that a vegetable society was formed which holds its show every year in London. This is held in the autumn (corresponding to our spring in Queensland—Ed.). There are classes for 12, 9, or 6 kinds selected from a given list. Classes for a definite number of salads, 9-6, or any the committee select. Potatoes, onions, and many other vegetables are also shown in separate classes.

Presuming an intending exhibitor is going to put up a collection of, say, nine distinct kinds, he may perhaps select cauliflower, pea, onion, parsnip, carrot, turnip, celery, beet, cress.

The Cauliflowers, three or six (the schedule generally says how many of each may be shown), are chosen for their whiteness, closeness of curd, freedom from blemish of any kind, and uniformity of size. The leaves are carefully trimmed away, exposing the curd. They are generally arranged in a pyramid in the centre or at the back; perhaps two pyramids can be made. They must all be the same variety. Cut cauliflowers in the early morning.

Pea.—Large, fully formed pods, free from blemish. These must be cut from the plant and held by their stalks in order not to damage the bloom on them. They should not be washed therefore. These are sometimes laid out in straight rows or forming a pattern round some other exhibit. In some cases they are piled neatly on a bed of parsley or in a chip basket, or fastened thickly to a cone of wire completely covering it. Some people grow the plants in tins, and bring the whole thing, training the peas up the back of the stage, while others arrange them on black velvet pads.

Onion.—Large, solid, good shape. Carefully washed with a soft sponge. The dry top is cut and doubled down and fastened neatly at the neck. The roots are trimmed off close unless "spring onions" are shown, when the long white roots are left, instead of fully matured ones. They must be the same variety, size, and shape. Sometimes arranged in a pile, in a dish or basket, in straight lines or triangles or bedding in parsley to show up the colour.

Parsnip.—Long, straight, perfectly shaped roots. Same in size and height and thickness. Some are shown three or four feet long, but

shorter roots are quite as effective and more useful. Dig without damaging or breaking the roots, wash with a soft sponge. Trim off the tops to within a couple of inches of the crown. Staged in pairs or triplets in baskets or on the table; sometimes stacked like corn-sheaves in a stook.

Carrot.—The same points must be observed in showing these. Undamaged, straight, even roots, graded to size, carefully washed—not scrubbed. Staged in baskets in rows or piles, the number shown according to schedule as in all cases. Stump-rooted must not be shown in the same pile as long ones. Two varieties cannot be shown unless it is so stated.

Turnip is effective as a show vegetable, showing up well against the orange colour of the carrot and the green of the pea pod. The root is washed and the tops trimmed away, but the root is left intact. Pile them with the root outwards, all the tops being hidden.

Celery.—A limited number of sticks of even size perfectly blanched. These want careful washing to get all the soil from between the stalks. The root is trimmed off, leaving a short point as in a pencil. Some people leave the green top intact; others trim it away down to the blanched portion.

Beet.—Long-rooted beet should be straight, thick, unbranched, and a good deep colour. Trim away the little fine roots and the tops, leaving the tiny centre leaves if you choose. Flat or round beet must not have the root removed, but, like the long beet, must be carefully washed. Often piled as for turnips in the case of the round beet or arranged in rows for the long ones, which, of course, must be all the same in length and thickness and colour.

Cress.—Often shown with mustard, but is shown separately too. Can be grown in the round or square chip basket, in which it is shown. If not it is cut and placed in the basket as though it were growing. It is very pretty grown on a cone of clay covered with fine wire. The seed is thrown on the wet shape, and if successfully done makes a perfect mass of fresh young green.

Potatoes.—Dig very carefully so as not to injure the tubers. Use a soft sponge and be careful not to break the skin. Tubers must be free from blemish; size, shape, and colour, not necessarily the biggest, which are often lacking in flavour. The bench itself should be covered, for choice, with a white covering, as it shows up the groups well. Parsley garnishing helps to set them off sometimes. Do not overcrowd—leave some space between so that each exhibit can be shown to its best advantage. Very often a few foliage plants are allowed, but on the whole they are better away unless used with great care and judgment. Group the colours harmoniously, and keep the whole evenly balanced.

Aim for one central feature, and work up to that. Perhaps the best specimen is onion; then give that prominence. In the photograph in the May number of the exhibit from Potchefstroom the pile of Keiffer pears quite dwarfed the apples, and even the pumpkin looked insignificant. Aim for quality, not for huge ungainly roots. I have not said half what I would wish on behalf of the vegetables and their place on the show bench, but Mr. Editor's blue pencil is large and thick. Perhaps at some future date he will give me an opportunity to plead for some other kinds of less known vegetables.

Pastoral.

BREEDERS OF PUREBRED STOCK IN QUEENSLAND—BEEF AND DAIRY CATTLE.

The Office of the Secretary of the undermentioned Herd Book Societies is 303 Queen street, Brisbane:—

The Australian Hereford Herd Book;
The Shorthorn Herd Book of Queensland;
The Jersey Herd Book of Queensland;
The Illawarra Herd Book of Queensland;
The Ayrshire Herd Book of Queensland;
The Milking Shorthorn Herd Book of Queensland;
The Holstein-Friesian Herd Book of Australia.

NOTE.—Animals registered in the Commonwealth Standard Herd Book are not necessarily eligible for entry in the Jersey Herd Book of Queensland.

Name of Owner.	Address.	Number of Males.	Number of Females.	Herd Book.
	DAIRY BREEDS.			
	AYRSHIRES.			
L. H. Paten	"Jeyendel," Calvert, S. & W. Line	8	21	Ayrshire Herd Book of Queensland
J. H. Paten	Gwandalan, Yandina	6	21	Do.
Queensland Agricultural College	Gatton	4	40	Do.
State Farm	Warren	3	83	Do.
J. W. Paten	Ayrshire Park, Wanora, Ipswich	10	42	Do.
J. H. Fairfax	Marinya, Cambooya	9	55	Do.
J. Holmes	"Longlands," Pittsworth	6	20	Do.
H. M. Hart	Glen Heath, Yalangur	7	21	Do.
F. A. Stimpson ..	Ayrshire Stud, Fairfield, South Brisbane	7	77	Do.
M. L. Cochrane ..	Paringa Farm, near Cairns	5	21	Do.
John Anderson ..	"Fairview," Southbrook	7	34	Do.
	JERSEYS.			
T. Mullen	"Norwood," Chelmer	3	20	Jersey Herd Book of Queensland
Queensland Agricultural College	Gatton	2	31	Do.
M. W. Doyle	"Oaklands," Moggill	4	12	Do.
G. A. Buss	Bundaberg	1	15	Do.
R. Conochie	Brooklands, Tingoora	9	21	Do.
W. J. Barnes	Millstream Jersey Herd, Cedar Grove	10	37	Do.
W. J. Affleck	Grasmere, N. Pine ..	6	31	Do.
J. N. Waugh and Son	Prairie Lawn, Nobby	3	28	Do.
W. J. H. Austin ..	Hadleigh Jersey Herd, Boonah	2	11	Do.
State Farm, Kairi ..	Kairi, *viâ* Cairns ..	4	16	Do.
H. D. B. Cox	Sydney (entered in brother's name)	3	16	Commonwealth Standard Jersey Herd Book

BREEDERS OF PUREBRED STOCK IN QUEENSLAND—*continued.*

Name of Owner.	Address.	Number of Males.	Number of Females.	Herd Book.
DAIRY BREEDS—*continued.*				
GUERNSEYS.				
Queensland Agricultural College	Gatton	2	2	Eligible, but no Guernsey Herd Book of Australia
HOLSTEINS.				
Queensland Agricultural College	Gatton	2	9	Holstein-Friesian Herd Book of Australia
George Newman ..	"St. Athan," Wyreema	12	47	Do.
F. G. C. Gratton ..	"Fowlerton," Kingsthorpe	1	15	Do.
R. S. Alexander ..	Glenlomond Farm, Coolumboola	1	3	Do.
Ditto	Ditto	1	..	Holstein-Friesian Herd Book of New Zealand
S. H. Hoskings ..	St. Gwithian, Toogooloowah	..	..	Holstein-Friesian Herd Book of Australia
C. Behrendorff ..	Inavale Stud Farm, Bunjgurgen, Q.	3	9	Do.
E. Swayne	West Plane Creek, Mackay	1	2	Do.
ILLAWARRA.				
A. Pickels	Blacklands Stud, Wondai	4	62	Illawarra Herd Book of Queensland
J. T. Perrett and Son	Corndale, Coolabunia	3	43	Do.
W. T. Savage	Ramsay	2	22	Do.
Hunt Bros.	Springdale, Maleny ..	3	62	Do.
MILKING SHORTHORNS.				
P. Young	Talgai West, Ellinthorp	2	42	Milking Shorthorn Herd Book of Queensland
W. Rudd	Christmas Creek, Beaudesert	2	10	Do.
A. Rodgers	Torran's Vale, Lanefield	1	9	Do.
W. Middleton	Devon Court, Crow's Nest	3	27	Do.
A. K. Yorksten ..	"Dunure," Miles ..	2	8	Do.
BEEF BREEDS.				
SHORTHORNS.				
T. B. Murray-Prior ..	Maroon, Boonah ..	2	37	Queensland Shorthorn and Australian Herd Books
C. E. McDougall ..	Lyndhurst Stud, Warwick (2)	25	100	Queensland Shorthorn Herd Book
Godfrey Morgan ..	"Arubial," Condamine	3	6	Do.
W. B. Slade	E. Glengallan, Warwick	2	20	Do.

BREEDERS OF PUREBRED STOCK IN QUEENSLAND—*continued.*

Name of Owner.	Address.	Number of Males.	Number of Females.	Herd Book.
		BEEF BREEDS—*continued.*		
		HEREFORD.		
A. J. McConnell ..	Dugandan, Boonah	19	36	Australian Hereford Herd Book
E. M. Lumley Hill ..	Bellevue House, Bellevue	45	127	Do.
Tindal and Son ..	Gunyan, Inglewood	50	400	Do.
		SUSSEX.		
James T. Turner ..	The Holmwood, Neurum	2	4	Sussex Herd Book of England

Dairying.

THE DAIRY HERD, QUEENSLAND AGRICULTURAL COLLEGE, GATTON.

MILKING RECORDS OF COWS FROM 30TH JUNE TO 31ST JULY, 1918.

Name of Cow.	Breed.	Date of Calving.	Total Milk.	Test.	Commercial Butter.	Remarks.
			Lb.	%	Lb.	
Buttercup	Shorthorn ..	30 May, 1918	934	4·5	46·93	
Lady Melba ...	Holstein ...	31 Mar. ,,	912	4·5	46·12	
Lady Loch II. ...	Ayrshire ...	13 June ,,	828	4·7	43·82	
Miss Betty ...	Jersey ...	9 June ,,	752	4·6	38·90	
Magnet's Leda ...	,, ...	20 June ,,	724	4·4	34·91	
Constancy	Ayrshire ...	7 April ,,	683	4·5	34·54	
Yarraview Ida's Hope	Guernsey ...	5 May ,,	514	5·7	33·63	
Royal Mistress ...	Ayrshire ...	13 Mar. ,,	514	5·2	31·55	
Charming Damsel	,, ...	1 May ,,	660	4·1	30·27	
Lady Peggy ...	,, ...	30 Mar. ,,	598	4·3	28·83	
Snowflake	Shorthorn...	28 June ,,	608	4·2	28·60	
Rosalie II. ...	Ayrshire ...	2 July ,,	615	3·5	23·86	
Dawn of Warragaburra	Jersey ...	4 May ,,	556	3·7	22·87	
Lady Spec... ...	Ayrshire ...	19 Feb. ,,	446	4·5	22·45	
Leda's Jessie ...	Jersey ...	25 Mar. ,,	318	5·8	21·70	
Sylvia II.	Shorthorn...	14 July ,,	431	4·3	20·77	

Poultry.

REPORT ON EGG-LAYING COMPETITION, QUEENSLAND AGRICULTURAL COLLEGE, JULY, 1918.

Westerly winds and cold nights were again in evidence during the month, and the effect they have had on the light breeds is very noticeable. Some pens dropped 50 per cent. at the commencement of the month, but pulled up during the last week. These adverse weather conditions in no way hampered the laying in the heavy section, and some splendid scores were registered. The previous world's record for winter laying, held by a pen of six Black Orpingtons, has been passed by a pen of six White Leghorns owned by the Dixie Egg Plant. Their score for the four months was 579, the previous records being 570. A Black Orpington in Mr. A. E. Walters's single test pen laid three eggs in twenty-four hours. Two of the eggs had rough shells with no glazing, and one was without a shell. Only one case of such laying has come under our notice before. The last week of the month has shown a decided improvement in the number of eggs laid in almost every pen of the competition. W. Wilson and H. Fraser have each had a bird in for medical treatment, but both are now back in their pens. The following are the individual records:—

Competitors.	Breed.	July.	Total.
LIGHT BREEDS.			
*Dixie Egg Plant	White Leghorns ...	143	579
*G. W. Hindes	Do.	136	496
*E. Chester	Do.	130	486
*G. Howard	Do.	132	477
*C. Knoblauch	Do.	127	476
*C. P. Buchanan	Do.	126	474
*T. Fanning	Do.	126	465
*Geo. Prince	Do.	118	461
*Mrs. L. Henderson	Do.	127	458
*W. Becker	Do.	116	447
*G. H. Turner	Do.	123	443
*W. Lyell	Do.	120	432
*R. Holmes	Do.	136	430
*O.K. Poultry Yards	Do.	103	427
*L. G. Innes	Do.	120	411
*Oakland Poultry Farm	Do.	95	409
*E. A. Smith	Do.	128	407
B. Caswell	Do.	93	407
Harold Fraser	Do.	88	395
Dr. Jennings	Do.	91	389
*Range Poultry Farm	Do.	105	386
*Thos. Taylor	Do.	108	381
O. W. J. Whitman	Do.	102	381
J. J. Davies	Do.	102	381
*C. Porter	Do.	112	372
*Quinn's Post Poultry Farm	Do.	105	261
*J. Zahl	Do.	95	353
R. T. G. Carey	Do.	104	352

EGG-LAYING COMPETITION—*continued.*

Competitors.	Breed.	July.	Total.
	LIGHT BREEDS—*continued.*		
G. Williams	White Leghorns ...	70	346
*Mrs. Coomber	Do.	109	343
S. Wilkinson	Do.	96	317
*J. M. Manson	Do.	113	310
*Homalayan Poultry Farm	Do.	97	306
*T. B. Hawkins	Do.	81	285
Mrs. L. F. Anderson	Do.	74	285
Geo. Trapp	Do.	69	272
Mrs. A. G. Kurth	Do.	67	266
H. F. Britten	Do.	78	264
H. B. Stephens	Do.	75	264
*J. W. Newton	Do.	68	261
Progressive Poultry Pens	Do.	65	259
Shaw and Stevenson	Black Leghorns	91	259
*Mrs. R. Hunter	White Leghorns ...	79	256
B. Chester	Do.	99	217
P. O. Oldham	Do.	66	204
W. A. Wilson	Do.	71	199
A. W. Walker	Do.	39	160
	HEAVY BREEDS.		
*Nobby Poultry Farm	Black Orpingtons ...	145	530
T. Hindley	Do.	106	421
*E. Morris	Do.	147	408
*E. F. Dennis	Do.	133	406
*A. E. Walters	Do.	148	390
E. M. Larsen	Do.	119	377
*W. H. Reilly	Chinese Langshans ...	87	374
*W. Smith	Black Orpingtons ...	98	373
*J. W. Macrae	Do.	123	365
*Mars Poultry Farm	Do.	136	361
*R. Burns	Do.	141	345
*D. Fulton	Do.	149	310
W. J. Mee	Do.	67	298
A. Shanks	Do.	130	282
*F. A. Claussen	Rhode Island Reds ...	107	239
T. W. Lutze	Black Orpingtons ...	117	232
H. Puff	Rhode Island Reds ...	64	218
Jas. Fitzpatrick	Do.	69	142
Totals	...	6,804	23,080

* Indicates that the birds are engaged in the single hen test.

DETAILS OF SINGLE HEN TESTS.

Competitor.	A.	B.	C.	D.	E.	F.	Total.
	LIGHT BREEDS.						
Dixie Egg Plant	93	95	104	88	98	101	579
G. W. Hindes	105	85	82	83	77	64	496
E. Chester	80	87	74	97	73	75	486
G. Howard	74	79	87	77	74	86	477
C. Knoblauch	75	70	91	76	84	80	476
C. P. Buchanan	80	71	84	72	87	80	474
T. Fanning	85	81	85	51	83	80	465

DETAILS OF SINGLE HEN TESTS—*continued.*

Competitors.	A.	B.	C.	D.	E.	F.	Total.
LIGHT BREEDS—*continued.*							
Geo. Prince	47	87	82	82	81	82	461
Mrs. L. Henderson	76	83	77	43	86	93	458
W. Becker	75	74	58	88	68	84	447
G. H. Turner	37	56	85	84	98	83	443
W. Lyell	77	80	78	73	61	63	432
R. Holmes	87	77	66	65	60	75	430
O.K. Yards	64	81	83	66	79	54	427
L. G. Innes	67	91	94	45	36	78	411
Oakland Poultry Farm	60	69	78	80	61	61	409
E. A. Smith	47	86	73	85	73	43	407
Dr. Jennings	53	86	77	65	69	39	389
Range Poultry Farm	33	91	40	67	71	84	386
Thos. Taylor	38	76	76	54	64	73	381
C. Porter	28	71	71	51	75	76	372
Quinn's Post Poultry Farm ...	84	44	57	49	79	48	361
J. Zahl	77	61	69	66	46	34	353
Mrs. Coomber	38	73	57	60	34	81	343
J. M. Manson	81	73	84	28	15	29	310
Homalayan Poultry Farm ...	72	57	40	32	72	33	306
T. B. Hawkins	60	50	74	27	41	33	285
J. W. Newton	52	77	7	32	54	39	261
Mrs. R. Hunter	39	70	2	38	46	61	256
HEAVY BREEDS.							
Nobby Poultry Farm	98	88	80	80	87	97	530
E. Morris	55	71	88	84	68	42	408
E. F. Dennis	91	68	62	17	97	71	406
A. E. Walters	62	88	49	71	89	31	390
W. H. Reilly	64	82	73	27	51	77	374
W. Smith	97	67	23	60	56	70	373
J. W. Macrae	37	31	84	56	76	81	365
Mars Poultry Farm	57	71	76	60	63	44	361
R. Burns	51	53	41	47	82	71	345
D. Fulton	57	60	38	39	13	103	310
F. A. Claussen	50	42	27	47	57	16	239

FEEDING MUSCOVY DUCKS.

By R. T. G. CAREY, Beerwah.

I have received a number of letters asking me what is the best thing to feed muscovy ducks with. It would take too much time to answer each one individually, therefore I wish to reply through the medium of the "Queensland Agricultural Journal." In feeding muscovy ducks, as in feeding other poultry, it must be done regularly, and if possible the meals should vary, selecting several of the best rations now in use. Muscovy ducks feed largely on vegetable and animal food, and do not thrive too well when fed on grains. In their natural state they are herbivora, the food being principally vegetable, together with small animals and insects, obtained in swamps, creeks, or lagoons, once their natural happy hunting ground. The supply of grain or seeds was almost unknown. As each mouthful of food is moistened with water before being swallowed, *water*, the chief and essential factor, must ever be abundantly supplied.

Muscovy ducks love freedom, although they stand confinement well. If given free range they can forage for themselves, and obtain a fair amount of their own

livelihood. Duck men like to give their breeders and laying birds three meals a day, such as a mash in the morning and at night, and a light lunch of grains at mid-day, thrown into the water troughs, but mostly cracked small, so as to make them occupy a longer time to get the grains eaten.

The following rations are best adapted for breeding and laying muscovies for the egg production. Feed twice daily all they will eat of equal parts of wheat, bran, corn meal, or maize meal and pollard. Add ten per cent. of beef scrap, or butcher's offal, liver, lungs, or heart, well minced (boiled potatoes, when cheap), or swede turnips, lucerne chaff scalded over night, with a few ounces of sand or grit thrown in. At noon supply a very light lunch of cracked corn or cracked wheat, given in water pans. Keep small sized grit, charcoal, oyster or sea shells constantly before them, in some receptacle within easy reach.

The mashes should always be mixed with *cold* water or soup. The food is never cooked for ducks. Curds of separated milk form a grand additional food; and are very fattening. Whey is also used to mix with the mash, instead of soup.

Great care must be exercised that breeders and layers do not run into fat. They must be kept in lean condition for egg production and fertility.

Drakes are separated when copulation periods are over, and brought back to condition for the next period of stud work. In fact, they are something like stud rams, stud horses, or bulls, in that they only serve at stated seasons, just when the females come to maturity, or after rearing a hatch. Therefore, do not over-supply the service. Four, six, or eight females are sufficient to mate at any one time. For that work, drakes need a more liberal supply of animal food.

Where marsupials are numerous and easily obtained, skin them, and let the drakes tear the flesh off as they like, but do not let it get rotten. If possible, supply a plunge bath; a tub sunk half-way into the ground acts well.

Muscovy ducks, unlike fowls, rove about at night, and are naturally night-feeders; and domestication has not weaned them of the disposition. Hence there is no harm in leaving any uneaten food remaining over in their troughs over night, as it will be all eaten up before sunrise. Although they appear to eat greedily, there is no fear of overfeeding, since when they are full they will sit in a shady snug corner for hours, in lazy mood, occasionally rising just to moisten their parched throats or bills with a dip or two into water.

When the muscovy mother leads her family of youngsters from the nest, their first instinct is for water, therefore, do not rush to feed them. Merely place a nice drink, with the chill taken off, in a low vessel. Add a few spoonfuls of sweet milk, and you will see how they enjoy that. After the ducklings have been taught where the drink is obtainable, add gradually to it a few ounces of pollard until the fourth day, when you may begin to feed by giving a mash made as follows:—Bran one part, pollard one part, maizemeal one part, one part of animal flesh, minced; or boil to a pulp any fresh beef scraps (not fats), liver, lungs, heart, or marsupial flesh; add a few pinches of grit, sharp sand, and also sea shells. Give all they will eat clean up of this mixture four times a day. The last thing before going to bed, see that a supply is available for midnight supper; also plenty of clean water in the drink vessel. Give no food to baby ducklings until they are thirty-six hours old. Then give a supply of food and fresh water, until they attain the age of one week. The above duckling mash can be used. Should the ducklings show any tendency to looseness at the bowels, a little ground charcoal is added to the ration. Water pans must be constantly emptied and kept clean, as they foul them so quickly; and be sure to have them shaded, as sun-heated drinking water creates more diseases and ailments than one might imagine.

Muscovy ducklings from eight to ten weeks old should have three meals per diem. Half part maizemeal, half part pollard, lucerne, several handfuls scalded soft, with beef slops or some animal offal, and three per cent. grit, sea shell, or oyster shell. At ten weeks they ought to be ready for market.

The proportions of these mashes are by measure or weight, and should always be mixed with cold water, and made dry and crumbly, never pasty or sloppy. Always keep drinking water close to the feed troughs, so as to enable them to rinse their mouths and clear their nostrils.

Preparing for the Market.—Having selected the young ducklings for rapid growth, they are now penned, and encouraged to become lazy, are fed with two measures of corn meal, two measures of pollard, one measure of bran, one measure of green stuff, half a measure of beef scraps, some Meggitt's meal soaked over night. Mix all together into a crumbly mash, feed four times a day. During the last week no green food is fed while the muscovies are being finished off.

Viticulture.

PRACTICAL HINTS ON ESTABLISHING A VINEYARD.—No. 4.

By P. MAHONEY.

PRUNING.

The methods proved by experiment by the most practical men for Australian conditions, and witnessed by the writer, are as under:—For spur-pruned vines of a non-vigorous nature:—

It is necessary to have two arms, each about 18 inches long, which is quite long enough, as long arms are likely to have too much barren wood. But this length should not be attained at one pruning. Say about 1 foot, or perhaps less, should be laid down at the first pruning after the vine has been established on the wire. This can then be extended at the rate of about 4 inches at each pruning until the desired length is attained. It is advisable and most profitable to have in such vines the fruiting wood as close as possible to the stem of the vine, for the fruit is superior, and heavier crops are obtained when these facts are borne in mind.

Never should spurs be allowed to grow from the underside of the main arm; they should be as near as possible on top of the arm, and consist of two buds and a base bud, making the cut through the node above the topmost bud retained, thus not exposing the readily-decomposing pitch. Benefit is also derived, for physiologists claim that in the spring time the bud withdraws all nourishment from the node immediately above it. It is far better to cut the spur back and start off from the base bud than to use a long-jointed, thin spur, for such spurs, in the course of time, are likely to be damaged by the implements used in working the ground.

Careful and judicious pruning should create a vine of about five years old with a series of spurs, that is, little crowns, containing three or four spurs, situated 8 or 9 inches apart, along the main arms. No spurs should be left on the stem of the vine.

A vigorous trailing vine is best trained with one arm, for the flow of sap is best regulated when trained in this manner, the length depending on the nature of the vine and quality of soil, from which the pruner is to form his own judgment. As stated, never should the desired length be laid down at one pruning, but extended at the rate of about 4 to 6 inches at each pruning, the initial length depending upon the constitution of the vine. These vines, when established, should also, as before mentioned, contain a series of spurs at about 8 or 9 inches apart along the main arm. Such vines should be trained with the prevailing winds, if any, for on that principle the vine does not suffer as much as it otherwise would from the strong winds. The T trellis is admirably adapted for the training of rod-pruned vines, as such a trellis allows all the fruiting wood to be on the same level. The main arms of a rod-pruned vine should each be about 9 inches to a foot long, and trained along the middle wire of the T trellis. The rods to be tied to the two outside wires, which are about 2 feet apart. It is not necessary to leave spurs from which to produce rods for the coming pruning, but with a little science the base buds on the rods which are to crop can be made to throw out shoots from their base buds to make rods for the following crops. This can be done by fracturing the rods just above the base bud, thus checking the flow of sap, and causing those buds to burst and grow into rods for next year's crop. The whole rod should be treated in this manner, thus causing all the buds along the rod to burst and be productive. They should also be wound tightly around the wire and tied firmly. Long and short rods fruit alike if treated in this manner. Avoid using these rods if possible, for the stouter they are the better. The number of rods to leave varies according to the constitution of the vine.

Spring and summer pruning consists of removing water shoots and other superfluous growth, in the very early stage of their development (these being of no value), so that the nourishment can be utilised by the fruit and useful canes. It is also necessary in forming the young vine. With a little science in pruning, spring and summer pruning can be greatly minimised, and perhaps altogether avoided.

Pinching off the sappy terminals of canes causes a temporary check, thus encouraging the buds to shoot, and it also induces a better sitting of fruit when the flowers are falling from the bunches.

[TO BE CONTINUED.]

Entomology.

TACHINID PARASITE OF THE CANE BORER WEEVIL.

The General Superintendent of the Bureau of Sugar Experiment Stations has received the following report from Dr. J. F. Illingworth, Entomologist:—

"During the month we made a second trip to the Mossman district—this time for a supply of the tachinid parasite of the borer weevil. Though our stay was very brief, we were able to make the most of it, for we were offered every facility at the mill.

"I was fortunate in locating an abundant supply of the parasites during my previous visit, for Mr. Crees, the manager, informed me that the borer is not very prevalent in the district. My search through hundreds of trucks of cane in the mill yard failed to reveal a trace of them. The particular field where the flies were found was an old nursery of seedling canes, which has had no trash burned—consequently an ideal condition for the borer to propagate. Then, too, in 1910, the breeding-cages from which the tachinid parasites escaped were located alongside this field and the flies have had a good chance to become established.

"I was surprised to learn that all of the cane of the district is burned before cutting. This may account somewhat for the scarcity of the borers, for the fires destroy a large percentage of those that are left in the discarded canes; or the grubs succumb later to the action of the sun upon the exposed stalks. Furthermore, fully 50 per cent. of the cane grown is D1135, a variety so hard that the borers are not attracted to it. It was interesting to note how the borers picked out the softer varieties in the nursery, where they had a choice.

"The mill, however, now pays on individual analysis, and this is tending to increase the growing of Clark's seedling and other canes of higher density.

"Rats are by far the worst pest at Mossman. Soluble strychnine proved a failure, for the rats would not eat the bait. White arsenic has been used there with success; and 'Rat-nip,' a trade preparation, containing phosphorus, also gave good results. These were applied to bits of bread and other kinds of food.

"I was interested to note the scarcity of natural enemies of the tachinid parasites in the district. The exotic ant *Pheidole megacephala*, which proved such a mortal enemy to the young flies in Fiji, is present, though in moderate numbers. In a few cases I found that they had cleaned out the borer channels and were living in them. They are, however, not abundant enough to offer any serious menace to the flies. Furthermore, a considerable search amongst the cane leaves revealed only a single jumping spider. These predators, too, are so abundant in Fiji that often several are to be seen on one stalk. Swallows were rather abundant over the field, but I do not consider them a serious enemy to the tachinids.

"DISTRIBUTION OF THE PARASITES.

"My first intention was to bring all of the flies to the Mulgrave, where the borer beetles are proving themselves such a serious pest on the low-lying lands along the river. Very recently, however, I received a letter from the Babinda Association requesting my assistance in the placing of some of the parasites there. A visit to the district proved to me that the pest was very abundant, and particularly so in the region out around Moolaba.

"I finally decided to liberate the flies from three centres—Moolaba, near the station; Babinda, Dr. Reid's farm; and Gordonvale, Mrs. Moller's farm. A cage has been established at the latter place for breeding the flies; and they are already emerging in considerable numbers.

"IMPORTANCE OF THE HUMUS SUPPLY IN THE SOIL.

"I have been making further investigations at Hambledon during the month. They certainly have the best system of supplying humus that I have seen. All the waste from the mill is composted and left for about a year before it is put on the land.

"This compost is made by building up layers of the various by-products from the mill—filter-press, trash from the carriers, ashes from wood, megass, and so forth—nothing is permitted to go to waste; even dead animals are buried in the pile.

"About thirty loads of this, or about 20 tons, are applied to the acre. It is certainly a very valuable fertilizer, and the cane shows a marked increase in growth where it has been applied. There is one block near the residence of Mr. A. L. Walker (who, by the way, is a grower of keen perception) which is a most excellent experiment. Part of this he treated with the compost, leaving the remainder. The treated cane is almost a foot taller than the other.

"The soil on this farm scours well, and for this reason it is an easy matter to work in trash. Mr. Walker tells me that he leaves the trash from the two last ratoon crops—*i.e.*, volunteering the last ratoons by simply relieving over the rows. After the last crop is cut he ploughs in this double trash and applies compost, or a green crop, which is worked in preparatory to a new series of cane.

"In one field, which he was preparing for September planting at the time of my visit, a bean crop had been turned under, then the soil was treated with about 20 tons of compost. At this third ploughing, the soil was distinctly blackened by the rich supply of humus; and though the surface was clean, Mr. Walker told me that he means to give it five ploughings altogether before planting, to get it in perfect tilth. Is it any wonder that he cuts 50-ton crops without other fertilizers, on land that was once thoroughly infested with white grubs?

"Digging pits in these fields disclosed a fair number of grubs and several of the cocoons of the parasites (wasps), as reported last month. The grubs are the largest that I have seen, which is probably due to the fact that they are so well fed on the compost.

"IMPLEMENTS FOR RED VOLCANIC SOILS.

"Evidently we have not the proper implements for these loose red soils, for it is the general practice among growers to destroy as much trash as possible before ploughing, because they are unable to turn it under.

"There is a crying need for a machine that will chop up the trash, or treat it in some way so that it may be put in by the plough. Perhaps the rolling cutter, which is used for corn stalks in America, would work. It is a heavy implement, drawn by a pair of horses, and the blades are cross-wise of the row. It cuts all the stalks and trash into pieces about one foot long.

"The new American sulky plough with a motor attachment for cutting up weeds and putting them under has received a lot of attention in our magazines; and I was interested in reading in the July Sugar Journal that its fame has reached Australia, through the moving pictures. We, too, are anxious to see it turned loose on heavy cane trash.

"We were able to put under a very heavy crop of Mauritius beans on our experimental plots at Meringa by rolling the vines well just ahead of the ploughs. Treated in this way the discs of the ploughs, if sharp, will cut through the vines easily, providing they are not too old. It is best to turn them under when they are in flower, before the pods are set. If the seed is permitted to ripen there is trouble in store for ever after. Not only are the vines tough and hard to cut, but the dry beans continue to germinate in the soil for many months—some even coming along to climb over and smother the cane after it is laid by.

"LATE PLANTING.

"This is one of the principal subjects of discussion at this season; and, recently, several have told me that they have known late planting to fail because of grubs. It appears that the principal difficulty is due to the lack of cultivation. Investigations, in several instances, showed that the soil became too wet for working just at the time that the beetles were flying.

"It must be made clear, then, that late planting will only succeed on soils which are so easily drained that they may be thoroughly worked through December and January. Most of our red volcanic soils are of this character, and these are the ones that are usually infested when planted early. Let me emphasise that it is *thorough cultivation during the flight of the beetles* that does the business; and that late planting is only to facilitate this.

"I feel confident that the problem can be handled best on the heavy wet soils by the application of abundant humus. Since these soils scour well, trash and green-crops can be easily worked into them. After this preparation, I would advise early planting, for there is no question that this is best where it will succeed. The point here is, that the grubs will leave the growing roots alone if the soil is rich in organic matter."

The Markets.

PRICES OF FARM PRODUCE IN THE BRISBANE MARKETS FOR AUGUST, 1918.

Article.		AUGUST. Prices.
Bacon	lb.	9d. to 10d.
Barley	bush.	2s. 6d. to 4s.
Bran	ton	£4 15s.
Broom Millet	,,	£60 to £90
Broom Millet (Sydney price)	,,	£60 to £90
Butter (First Grade)	cwt.	128s. 6d.
Chaff, Mixed	ton	£3 10s. to £7 10s.
Chaff, Oaten	,,	£5 to £8
Chaff, Lucerne	,,	£3 to £12 15s.
Chaff, Wheaten	,,	£4 10s.
Cheese	lb.	7½d. to 10½d.
Flour	ton	£12
Hams	lb.	1s. 3d. to 1s. 10d.
Hay, Oaten	ton	...
Hay, Lucerne	,,	£3 10s. to £5
Hay, Wheaten	,,	£4 10s. to £5
Honey	lb.	3½d. to 4d.
Maize	bush.	5s. to 5s. 3d.
Oats	,,	3s. 3d. to 4s.
Onions	ton	£20
Peanuts	lb.	4d. to 5d.
Pollard	ton	£5
Potatoes	,,	£5 to £10 10s.
Potatoes (Sweet)	cwt.	3s. to 3s. 6d.
Pumpkins (Cattle)	ton	£4 to £5
Eggs	doz.	11d. to 1s. 3d.
Fowls	per pair	3s. 6d. to 8s.
Ducks, English	,,	3s. to 4s.
Ducks, Muscovy	,,	4s. to 8s. 6d.
Geese	,,	9s. to 11s. 6d.
Turkeys (Hens)	,,	9s. to 13s.
Turkeys (Gobblers)	,,	15s. to 27s.
Wheat (Milling)	bush.	4s. 6d.

VEGETABLES—TURBOT STREET MARKETS.

Beans, per sugar-bag	8s. to 13s.
Beetroot, per dozen bunches	9d. to 1s. 9d.
Cabbages, per dozen	1s. 6d. to 5s.
Carrots, per dozen bunches	9d. to 1s. 9d.
Cauliflowers, per dozen	3s. to 10s.
Chokos, per quarter-case	3d. to 1s. 9d.
Cucumbers, per dozen	...
Lettuce, per dozen	1s. to 1s. 6d.
Marrows, per dozen	1s. 6d. to 3s. 6d.
Parsnips, per dozen bunches	9d. to 1s. 9d.
Peas, per sugar-bag	6s. to 10s.
Sweet Potatoes, per cwt.	3s. to 3s. 6d.
Table Pumpkins, per cwt.	3s. 6d. to 4s. 6d.
Tomatoes, per quarter-case	2s. 6d. to 7s.

SOUTHERN FRUIT MARKETS.

Article.	AUGUST. Prices.
Bananas (Queensland), per case	12s. to 15s.
Bananas (Tweed River), per case	14s. to 20s.
Bananas (Fiji), per bunch...	9s. to 11s.
Bananas (G.M.), per bunch	9s. to 11s.
Bananas (G.M.), per case	22s. to 23s.
Lemons (local), per bushel-case	5s. to 6s.
Mandarins, per bushel-case	1s. to 13s.
Oranges (Navel), per case	8s. to 12s.
Oranges (Queensland), per case	5s. to 9s.
Oranges (Other), per case...	...
Papaw Apples, (Queensland), per quarter-case	...
Passion Fruit, per quarter-case	6s. to 8s. 6d.
Pears, per bushel case	15s. to 20s.
Pineapples (Queens), per double-case	8s. to 10s.
Pineapples (Ripleys), per double-case	6s. to 8s.
Pineapples (Common), per double-case	6s. to 8s.
Tomatoes (Queensland), per half-case	...

PRICES OF FRUIT—TURBOT STREET MARKETS.

Article.	AUGUST. Prices.
Apples, Eating, per bushel-case	7s. to 13s.
Apples, Cooking, per bushel-case	8s. to 11s.
Bananas (Cavendish), per dozen	2d. to 6d.
Bananas (Sugar), per dozen	2d. to 6d.
Cape Gooseberries, per quarter-case	8s. to 13s.
Citrons, per hundredweight	8s.
Cocoanuts, per sack	15s. to 25s.
Cumquats, per quarter-case	...
Custard Apples, per quarter-case	3s. to 5s.
Lemons (Lisbon), per quarter-case	5s. to 7s. 6d.
Mandarins, per case	5s. to 14s.
Oranges (Navel), per case	6s. to 10s. 6d.
Oranges (Seville), per hundredweight	14s.
Oranges (Other), per case	3s. to 6s.
Papaw Apples, per quarter-case	1s. 3d. to 2s. 6d.
Passion Fruit, per half bushel-case	6s. to 11s.
Peanuts, per lb.	4d. to 6d.
Pineapples (Ripley), per dozen	6d. to 2s.
Pineapples (Rough), per dozen	6d. to 1s. 6d.
Pineapples (Smooth), per dozen	1s. to 3s. 6d.
Pomelos (poor man's orange) per hundredweight	...
Rosellas, per sugar bag	...
Strawberries, per dozen boxes	6s. to 13s. 6d.
Tomatoes, per quarter-case	2s. 6d. to 9s.

TOP PRICES, ENOGGERA YARDS, JULY, 1918.

Animal.	JUNE. Prices.
Bullocks	£23 17s. 6d. to £27 5s.
Cows	£15 2s. 6d. to £20 10s.
Merino Wethers	45s.
Crossbred Wethers	50s.
Merino Ewes	29s.
Crossbred Ewes	30s.
Lambs	39s. 3d.
Pigs (Porkers)	50s.

RAINFALL IN THE AGRICULTURAL DISTRICTS.

TABLE SHOWING THE AVERAGE RAINFALL FOR THE MONTH OF JULY, 1918, IN THE AGRICULTURAL DISTRICTS, TOGETHER WITH TOTAL RAINFALLS DURING JULY, 1918 AND 1917, FOR COMPARISON.

Divisions and Stations.	Average Rainfall.		Total Rainfall.		Divisions and Stations.	Average Rainfall.		Total Rainfall.	
	July.	No. of Years' Records.	July, 1918.	July, 1917.		July.	No. of Years' Records.	July, 1918	July, 1917.
North Coast.	In.		In.	In.	*South Coast*—continued:	In.		In.	In.
Atherton	0·90	17	0·68	0·30					
Cairns	1·52	36	2 80	Nil	Nambour	2·67	22	0·87	0·36
Cardwell	1·44	46	0·51	0·40	Nanango	1.77	36	0·15	0·52
Cooktown	0 96	42	2·40	0·09	Rockhampton ...	1·48	31	0 04	0·41
Herberton	0·62	31	0·99	0·22	Woodford	2·59	31	Nil	0·27
Ingham	1·59	26	0·41	0·09					
Innisfail	4·65	37	3·75	0·54					
Mossman	1·46	10	1·48	0·02	*Darling Downs.*				
Townsville	0·55	47	Nil	Nil					
					Dalby	1·83	48	0·09	0·67
					Emu Vale	1·45	...	0·38	0·74
Central Coast.					Jimbour	1·75	...	0·04	0·60
					Miles	1·83	33	0·02	0·81
Ayr	0·56	31	0·18	Nil	Stanthorpe ...	1·97	45	0·59	1·57
Bowen	0·95	47	0·09	Nil	Toowoomba ..	2·02	46	0·44	0·47
Charters Towers ...	0·56	36	Nil	Nil	Warwick	1·81	31	0·23	0·77
Mackay	1·64	47	1·45	Nil					
Proserpine	1·04	15	1·03	N·l					
St. Lawrence ...	1·26	47	0·10	Nil	*Maranoa.*				
					Roma	1·43	44	0·24	0·23
South Coast.									
					State Farms, &c.				
Biggenden	1·34	...	0·30	0·65					
Bundaberg	1·99	35	0·40	0 22					
Brisbane	2·25	67	0·17	0·55	Bungeworgorai ...	1·18	4	0·24	0·14
Childers	1·71	23	0·38	0·23	Gatton College ...	1·38	...	0·16	0·40
Crohamhurst ...	2·92	25	0·32	0·57	Gindie	1·16	...	0·07	0·37
Esk	1 99	31	0·15	0·63	Hermitage ...	1·50	...	0·35	0·92
Gayndah	1·53	47	0·27	0·73	Kairi	0·90	4	0 84	Nil
Gympie	2·18	48	0·39	1·14	Kamerunga ...	1·38	...	1·96	0·02
Glasshouse M'tains	2·37	10	0·27	0 22	Sugar Experiment Station, Mackay	1·35	10	0·97	Nil
Kilkivan	1·76	39	0 59	0·85	Warren	0·95	4	Nil	0·70
Maryborough ...	1·99	47	0·40	0·53					

NOTE.—The averages have been compiled from official data during the periods indicated; but the totals for July this year, and for the same period of 1917, having been compiled from telegraphic reports, are subject to revision.

GEORGE G. BOND, Divisional Officer.

ASTRONOMICAL DATA FOR QUEENSLAND.

TIMES COMPUTED BY D. EGLINTON, F.R.A.S.

TIMES OF SUNRISE AND SUNSET AT BRISBANE.

1918.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.	
Date.	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.
1	6·3	5·34	5·29	5·47	4·59	6·5	4·46	6·28
2	6·2	5·34	5·27	5·47	4·58	6·5	4·46	6·28
3	6·1	5·35	5·26	5·48	4·57	6·6	4·46	6·29
4	6·0	5·35	5·25	5·48	4·56	6·7	4·46	6·30
5	5·59	5·36	5·24	5·49	4·55	6·8	4·46	6·31
6	5·58	5·36	5·22	5·50	4·54	6·9	4·46	6·32
7	5·57	5·36	5·21	5·50	4·54	6·9	4·46	6·32
8	5·56	5·37	5·20	5·51	4·53	6·10	4·46	6·33
9	5·54	5·37	5·19	5·51	4·53	6·10	4·46	6·34
10	5·53	5·38	5·18	5·52	4·52	6·11	4·47	6·35
11	5·52	5·38	5·17	5·52	4·52	6·12	4·47	6·35
12	5·51	5·39	5·16	5·52	4·51	6·13	4·47	6·36
13	5·50	5·39	5·16	5·53	4·51	6·13	4·48	6·36
14	5·49	5·40	5·15	5·53	4·50	6·14	4·48	6·37
15	5·47	5·40	5·15	5·53	4·50	6·15	4·49	6·37
16	5·46	5·41	5·14	5·54	4·49	6·16	4·49	6·38
17	5·45	5·41	5·13	5·54	4·49	6·17	4·50	6·38
18	5·44	5·41	5·12	5·55	4·48	6·17	4·50	6·39
19	5·43	5·42	5·11	5·55	4·48	6·18	4·50	6·39
20	5·42	5·42	5·10	5·56	4·48	6·19	4·51	6·40
21	5·41	5·43	5·9	5·56	4·48	6·20	4·51	6·40
22	5·40	5·43	5·8	5·57	4·47	6·21	4·52	6·41
23	5·39	5·44	5·7	5·58	4·47	6·21	4·52	6·41
24	5·37	5·44	5·7	5·58	4·47	6·22	4·53	6·42
25	5·36	5·44	5·6	5·59	4·47	6·23	4·54	6·42
26	5·35	5·45	5·5	5·59	4·46	6·24	4·54	6·43
27	5·33	5·45	5·4	6·0	4·46	6·25	4·55	6·43
28	5·32	5·46	5·3	6·1	4·46	6·25	4·55	6·44
29	5·31	5·46	5·2	6·2	4·46	6·26	4·56	6·44
30	5·30	5·46	5·1	6·3	4·46	6·27	4·56	6·45
31	...	...	5·0	6·4	...	...	4·57	6·45

PHASES OF THE MOON.

The Phases of the Moon commence at the times stated in Queensland, New South Wales, Victoria, and Tasmania.

			H.	M.	
5 Sept.	●	New Moon	8	44	p.m.
14 „	☾	First Quarter	1	3	a.m.
20 „	○	Full Moon	11	1	p.m.
27 „	☽	Last Quarter	2	39	p.m.

The Moon will be farthest from the earth on the 8th, and nearest to it on the 21st.

5 Oct.	●	New Moon	1	5	p.m.
13 „	☾	First Quarter	3	0	p.m.
20 „	○	Full Moon	7	35	a.m.
27 „	☽	Last Quarter	3	35	a.m.

The Moon will be farthest from the earth on the 6th, and nearest to it on the 20th.

4 Nov.	●	New Moon	7	2	a.m.
12 „	☾	First Quarter	2	46	a.m.
18 „	○	Full Moon	5	33	p.m.
25 „	☽	Last Quarter	8	25	p.m.

The Moon will be farthest from the earth on the 2nd and 29th, and nearest on the 17th.

4 Dec.	●	New Moon	1	19	a.m.
11 „	☾	First Quarter	12	31	p.m.
18 „	○	Full Moon	5	18	a.m.
25 „	☽	Last Quarter	4	31	p.m.

The Moon will be nearest to the earth on the 15th, and farthest from it on the 27th.

There will be an annular or ring-shaped Eclipse of the Sun on 3rd December, but it will not be visible in Australia.

For places west of Brisbane, but nearly on the same parallel of latitude—27½ degrees S.—add 4 minutes for each degree of longitude. For example, at Toowoomba the sun would rise and set about 4 minutes later than at Brisbane if its elevation (1,900 feet) did not counteract the difference in longitude. In this case the times of sunrise and sunset are nearly the same as those for Brisbane.

At St. George, Cunnamulla, Thargomindah, and Oontoo the times of sunrise and sunset will be about 18 m., 30 m., 38 m., and 49 minutes, respectively, later than at Brisbane at this time of the year.

At Roma the times of sunrise and sunset during September, October, and November may be roughly arrived at by adding 16 minutes to those given above for Brisbane.

The moonlight nights for each month can best be ascertained by noticing the dates when the moon will be in the first quarter and when full. In the latter case the moon will rise somewhat about the time the sun sets, and the moonlight then extends all through the night, when at the first quarter the moon rises somewhere about six hours before the sun sets, and it is moonlight only till about midnight. After full moon it will be later each evening before it rises, and when in the last quarter it will not generally rise till after midnight.

It must be remembered that the times referred to are only roughly approximate, as the relative positions of the sun and moon vary considerably.

Orchard Notes for October.

THE SOUTHERN COAST DISTRICTS.

As October is often a dry month throughout the greater part of the State, one of the most important duties of the fruitgrower is to keep his orchard or vineyard in a thorough state of cultivation, thus retaining the moisture in the soil that is essential to the setting and development of the fruit crop. As long as the land is level one cannot over-cultivate, as there is no danger of the soil washing, but when the orchard is on a hillside heavy thunderstorms, which may occur during the month, are very apt to cause heavy washaways of soil if the land is kept in the high state of tilth necessary to retain moisture. In this case the cultivation should always be across and not up and down the face of the hill, and where the soil is of such a nature that it will wash badly thin blocks, consisting of a row or two of a growing crop or of light timber, brushwood, or even a body of weeds or heavy mulching, should be provided, such blocks to follow the contour of the orchard. If dry, and water for irrigation is available, citrus trees will be the better for a thorough watering during the month. Give the trees a good soaking, and follow the irrigation by systematic cultivation, as this is much better than constant surface watering, as practised by the Chinese. Examine the orchard and vineyard carefully for pests of all kinds. When young trees are showing signs of scale insects, cyanide same; when leaf-eating insects of any kind are present, spray the plants that are being attacked with arsenate of lead. Look out carefully for black spot and oidium in grape vines, using Bordeaux mixture for the former and sulphur for the latter. When using sulphur, see that you get a fine sample—viz., one in which the particles of sulphur are in a very fine state, as the finer the sulphur the better the results. Do not apply the sulphur in the early morning, but during the heat of the day, as it is the sulphur fumes, not the sulphur, which do the good. A knapsack sulphurer is the best machine for applying sulphur to grape vines, trees, or plants.

Examine any late citrus fruits or early summer fruits for fruit-fly, and take every precaution to keep this great pest in check now, as, if fought systematically now, it will not do anything like the same amount of damage later on as if neglected and allowed to increase unchecked. October is a good month for planting pineapples and bananas. Be sure and have the land properly prepared prior to planting, especially in the case of pineapples, as the deeper the land is worked and the better the state of tilth to which the surface soil is reduced the better the results, as I am satisfied that few crops will pay better for the extra work involved.

THE TROPICAL COAST DISTRICTS.

As the fruit-fly usually becomes more numerous at this time of year, especial care must be taken to examine the fruit thoroughly prior to shipment, and to cull out all fruit that has been attacked by the fly. Banana and pineapple plants may be set out, and the orchards should be kept well tilled so as to have the land clean and in good order before the heavy summer growth takes place.

All the spring crops of citrus fruits should be now marketed, and the trees, where necessary, should be pruned and sprayed, and the land be well ploughed. The ploughing should be followed by harrowing and cultivating, so as to get the surface of the land in good order. Granadillas and papaws should be shipped to the Southern markets, as, if care is taken in packing and they are sent in the cool chamber, they will carry in good order. These fruits should not be gathered in an immature condition, as, if so, they will never ripen up properly. They should be fully developed but not soft, and if gathered in this condition, carefully handled, and packed and shipped in cool storage, they will reach the Southern markets in good condition, and, once they become commonly known, will meet with a ready sale.

THE SOUTHERN AND CENTRAL TABLELANDS.

In the Stanthorpe district the spraying of apple, pear, and quince trees for codling moth will have to be carefully carried out, the best spray being arsenate of lead, of which there are several reliable brands on the market.

When fungus diseases, such as powdery mildew, &c., are also present, Bordeaux mixture should be combined with the arsenical spray.

The vineyard will require considerable attention, as the vines must be carefully disbudded, and any signs of oidium or black spot should be checked at once. Look out for late spring frosts, and, if possible, try the effect of smudge fires producing dense smoke for preventing any damage.

Keep the orchards and vineyards well cultivated, as it is of the utmost importance to keep the moisture in the soil at this time of the year if a good fruit crop is to be secured.

In the warmer districts cultivation is all-important, and when irrigation is available it should be used for both fruit trees and vines, a thorough soaking followed by systematic cultivation being given.

Farm and Garden Notes for October.

FIELD.—With the advent of warmer weather and the consequent increase in the soil temperature, weeds will make great headway if not checked; therefore our advice for last month holds good with even greater force for the coming month. Earth up any crops which may require it, and keep the soil loose among them. Sow maize, sorghum, setaria, imphee, prairie grass, panicum, pumpkins, melons, cucumbers, marrows. Plant sweet potatoes, yams, peanuts, arrowroot, turmeric, chicory, and ginger. Coffee plants may be planted out. There are voluminous articles in previous journals giving full instructions how to manage coffee plants, from preparing the ground to harvesting the crop, to which our readers are referred. The planting of the sisal agave and the fourcroya may be proceeded with at any time of the year, but the best time is in spring and beginning of summer, when warm weather and good showers will enable the young plants to root quickly and become firmly established before the winter. The demand for the fibre is constantly increasing, and the supply does not nearly overtake the demand, but, owing to the want of shipping facilities no oversea shipments can be made. Hence, the price of the fibre is abnormally high, up to £95 and £100 per ton. Plant only on dry or well-drained soil. Cotton may still be sown.

KITCHEN GARDEN.—Our notes for this month will not vary much from those for September. Sowings may be made of all kinds of vegetables. We would not, however, advise the sowing of cauliflowers, as the hot season fast approaching will have a bad effect on their flowering. French beans, including butter beans, may be sown in all parts of the State. Lima and Madagascar beans should also be sown. Sow the dwarf Lima beans in rows 3 ft. apart with 18 in. between the plants. The kitchen garden should be deeply dug, and the soil reduced to a fine tilth. Give the plants plenty of room, both in sowing and transplanting, otherwise the plants will be drawn and worthless. Thin out melon and cucumber plants. Give plenty of water and mulch tomato plants planted out last month. Asparagus beds will require plentiful watering and a good top-dressing of short manure. See our instructions in "Market Gardening," obtainable on application to the Under Secretary, Department of Agriculture and Stock. Rosella seeds may be sown this month. No farm should be without rosellas. They are easily grown, they bear heavily, they make an excellent preserve, and are infinitely preferable to the mulberry for puddings. The bark supplies a splendid tough fibre for tying up plants. The fruit also makes a delicious wine.

FLOWER GARDEN.—The flower garden will now be showing the result of the care bestowed upon it during the past two months. The principal work to be done this month is the raking and stirring of the beds, staking, shading, and watering. Annuals may be sown as directed for last month. Plant chrysanthemums, gladiolus and other bulbs, such as tuberose, crinum, ismene, amaryllis, pancratium, hermocallis, hippeastrum, dahlias, &c. Water seedlings well after planting, and shade for a few days. Roses should now be in full bloom. Keep free from aphis, and cut off all spent flowers. Get the lawn-mower out and keep the grass down. Hoe the borders well, and trim the grass edges.

General Notes.

A POTATO TEST.

Before buying potatoes (says "The Journal of the Jamaica Agricultural Society"), cut a sample potato in half. Put the two cut ends together. If they stick, the potato is good and mealy; if they slide apart, the potato is watery and of poor quality.

PICKLE FOR HAM.

Honey in place of sugar is used in brine for curing ham, and is highly recommended; it is said to be a favourite in France. The brine calls for 4 lb. of coarse salt, 1 oz. of saltpeter, 2 lb. of honey, and 2 gallons of water. Let the brine stand for twenty-four hours; then immerse the meat in it and let it stay in pickle for six weeks.

TREATMENT OF TRAVEL-TRIED TREES.

"South African Gardening" writes:—

"The South African Railways never earned too good a reputation for prompt handling of perishable goods. They could not be expected to have improved since the outbreak of war, and they certainly have not.

"Judging from our own experiences, there are likely to be some trying journeys before fruit and rose trees this planting season, and many parcels will doubtlessly arrive at their destinations in a dry, shrivelled condition.

"When this happens there is no need to despair. If they are not very bad, plunging them bodily in a barrel or tank of water for a few hours will probably restore plumpness.

"In bad cases, they will revive better if buried in moist soil for a week or ten days. Just dig out a deep wide trench, lay the trees bodily, and cover them over with soil. Occasional examination will prove to what extent they have been restored to a normal state, and when this is complete they can be dug up and planted in the usual way."

[A few years ago a consignment of young orange-trees was sent from Brisbane to New Guinea. They arrived, although carefully packed in stout cases, in very bad condition. Somebody at Port Moresby advised placing them in a trench as above described, and several trees recovered; and, after planting, these revived and did well.—Ed., "Q.A.J."]

PRESERVING EGGS.

Firstly, get an earthenware crock or jar, which is the best receptacle; failing this a small barrel (pork or beef) well cleaned out; or a kerosene tin, which serves fairly well. Secondly, bear in mind that the eggs must be perfectly fresh, not sat upon even a night or day, must not be soiled, and if infertile, all the better. Infertile eggs keep and eat much better. When about to arrange for preserving eggs, we confine the cocks for a week before and during the process of collecting the eggs for preserving.

Waterglass is the best preservative, but when this cannot be obtained, the lime method is the next best. Many consider this method entirely satisfactory, though instances are known where eggs so preserved have tasted slightly of lime. To prepare the lime water, dissolve 2 or 3 lb. of unslaked lime in 5 gallons of water that has previously been boiled and allowed to cool, and allow the mixture to stand until the lime settles and the liquid is clear. Place clean, fresh eggs in the vessel and pour the clear limewater into the vessel until the eggs are covered. At least 2 in. of the solution should cover the top layer of eggs. Sometimes 1 lb. of salt is used with the lime, but experience has shown that in general the lime without the salt is quite satisfactory.

Place the crock containing the preserved eggs in a cool, dry place, well covered to prevent evaporation. Waxed paper covered over and tied around the top of the crock will answer this purpose.

Using Preserved Eggs.—Fresh, clean eggs, properly preserved, can be used satisfactorily for all purposes in cooking and for the table. When preserved eggs are to be boiled, a small hole should be made in the shell with a pin at the large end before placing them in the water. This is done to allow the air in the egg to escape when heated so as to prevent cracking. ("Journal of the Jamaica Agricultural Society.")