

# QUEENSLAND AGRICULTURAL JOURNAL

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PART 2.

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## Agriculture.

### THE AUSTRALIAN WHEAT YIELD FOR 1917-18.

The Australian wheat yield for 1917-18 has been estimated at 116,058,315 bushels, of which New South Wales has produced 37,842,930 bushels; Victoria, 37,737,552 bushels; South Australia, 28,692,594 bushels; Western Australia, 10,000,000 bushels; Queensland, 1,405,664 bushels; Tasmania, 379,575 bushels. Of the Australian 1915-16 crop there are 6,708,000 bushels held by shippers and 267,000 bushels by millers. Of the 1916-17 crop, shippers hold 93,933,000 bushels, and millers 3,309,000 bushels. Of the 1917-18 crop, shippers hold 82,941,000 bushels, and millers 12,807,000 bushels. Not allowing for that destroyed by mice and weevil, there should be now in Australia 66,655,000 bags, or in round figures 200,000,000 bushels of wheat, which, at only 4s. per bushel, would be worth £40,000,000. If it could be shipped it would be worth very much more. On 3rd June the Australian Wheat Board had an overdraft of £10,763,000. Of this the New South Wales amount was £3,249,000; that of Victoria, £3,597,000; South Australia, £3,399,000; Western Australia, £518,000.

On the 30th May a cargo of about 2,200 tons of wheat in the schooner Betsy Ross left Melbourne for the United States. This vessel is the first to sail of the fleet of American and Canadian sailing vessels, detained in Melbourne pending the completion of negotiations with regard to the carriage of Australian wheat to the United States.—Producers' Agency.

### CULTIVATION OF LINSEED FOR OIL PRODUCTION.

The following facts have been collected by Messrs. Meggitt Limited, Sydney (whose advertisement *re* linseed meal, &c., appears in another page of this issue of the "Journal"), with a view of helping farmers in the production of linseed for oil milling. The production of flax entails a different treatment, and is entirely another proposition.

Linseed is grown extensively in Argentine, Canada, India, America, and Russia. It may be argued that linseed might do well in the above countries, and yet prove an unsatisfactory enterprise in Australia. So far as we can ascertain, there does not appear to be any reason why linseed should not do well and prove at least as profitable as wheat in the greater part of the country which is now chiefly occupied in production of that cereal.

All the countries which produce linseed in any quantity are also great wheat-producing countries. Although it may be argued that the demand for linseed would be purely local, it must be apparent to thinking people that there is just as wide a world market for linseed as there is for wheat. Our requirements will approximate 18,000 tons per year.

In 1913 the gross linseed imports into the United Kingdom for twelve months to 31st December, were 3,274,000 quarters, and the total American imports of linseed (official) for 1914, 1915, and 1916, respectively, were 231,163 tons, 370,909 tons, and 327,451 tons.

There is no area in the United States in which flax is grown as a dual purpose crop—that is, producing both linseed and flax. Practically all the area is devoted to the production of seed alone. Straw from some areas is utilised in the manufacture of tow, which is used in the making of upholstery tow, insulation boards, certain types of rugs, and, to some extent, in the making of coarse papers. Just at the present time it is being utilised principally, we believe, in the manufacture of oakum.

#### SOIL.

Any land that will grow wheat, oats, and like crops will grow linseed. Avoid boggy, wet land; don't use rich land—soil well cropped out will give good results. Grown as a rotation crop once in about seven, it will do the soil a lot of good, and the land will grow better crops after it. When grown upon sandy soils the difficulty is that the crop is too dependent upon frequent rainfall for the necessary moisture, since there is so little available water stored in such a soil.

#### PLOUGHING.

Plough to the depth of about 7 inches, then work the soil to a fine tilth, making the surface smooth and even.

#### SOWING.

Sow broadcast. This can be done effectively with the drill by taking off the points and fixing a board under the cups; the seed dropping on the board is cattered evenly over the ground. Slant the board to throw from the machine to the back.

There appears to be a diversity of opinion as to the quantity of seed to be sown per acre. The Department of Agriculture of New South Wales advise 30 lb. to 40 lb. per acre, whereas the "Farmers' Bulletin," published by the United States, America, Department of Agriculture, say to sow from 15 to 35 lb. to the acre; again, a local authority says about 56 lb. of seed to the acre should be sown. The seed should be

lightly rolled to a depth of between half an inch to one inch. The seed should be sown as early in Spring as land is prepared, before the surface dries. Before the seed is finally selected for planting it should be thoroughly cleaned, and all foreign seeds, or immature seeds, should be graded out, using only the plump seed.

#### DISINFECTING.

In order to insure against infecting the soil with disease organisms, which later might injure or destroy the growing plants, the seed intended for planting should be given formaldehyde treatment. This treatment consists of spreading the seed on a tight floor and spraying it with a solution made in the proportion of one pint of 40 per cent. formaldehyde to 40 gallons of water. The best results can be accomplished by using a spraying outfit which throws a fine misty spray. Then, by turning the seed with some such implement as a hoe or rake, the entire surface of the seeds should be covered with the solution. About two quarts of the spray material will be sufficient for each bushel of flax seed. While drying, the seed should be turned occasionally with a scoop shovel to prevent them from adhering to each other.

#### HARVESTING.

Cut with reaper and binder close to the ground, stack to dry, then stack some time before thrashing. The time to harvest is when the top seed bolls turn brown and about half-way up of the straw has turned yellow.

Without any available data to go upon, it is impossible to say what crop of seed is likely to be produced in Australia, but it should be certainly on the same ratio as wheat—namely, from 10 to 20 bushels to the acre (56 lb. to the bushel).

As regards the price likely to be secured for the crop, this is at present impossible to forecast. In the near future the rate will be a high one, and probably in the neighbourhood of 6s. to 10s. per bushel. Conditions prevalent preclude any definite information in this connection. Freights are fluctuating almost daily.

Mr. George Suttor (one of the noted wheat experts of the State) says:—"Linseed is a crop likely to prove very suitable as a rotation crop in the majority of our wheat districts. Its cultivation is almost identical with that of wheat." Mr. Suttor added that this crop matures more quickly than wheat, and one great advantage is that it can be left in the paddock unharvested several weeks without risk of loss from shedding.

[In connection with the above, Messrs. Meggitt, who are largely engaged in the production of linseed oil in New South Wales, state that they are in a position to guarantee a market for at least 10,000 tons per annum, and, as their output is daily increasing, these figures would, in all probability, be considerably augmented before very long. We have frequently advised the growing of the flax plant both for fibre and seed, as a crop likely to give good returns, and the exigencies of the war would doubtless cause a rise in the price of linseed oil and flax, and consequently the farmer would benefit by such an increase in price.—Ed. "Q.A.J."]

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#### SORGHUMS FOR SALE.

In continuation of the series of illustrations of the sorghum, seed of which is obtainable from the Department of Agriculture and Stock (*vide* advertisement in this issue of the journal), we now depict the following varieties:—Dwarf Milo, Shantung Dwarf Milo, Valley Kaoliang.

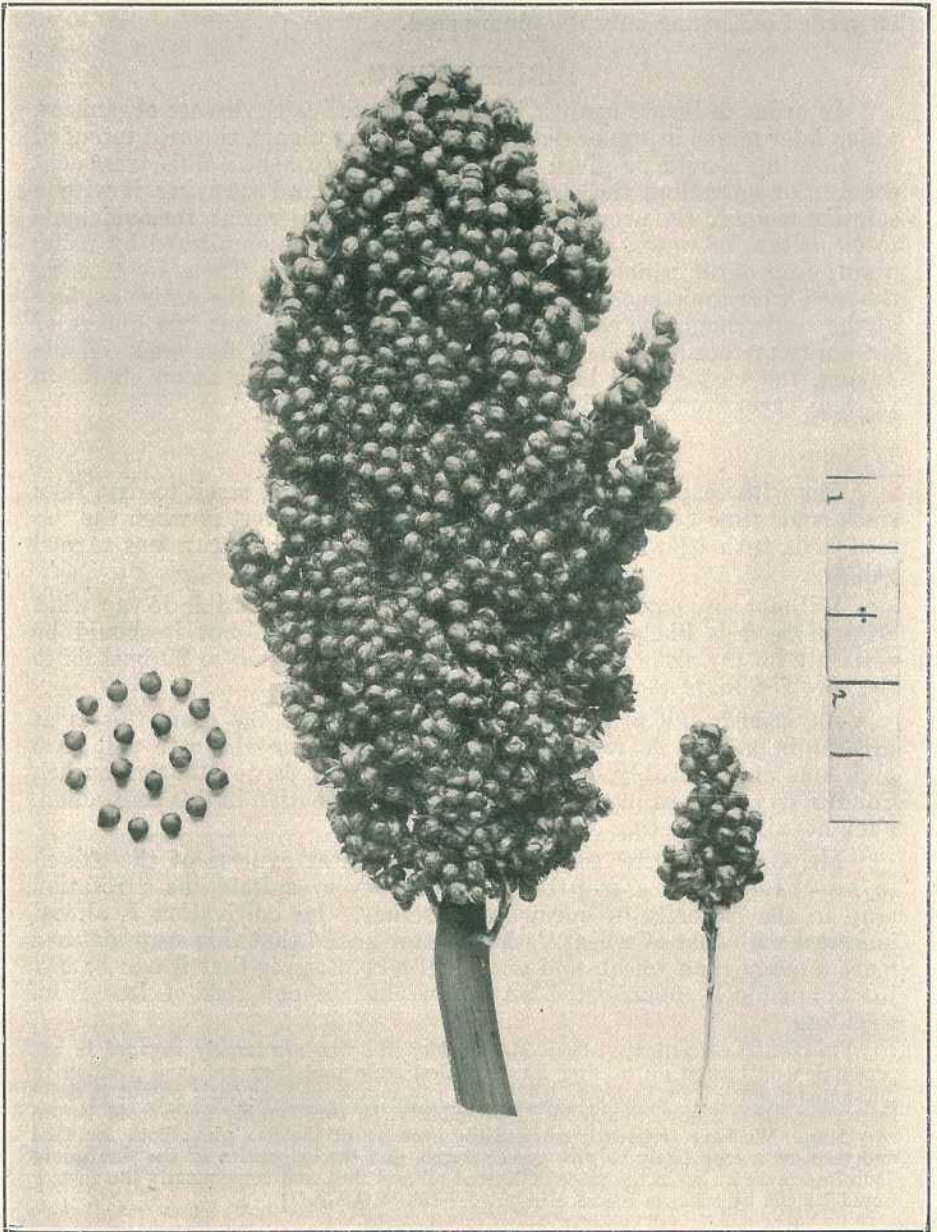


PLATE 9.—DWARF MILO.

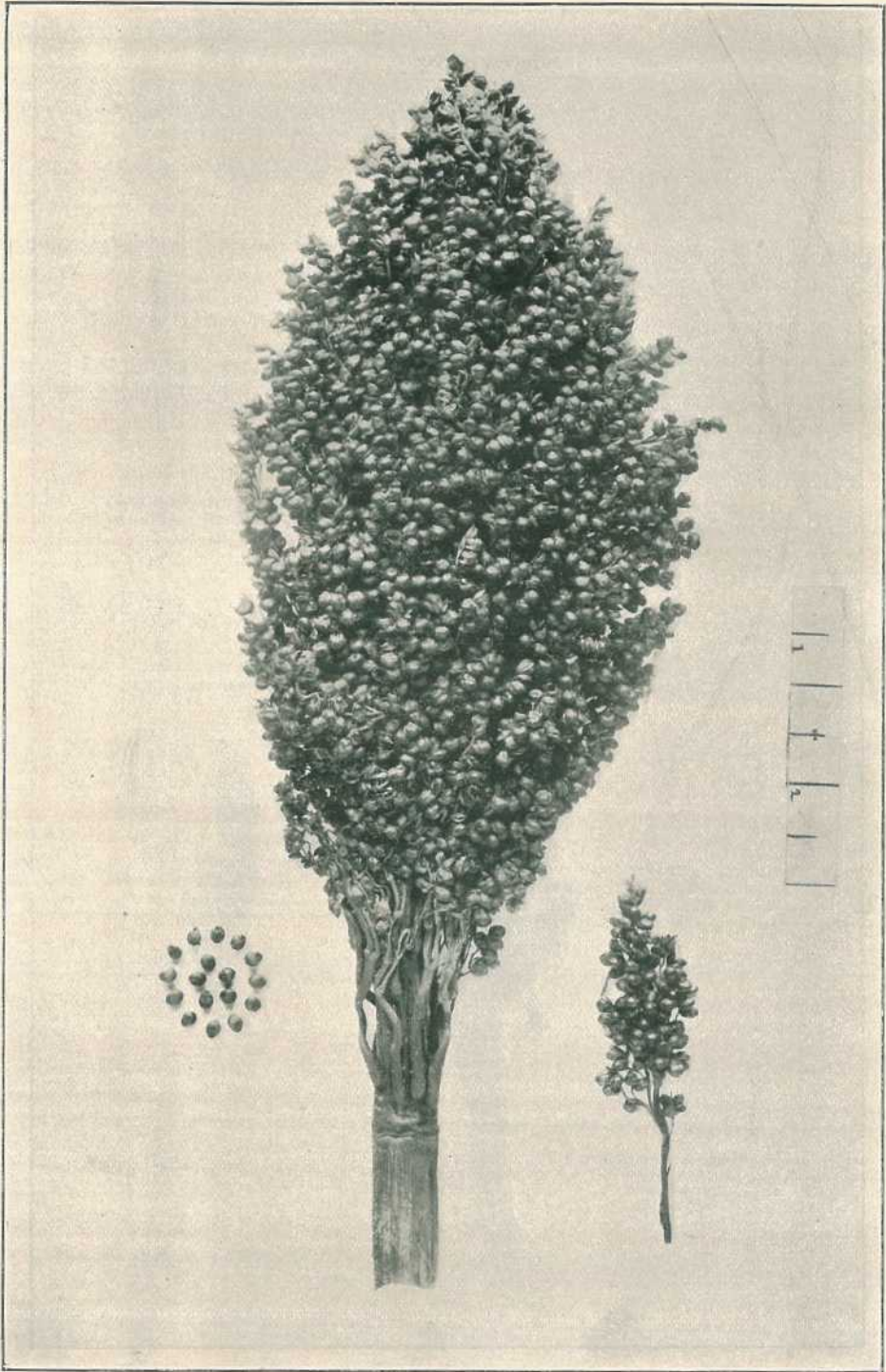


PLATE 10.—SHANTUNG DWARF KAOLIANG.

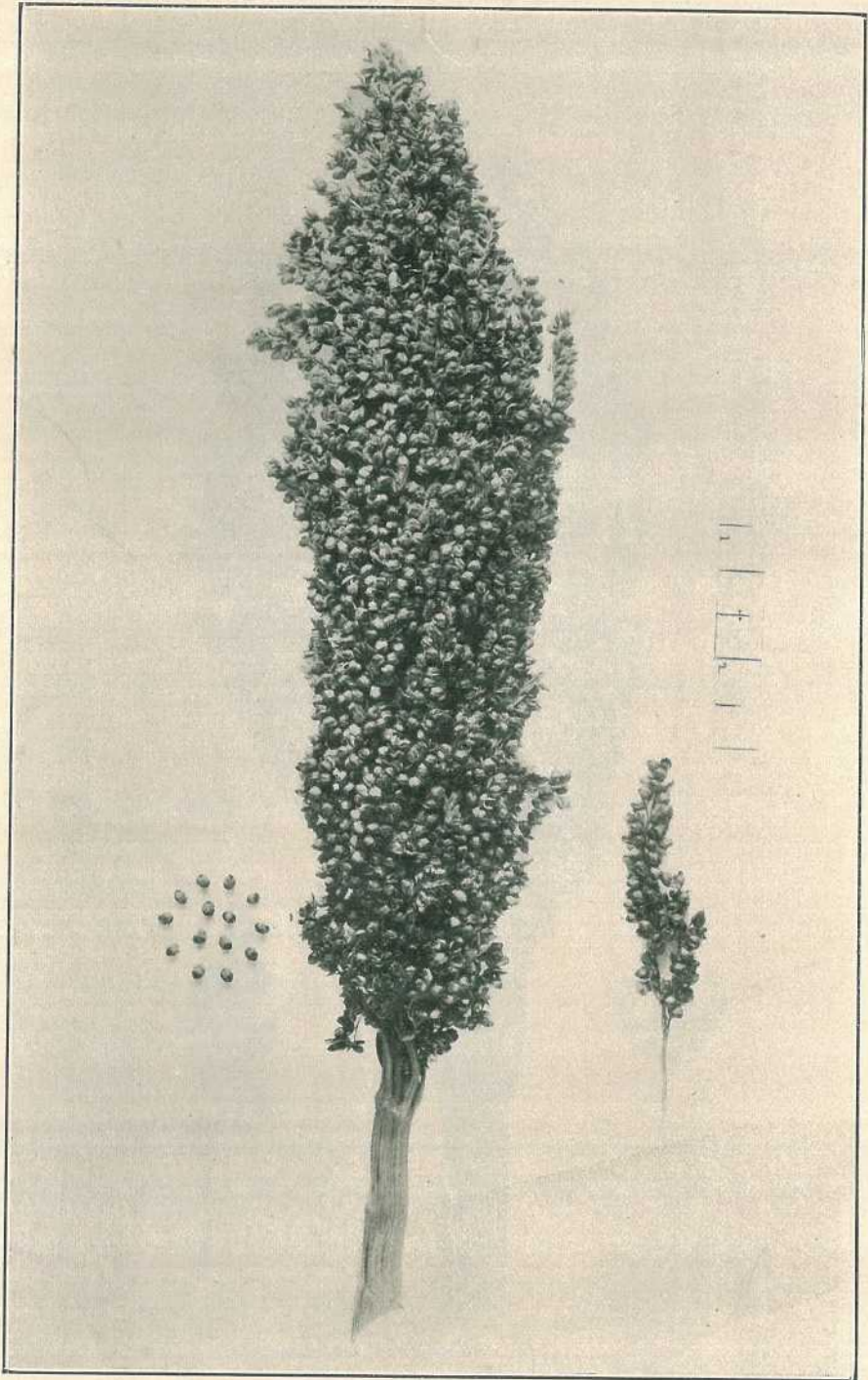


PLATE 11.—VALLEY KAOLIANG.

### BROOM MILLET.

"In June last" (says "Town and Country"), "Northern River and inland broom millet fetched up to £100 a ton, which was easily a record for Sussex Street. The shortage was mainly due to floods washing away many of the first and second sowings along the Richmond and sister rivers. The Federal Price Fixing Commissioner was to hold an inquiry during the month, with a view to fixing a maximum rate for this staple line."

Such a price is, no doubt, the maximum for the best fibre. It would certainly prove a most profitable crop for Queensland farmers, and they would do well to take advantage of the opportunity offered by the Department of Agriculture and Stock to enable them to obtain seed of the very best varieties of broom millet. As notified in our advertising pages, seeds of sorghum and millet may be obtained on application to the Under Secretary for Agriculture. Postage packets, orders of not less than 3 lb. of any one variety, will be supplied. Three sizes are made up, viz.:— 3 lb. for 2s. 6d.; 7 lb. for 5s. 6d.; and 10 lb. for 7s. 6d. respectively (including weight of seed envelope).

### THE GROWING OF LUCERNE.

In the course of a most interesting address delivered before the Conference of Mid-Northern Branches of the Agricultural Bureau by the Director of Agriculture, Professor Arthur J. Perkins, South Australia, the following advice was given to farmers:—

#### GENERAL ADAPTABILITY OF LUCERNE TO SOILS.

We often hear certain types of country referred to specially as "lucerne land"; particularly is this the case in some parts of the Lower North. I am afraid that assertions of this kind have, in the past, been very largely responsible for checking the spread of lucerne as a general farm crop. As a matter of fact, there are very few soils indeed on which lucerne is not likely to thrive; although one must admit that the total yields of this crop are more satisfactory in some soils than in others.

On the whole, so far as lucerne is concerned, the subsoil is probably of greater importance than the soil. Lucerne is an exceedingly deep-rooted plant; its roots have at times been traced to depths of 16 feet to 18 feet below the surface. We may take it, therefore, that, once established, lucerne lives chiefly in the subsoil; hence a favourable subsoil is of greater importance than a favourable soil. The best type of subsoil is a good natural drainage. A stiff subsoil, exposed to lying wet over a long period of time, is always to be avoided; and the same may be said of a rocky unfissured subsoil. In other words, therefore, lucerne requires a type of subsoil into which its long roots are able to penetrate without difficulty.

We cannot, however, altogether overlook the quality and character of the surface soil, since consistently heavy yields are obtainable only when comparatively fertile surface soil of good depth covers a favourable subsoil. In this connection, rich alluvial lands are undoubtedly the best, and should always be selected when available. I must again insist that for the healthy development of lucerne, the presence of a sufficiency of lime in soil and subsoil is an essential factor.

An underground watertable, relatively close to the surface, is often pointed to as a desirable factor in lucerne land. Whilst the value of this feature may be admitted in a general way, it is as well to point out that in certain circumstances it may not be without disadvantage. If, for instance, in these circumstances the height of the watertable is liable to vary with the season, and particularly to rise unduly in the winter months, it may prove more or less fatal to the lucerne plants. It cannot therefore be insisted upon too strongly that whatever the character of the soil, it is absolutely essential to the success of lucerne that the soil offer good natural drainage facilities, and that the plants be not exposed for any length of time to stagnant moisture.

Finally, it is not advisable to place lucerne on land in which salt is likely to accumulate to any extent under the influence of irrigation operations.

#### PREPARATION OF THE LAND.

When we set about preparing land for lucerne, we should always bear in mind that we are about to sow a crop which, we hope, will occupy the land for several

successive years; hence common sense indicates that we should give to this preparation of the land at least as much attention and care as would be bestowed upon a crop which is sown and reaped and finally disposed of in a single season.

The fact that lucerne is a very deep-rooted plant suggests that in preparing the land we should do everything towards facilitating the early descent of the roots into the subsoil; hence, for best possible results, land which is to carry lucerne should, from the outset, be subsoiled to a depth of 12 inches to 15 inches at least. The simplest plan for the purpose is, perhaps, to break up the land with an ordinary plough to a depth of, say, 6 inches to 8 inches, and immediately afterwards follow this work up with a subsoiler, which will stir up the subsoil to the requisite depth without, however, bringing it to the surface.

We must assume this subsoiling to take place at the time of the year best suited for work of this kind, probably in May or June in most districts. Subsequently to this first treatment, land which is to carry lucerne must be treated in exactly the same fashion as we should treat bare fallow intended for wheat in the following season. If this practice is carefully followed, the subsoil and the land generally, which have been roughly torn up and opened out to a considerable depth, will, under the influence of winter rains and of successive tillage operations, gradually run together again, and mellow down into a suitable type of seedbed, the surface of which should be as fine as an onion bed, and the layers immediately below firm and compact, like those of a well-prepared wheat field. Moreover, frequent tillage operations should have the effect of cleaning the land and freeing it from undesirable weeds.

I know that, relatively to what is done for wheat, there is a tendency to slur over the preparation of the land for forage crops; it is well, therefore, that we should convince ourselves that both yields and durability of the lucerne fields depend very largely on the care and attention we are able to bestow on this initial preparation on the land.

#### THE APPLICATION OF A DRESSING OF FARMYARD MANURE PRIOR TO SEEDING.

It has already been stated that lucerne thrives best in naturally fertile land; hence everything that we can do towards artificially raising the fertility of average land will contribute much towards a general improvement in future yields.

It is often stated that farmyard manure is essentially a nitrogenous manure, and that since the leguminous crops, of which lucerne is one, do not draw their nitrogen from the soil but from the atmosphere, they can benefit but little from a dressing of farmyard manure. Nevertheless, general experience does not support this view; indeed, quite the contrary would appear to be the case. We may account for the responsiveness of lucerne and other leguminous crops to dressings of farmyard manure to the fact that although they do not draw much nitrogen from the soil, for strong, successful growth they are always dependent on an abundance of organic matter, and for soils inadequately provided with the latter it is always to farmyard manure that the farmer naturally turns. Hence farmers who, as a rule, have no particular use for farmyard manure in their wheatfields should distribute it liberally over land which they intend bringing under lucerne. Any dressing up to 20 tons to the acre, or over, will not be excessive. This manure should be spread over the ground and ploughed under when the land is first broken up in the way of preparation for lucerne; it will thus have a full year to decompose in the soil before seeding operations come round. During this time, too, weeds, the seeds of which it brings with it, will germinate, and can be destroyed by ordinary tillage operations.

#### GRADING OF THE LAND FOR IRRIGATION PURPOSES.

It should be stated here that it is exceedingly unwise to endeavour to grow irrigated lucerne on land that has not been carefully graded. If grading is neglected, the usual result is that in a very short space of time portion of the land is liable to die out from excess of water, whilst the balance makes poor, weakly growth, because the irrigation waters fail to reach it. If irrigation by flooding is contemplated, the land must be graded to a fairly even level prior to seeding. If, on the other hand, sprinklers are to be availed of, a fall of 3 inches in the chain will always be found advantageous from the point of view of drainage.

#### IRRIGATION OF SOIL INTENDED TO CARRY LUCERNE.

It is to-day a matter of common knowledge that lucerne, like other leguminous crops, is able, through the medium of special bacteria living on its roots, to abstract free nitrogen from the atmosphere. Moreover, it has frequently been stated that on land on which lucerne has not been grown previously these essential bacteria are at times absent, and that when this is the case, lucerne never makes satisfactory growth. So far as my experience goes, this is very rarely the case in South Australia; and we are almost justified in the view that with us, at all events, these special bacteria are

more or less ubiquitous. It would appear, however, to be comparatively easy to overcome the difficulty in those cases in which direct experience had shown that these bacteria were absent. All that it would be necessary to do would be to secure suitable quantities of soil from a well-established lucerne field in a neighbouring district. This soil, which should not be allowed to dry out unduly, should then be drilled over the land immediately prior to seeding at the rate of 2 cwt. to 3 cwt. to the acre. Hitherto, however, there appears to have been no need for the adoption of this practice in South Australia.

#### SOWING PERIODS FOR LUCERNE.

When should lucerne be sown? In reply to this question, we find advocates for two seasons, some preferring the spring and others, again, the autumn. Now, whilst I readily recognise that in very cold countries—countries, in fact, in which lucerne is not as a rule currently grown—spring sowing has distinct advantages, from the point of view of personal experience, I am convinced that autumn sowing is in every way better adapted to general South Australian conditions. So far as I am able to judge, the only advantage that can be claimed for spring sowing is that the young seedling plants are less exposed to damage by frost than when sown in autumn. Such an advantage unquestionably holds good in those countries in which winter frosts are of exceptional severity. Under our conditions, however, it has, in my opinion, little or no significance; hence, in dealing with seeding operations, I shall assume that we have in view autumn seeding alone. Moreover, should severe frost happen occasionally to destroy autumn-sown lucerne, it always remains open to us to sow again the whole field, or such portions of it as have been damaged, as soon as spring opens.

I think it worth while to draw attention to one of the chief advantages that can be claimed for autumn sowing of lucerne. Autumn-sown plants have ample time to penetrate into the depths of the soil before the hot weather sets in; hence, in the summer that immediately follows seeding operations, autumn-sown plants are infinitely stronger and healthier than those sown in spring, and one of the immediate consequences of this fact is that whilst the cuts of the first year from a spring-sown crop are relatively light, the total cuts from an autumn-sown crop of the first year frequently almost equal in weight the cuts of the second year. This, it will be agreed is, from the pecuniary point of view, a very appreciable advantage in favour of autumn sowing.

Attention should, perhaps, be drawn to an objection that is frequently raised to autumn sowing. It is said—and with reason—that an autumn-sown crop is very often more or less smothered by winter-growing weeds. I shall point out, in the first place, that this difficulty would be very much minimised if, as I have suggested, the land which is to be sown to lucerne had been carefully bare fallowed in the previous season. Nevertheless, I agree that, in spite of careful fallowing, we cannot altogether avoid the development of a certain amount of winter weed growth. I must state, however, that in my personal experience, these winter weeds are comparatively innocuous from the lucerne's point of view; indeed, at times the stronger weeds may even act as shelter against frost to the more slow-growing lucerne plants. Let us admit that by August there will often seem to be more weeds than lucerne plants. It is wise, at this stage, to take an early cut of lucerne and weeds, providing always the land is sufficiently dry on the surface to admit of it. Subsequently, under the influence of rising temperatures, the second growth will make rapid progress, and the second cut, still more or less seedy, should follow as soon as possible; in September, if circumstances admit of it. Thereafter, throughout the summer months, I can guarantee that not a weed will be found in a well-sown field of lucerne; and this could hardly be said of spring-sown lucerne, which in the first year is generally apt to be overrun with strong-growing summer weeds, such as hogweed, &c.

#### THE USES OF A COVERING CROP FOR LUCERNE.

The sowing of a sheltering or covering crop simultaneously with lucerne is frequently recommended. The chief object aimed at would appear to be to occupy the land more profitably in the first season than could be done with lucerne alone. With this object in view, rye-grass, rye, and even barley or oats are sometimes sown with lucerne seed. It cannot be said that this practice is of any particular advantage to the lucerne plants themselves; indeed, I am of the opinion that it detracts from the eventual returns of the yield by hindering early growth. When lucerne is autumn-sown, I can see absolutely no advantage in adopting this practice; hence in no circumstances can I recommend it.

#### WHEN TO PRACTICE AUTUMN SOWING.

Assuming that the practice of autumn sowing is recognised as best suited to local conditions, it remains for us to determine what particular time in the autumn months is best adapted to the sowing of lucerne.

In principle it is of advantage that the young plants should be above ground as early in autumn as circumstances permit of. In the early autumn the ground is still

warm, and given a sufficiency of moisture, the young plants will take very ready advantage of it; hence, if we have irrigation facilities at our disposal, I recommend sowing towards the end of March. If, on the other hand, we have to trust to rain to bring up the seed, we should generally sow on the first break in the season. Should autumn rains hold off unduly, I would not hesitate to sow dry and trust to the first rain to bring up the seed.

#### DRESSING OF SUPERPHOSPHATE PRIOR TO SEEDING.

Notwithstanding an earlier dressing of farmyard manure, it is always advisable, in our type of soils, to drill in from 2 cwt. to 4 cwt. of superphosphate to the acre immediately prior to seeding.

[TO BE CONTINUED.]

### AGRICULTURAL RESEARCH IN AUSTRALIA.

We are in receipt of Bulletin No. 7, entitled "Agricultural Research in Australia," issued by the Commonwealth Advisory Council of Science and Industry. In it are published the various papers read at a conference of agricultural scientists from all the States of the Commonwealth, which was held in Melbourne in November, 1917. In addition, the Bulletin publishes interesting summaries of the discussions on the various papers read, and the resolutions which were proposed at the earlier sessions of the conference which were then carried provisionally, and were finally adopted at the last session. The papers read covered a wide scope of research, including the breeding of cereals, immunity, inheritance, and acclimatisation of plants, the tobacco and fibre-growing industries in Australia, the utilisation of the phosphate deposits of Australia, the Australian sugar industry, and suggestions as to the Commonwealth endowment of agricultural research. As regards fibre-growing, a most interesting paper was read by Mr. T. Hogg, a few extracts from which will be found in another part of this journal, as being of especial interest to farmers and manufacturers in this State.

An attempt was made to initiate the cultivation of New Zealand hemp; but, although the plant does well here, no success attended the efforts made to establish plantations of this valuable fibre plant. Flax has also been tried, and, as a winter crop, thrives well, but when it came to the labour question, Queensland farmers could not compete with Russia. Mr. Hogg very rightly urges Australian agriculturists to grow flax, pointing out that Australia might some day be so isolated that she could not import anything. Still, the labour question stands in the way of any fibre industry being profitably carried on here. It may be noted that with the exception of a kind of tall-growing flax in Italy, flax grown in Russia, and New Zealand flax, all our supplies of useful fibres are imported from countries where cheap black labour is employed. Hence all attempts to grow fibre plants to a profit with white labour meet with disaster.

### THE POSSIBILITY OF CULTIVATING FIBRE PLANTS IN AUSTRALIA.

In the course of Mr. Hogg's remarks on the above subject, in the paper read by him at the fifth session of the Advisory Council of Science and Industry held in Melbourne on the 15th November, 1917, the question of the cultivation of fibre plants in Australia was dealt with from a business point of view by a business man. This is precisely the information which should be of much interest to capitalists and to all engaged in agricultural pursuits in Queensland. We have persistently advocated the cultivation of sisal hemp, Mauritius hemp, Sansiviera (Murva), and flax in Queensland, all of which thrive well. A few years ago the sisal agave was very profitably grown both in the South, North, and in the Burnett district at Childers, but owing to the constantly increasing wages of farm labourers, and the cost of machinery, the industry gradually died out. Mauritius hemp, the product of *Furcraea gigantea*, was never cultivated here, although it thrives well even in frosty districts, the leaves attaining a length of from 7 to 8 ft. In former times, when sisal hemp was worth £24 per ton in Australia, some planters made a clear profit of £12 per ton. Yet the industry died out, and there seems no probability of its revival. Sisal fibre is worth £100 per ton since the war, but even if there were any supplies available in Queensland, no advantage could be taken of the great rise in price, owing to want of transport facilities. The only market would be limited to the requirements of Australian ropemakers, which are too restricted in their operations to warrant the erection of expensive machinery. A considerable quantity of the fibre is produced in Papua, especially on one large well-equipped plantation at Tavai. But in Papua there is a plentiful supply of black labour, and the natives soon become experts at working the machinery.

## Dairying.

### THE DAIRY HERD, QUEENSLAND AGRICULTURAL COLLEGE, GATTON.

MILKING RECORDS OF COWS FROM 30TH MAY TO 29TH JUNE, 1918.

Name of Cow.	Breed.	Date of Calving.	Total Milk.	Test.	Commercial Butter.	Remarks.
			Lb.	%	Lb.	
Lady Melba ...	Holstein ...	31 Mar., 1918	1,208	4.1	58.04	
Buttercup ...	Shorthorn ...	30 May "	1,058	4.6	57.34	
Royal Mistress ...	Ayrshire ...	13 Mar. "	658	5.9	45.95	
Dawn of Warragarra	Jersey ...	4 May "	658	5.2	40.41	
Miss Betty ...	" ...	9 June "	632	5.3	39.52	
Constancy ...	Ayrshire ...	7 April "	667	5.0	37.65	
Charming Damsel ...	" ...	1 May "	735	4.1	33.70	
Lady Margaret ...	" ...	27 Dec., 1917	493	5.4	30.87	
Lady Peggy ...	" ...	30 Mar., 1818	710	3.9	30.50	
Yarraview Ida's Hope	Guernsey ...	5 May "	577	4.0	25.78	
Iron Plate ...	Jersey ...	14 Oct., 1917	311	6.9	25.46	
Jeannie ...	Ayrshire ...	13 Dec. "	339	6.2	24.89	
Leda's Jessie ...	Jersey ...	25 Mar., 1918	390	5.3	24.42	
Mistress Bee ...	" ...	23 Jan. "	420	4.9	24.27	
Leading Lady ...	" ...	26 Dec., 1917	333	5.9	23.35	
Hedge's Nattie ...	Holstein ...	1 Feb., 1918	519	4.0	23.20	
Lady Loch II. ...	Ayrshire ...	13 June "	382	4.9	22.07	
Charity ...	Jersey ...	24 April "	376	5.0	21.22	
College Ma Petite ...	" ...	10 Nov., 1917	291	6.1	21.02	
Princess Kate ...	Ayrshire ...	5 May, 1918	449	3.9	20.54	
Glow VI. ...	Guernsey ...	9 Nov., 1917	375	4.8	20.28	

### TREATMENT FOR DOGS, FOALS, AND CALVES AFFECTED WITH SCRUB TICK.

Scrub ticks cause a great deal of trouble to stockowners in certain districts with a large percentage of mortalities. It has been stated that these ticks do not harm the animals during the first four days of attachment, so it is recommended that, where scrub ticks are prevalent, valuable animals should be thoroughly examined every second or third day. It has been proved that trypan blue, injected under the skin, is a specific for this disease in the dog. The paralysis soon improves, and in a few days the animal thoroughly recovers. One dose of the trypan blue is usually sufficient. A 2½ per cent. solution (about 9 grains to a fluid ounce of water) is made by dissolving the blue in boiling water. A sediment falls as the solution cools, and this should be removed by filtering through a funnel, in which a properly folded filter is placed, or a piece of clean linen which has been previously boiled. The hypodermic syringe and needle, before being used, should be placed in a dish containing cold water, then placed over the fire, and the water boiled for about ten minutes. This thoroughly sterilises the syringe and needle, which are now ready to use when the solution to be injected has cooled. The injection can be made anywhere under the skin, but the best positions are either in front of the chest or behind the shoulder, the skin in these positions being loose, and a fold can easily be caught up by the finger of the left hand, whilst the needle is inserted with the right hand. It is advisable to clip off the hair and disinfect the spot chosen before introducing the needle. A dose for dogs, according to age and size, varies from 1 to 5 drachms, or 1 to 5 teaspoonsful; the dose for calves and foals, according to age and size, from ½ oz. to 2½ oz., or 1 to 5 tablespoonsful.

# Pastoral.

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

The Office of the Secretary of the undermentioned Herd Books 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	10	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, Tingooora	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, <i>via</i> Cairns ..	4	16	Do.
H. D. B. Cox .. ..	Sydney (entered in brother's name)	3	16	Commonwealth Standard Jersey Herd Books

BREEDERS OF PUREBRED STOCK IN QUEENSLAND—*continued.*

Name of Owner.	Address.	Number of Males.	Number of Females.	Herd Book.
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DAIRY BREEDS—*continued.*

GUERNSEYS.

Queensland Agricultural College	Gatton .. ..	2	2	Eligible, but no Guernsey Herd Book of Australia
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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	.. Glenlmond 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, Bunjgurgan, 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, Lane-field	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.
<b>BEEF BREEDS—<i>continued.</i></b>				
<b>HEREFORD.</b>				
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.
<b>SUSSEX.</b>				
James T. Turner ..	The Ho'mwood, Neurum	2	4	Sussex Herd Book of England

**RE IRON ORES, AND BACTERIA IN STOCK.**

By L. G. JONES.

On the authority of Mr. Emile Gautier there are fourteen substances that nourish all plant and animal life without destruction. Ten of these substances have exactly the composition of an iron ore. (See February issue of this Journal.) The other four are drawn from the air, and are carbon, oxygen, hydrogen, and nitrogen. The differences of form are the result of a variety of combinations of these primary substances that may be compared to the combinations of the twenty-six letters of the alphabet forming a variety of words. It is these elementary substances that worms, parasites, and depredatory bacteria draw from the animal's food or blood that which causes the animal to become anemic. Extract from the "Live Stock Journal": "The fourth constituent of food consists of the mineral salts, which include phosphoric acid, soda, potash, and lime. Although these foods are minute in quantity, they are just as essential to the health of the animal as either of those already named (starch, &c.). Let us take a simple example. As bones are chiefly constructed of phosphate of lime, it follows that if the milk supplied to a calf were deprived of these mineral salts before it was consumed no bones would be built, and the calf would not only fail to grow but fail to live." It is in this manner that worms, ticks, fluke, and other parasites in stock act by removing from the food and blood the mineral salts, such as phosphoric acid, iron, soda, potash, lime, &c. The ticks emit a secretion that undoes the chemistry of the blood and enables them to extract the mineral properties therefrom, that which they require and thrive upon, and when this goes on to a sufficient extent, the animal becomes anemic and dies, or becomes a suitable developing medium for depredatory bacteria which find a lodgment in the emaciated body. It is not necessary to administer powerful medicines to kill parasites or microbes. It is quite evident that there are useful as well as depredatory and vicious bacteria, and there is reasonable evidence that the useful kinds are as valuable in the economy of Nature as the baser variety are destructive to animal life. It is more than probable that the kindly bacteria wage a war of extermination against those of the baser sort, and under the favourable conditions of the iron ore and mispickel treatment would overcome and destroy them. It is self-evident that the true and rational way to get rid of objectionable bacteria is not to take strong and poisonous medicines to kill them, and thereby kill your bacterial friends as well as your parasitical and bacterial enemies, but to use such remedies as will restore the blood, fortify the nervous system, and thereby starve out the baser bacteria that depend for their existence upon blood impurity and want of nervous vitality. There is no excuse for giving strong medicines to kill parasites or anything of a bacterial nature, for the restoration of the health and purity of the intestinal secretions will starve them out. It is not necessary to resort to heroic measures except in very exceptional cases. Most bacteriologists of note hold that bacteria of the useful variety are employed to assist digestion, and, seeing that good digestion depends in a measure upon the operations of these microscopic creatures, it is manifestly bad practice to administer medicines of sufficient strength to kill microbes. The days for heroic treatment have gone by.

## The Horse.

### IN-BREEDING—THE CASE OF THE CLYDESDALE.

Writing in the "Scottish Farmer" on the above question, replying to the unanswered question of a correspondent—what will the in-and-in breeding of Clydesdales, which is getting common, lead to?—Mr. James A. Reid, of Airdrie, the Scottish lawyer, whose name is a household word in collie circles, says:—

"Is there any reason for silence? The more or less certain results of such breeding in our other domestic animals are to be found in their histories and the extensive literature of the subject generally; but, so far as I know, no authoritative article of any kind has ever appeared in Clydesdale literature. The following paragraph, however, appeared in 'The Scottish Farmer' of 2nd September, 1916:—'In-breeding is very apparent in the modern Clydesdale. A breeder of some eminence, in a private letter to the writer, bewails its prevalence and its full effects. He maintains that it has something to do with the high death-rate among foals and the increasing difficulty of rearing the foals which survive. That there is a deal of sameness in the composition of the breeding of many fashionable horses and mares is undoubted; yet it is questionable whether there is much in-breeding in the sense of breeding which in the human family would be denounced as incestuous. In-breeding as practised by the early Shorthorn improvers was of this nature. It was by resorting to it that Mr. Christopher Wilson achieved phenomenal results in pony breeding, but not much of the kind of mating which proved so successful in these cases is to be found in the modern Clydesdale. More harm has been done by breeding from unsound horses. Those having knowledge of important back crosses in the pedigree of some very notable animals have legitimate fears as to the future of their descendants. Nevertheless, there is point in the criticism of the correspondent referred to. It was a dictum of the late Lawrence Drew that in-breeding ought always to be avoided with the draught horse.

"No problem of animal breeding has given rise to more controversy than that of in-and-in breeding—*i.e.*, in-breeding in the most intensive sense of the term. From the days of Bakewell onwards there has been a wide difference of opinion as to the place which should be assigned to it in the experience of the ordinary breeder. Some have regarded it as altogether helpful, and others as altogether harmful. Because of this extreme difference in view the question has been much discussed in the agricultural Press, and frequently to but little purpose. Can anyone with a competent knowledge of the problem generally deal with it closely in its application to Clydesdale breeding? Can he tell us whether close-breeding in the fullest sense of the term is or is not 'very common,' and, if so, whether it can be said with any certainty that the practice has led and is leading to retrogression in the breed, as is commonly alleged? The sooner the question is faced the better in the interests of the breed and of breeders, who never had more reason to be alive to the future than they have now. When the facts are satisfactorily ascertained we shall see what conclusions (if any) can reasonably be drawn from them, having regard to other factors in the problem."

In an article on the above subject, the "New Zealand Farmer" for June, 1918, says:—

"What conflicting views are expressed on this great principle! On the one hand, we have the striking fact that the greatest breeders the world has seen owed their success to the principle, and, on the other hand, we have so-called authorities declaring that it leads to deterioration of type, sterility, and is the greatest danger besetting the work of live stock advancement. The main fact to remember is that the men who made such good use of in-breeding knew what they were doing. They realised that they were working with a two-edged weapon, and while it was powerful for good it was potent for evil. Rightly used, it was the most important of all factors in advancing type, and used indiscriminately it would be just as effective in bringing about deterioration. The right use of the principle implies but two things—undoubted constitution in the material being used, and realising that there is a danger limit. The degree of prepotency of the sire largely governs the extent to which in-breeding can be carried. But breeders nowadays have not the same reason to adopt close in-breeding as did the founders of our modern breeds who were engaged in the creative work of establishing types. Line breeding is the principle that suits the purpose of our day, and given constitutional vigour—the sire must be

masculine even to coarseness—we may safely practise a system which will enable us to attain our ideal with some degree of certainty, instead of bringing in frequent out-crosses—as is the common practice—and thereby multiplying again and again the tendencies to variation and consequent departure from the type being aimed at.

#### EXPERIMENTAL IN-BREEDING.

“The effect of close in-breeding on deterioration of type and sterility has been tested by an American scientist, in some cases with quite remarkable results. This investigator, Dr. King, in an address before the Pediatric Society in Philadelphia, in 1915, and summarised in the ‘Journal of Heredity,’ described the results obtained over a long series of experiments with rats. The exhaustive trials made indicated that close in-breeding does not necessarily lead to a loss of size or of constitutional vigour or of fertility if the animals so mated come from sound stock in the beginning, and sufficient care is taken to breed only from the best individuals. The rats, it should be remarked, were closely in-bred for twenty-two generations. The ‘Journal’ remarks that the experiment cannot in the nature of things settle the problem of whether in-breeding is *of itself* injurious. The experiments prove conclusively, however, that if any injuries result they are not so great but that they can be counteracted by careful selection of the animals used. Of course, what applies to rats may not apply to other breeds of stock. The ‘Journal’ makes this final observation: ‘The results of Dr. King’s experiment in breeding rats, and the whole teaching of genetics, however, can be safely followed by the practical breeder to this extent—that he can use a moderate degree of in-breeding through a number of generations without fear of evil results, *provided he is mating the best with the best* in each generation; and that the results in most cases will be a considerable improvement in his stock. The superstitious fear of in-breeding in any form which long hung over practical breeders is rapidly disappearing; for the geneticist it long ago ceased to exist.’”

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#### ART OF KILLING PIGS.

Mr. E. L. Wood, a pig-breeder, well known in America, writes:—

“For killing pigs I use a small-bore rifle, and shoot them in the centre of the forehead. This avoids excitement, and the hogs are not exhausted. Then I turn the animal quickly on its back and stick it directly in front of the breast bone, being careful not to injure the shoulder; but instead of scalding in the usual manner I have tried a new wrinkle. Most men dislike the work of scalding a pig because of the steam and smell, and the new plan does away with this entirely. The method as reported to me was to take the dead pig to an open place free from litter or straw, and where there is nothing to catch on fire. Then pour a small quantity of gasoline over the carcase and touch a lighted match to it. The plan sounded so good that I gave it a trial on two large pigs. No directions were given as to the best way of applying the gasoline or the quantity to use. I had been simply told that a farmer in another neighbourhood used the method, and it was very successful. So I put my pigs in a safe place and used the gasoline very sparingly. Less than a pint covered the whole carcase except the part touching the ground.

“We later gave the head and parts of the feet a little more gasoline after the first application, and then turned the pig over and completed the small portion left. At the touch of the lighted match the carcase burst into flames, and burned for perhaps two minutes. At the end of that time the hair was all gone. We then scraped with knives and scrapers, as with the scalding method, and were agreeably surprised with the outcome. The hair stumps and the outer skin which always comes off in a proper scald came likewise after singeing, leaving a nice white carcase. We then hoisted the pig and rubbed it down with a scrubbing brush, using a pail and a-half of warm water. No smell or taint of gasoline or burning hair, or anything of the sort was left, and the cleaning was done in half the usual time.

“With the second pig we made even better time. In using this method the chief precaution is to have the pig in a clear open place, away from buildings, and to bring no more gasoline near the carcase than the amount actually needed. Do not fire the carcase until it is entirely wet with the gasoline.

“The feet, neck, and belly are the parts most difficult to clean. With my next pig I shall hang up the carcase, pour the gasoline on top and let it run down. After the body is cleansed and the entrails removed, I split the carcase, which permits it to cool more thoroughly. I let the carcase become thoroughly cold, so that the meat can be trimmed neatly.”

# Poultry.

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

The weather has been very trying during the month. Westerly winds, cold nights, and frosts have been prevalent. Such weather as has been experienced picks out the birds that have had their constitution undermined in any way. There have been several cases of broodiness, one being among the Leghorns. Two deaths have occurred and the birds replaced. The birds generally look very well, and good laying can be expected as soon as the weather improves. Odd pens are feeding indifferently, and this, combined with the cold weather, will not assist their progress. Following are the individual records:—

Competitors.	Breed.	June.	Total.
<b>LIGHT BREEDS.</b>			
<b>White Leghorns</b>			
*Dixie Egg Plant ... ..	Do. ... ..	143	436
*G. W. Hinds ... ..	Do. ... ..	134	360
*E. Chester ... ..	Do. ... ..	125	356
*C. Knoblauch ... ..	Do. ... ..	126	349
*C. P. Buchanan ... ..	Do. ... ..	124	348
*G. Howard ... ..	Do. ... ..	133	345
*G. Prince ... ..	Do. ... ..	113	343
*T. Fanning ... ..	Do. ... ..	116	339
Mrs. L. Henderson ... ..	Do. ... ..	95	331
*W. Becker ... ..	Do. ... ..	124	331
*O.K. Poultry Yards ... ..	Do. ... ..	108	324
*G. H. Turner ... ..	Do. ... ..	128	320
*Oakland Poultry Farm ... ..	Do. ... ..	121	314
B. Caswell ... ..	Do. ... ..	105	314
*W. Lyell ... ..	Do. ... ..	121	312
H. Fraser ... ..	Do. ... ..	88	307
*Dr. E. C. Jennings ... ..	Do. ... ..	94	298
*R. Holmes ... ..	Do. ... ..	134	294
*L. G. Innes ... ..	Do. ... ..	105	291
*Range Poultry Farm ... ..	Do. ... ..	80	281
*E. A. Smith ... ..	Do. ... ..	123	279
O. W. J. Whitman ... ..	Do. ... ..	99	279
J. J. Davies ... ..	Do. ... ..	98	279
G. Williams ... ..	Do. ... ..	95	276
*T. Taylor ... ..	Do. ... ..	96	273
*Chris. Porter ... ..	Do. ... ..	101	260
*J. Zahl ... ..	Do. ... ..	100	258
*Quinn's Post Poultry Farm ... ..	Do. ... ..	94	256
R. T. G. Carey ... ..	Do. ... ..	111	248
*Mrs. A. T. Coomber ... ..	Do. ... ..	95	234
S. Wilkinson ... ..	Do. ... ..	79	221
Mrs. L. F. Anderson ... ..	Do. ... ..	78	211
*Homalayan Poultry Farm ... ..	Do. ... ..	97	209
*T. B. Hawkins ... ..	Do. ... ..	65	204
Geo. Trapp ... ..	Do. ... ..	61	203
Mrs. A. G. Kurth ... ..	Do. ... ..	55	199
*J. M. Manson ... ..	Do. ... ..	74	197
Progressive Poultry Pens ... ..	Do. ... ..	34	194

EGG-LAYING COMPETITION—*continued.*

Competitors.	Breed.	June.	Total.
LIGHT BREEDS— <i>continued.</i>			
*J. W. Newton ... ..	White Leghorns ... ..	59	193
H. B. Stephens ... ..	Do. ... ..	80	189
H. F. Britten ... ..	Do. ... ..	47	186
*Mrs. R. Hunter ... ..	Do. ... ..	88	177
Shaw and Stevenson ... ..	Black Leghorns ... ..	68	163
P. O. Oldham ... ..	White Leghorns ... ..	55	138
W. A. Wilson ... ..	Do. ... ..	77	128
A. W. Walker ... ..	Do. ... ..	53	181
B. Chester ... ..	Do. ... ..	73	118
HEAVY BREEDS.			
*Nobby Poultry Farm ... ..	Black Orpingtons ... ..	142	385
T. Hindley ... ..	Do. ... ..	116	315
*W. H. Reilly ... ..	Chinese Langshans ... ..	89	287
*W. Smith ... ..	Black Orpingtons ... ..	95	275
*E. F. Dennis ... ..	Do. ... ..	121	273
*E. Morris ... ..	Do. ... ..	126	261
E. M. Larsen ... ..	Do. ... ..	127	258
*A. E. Walters ... ..	Rhode Island Reds ... ..	63	242
*J. W. Macrae ... ..	Black Orpingtons ... ..	120	242
W. J. Mee ... ..	Do. ... ..	81	231
*Mars Poultry Farm ... ..	Do. ... ..	123	225
*R. Burns ... ..	Do. ... ..	127	204
*D. Fulton ... ..	Do. ... ..	98	161
H. Puff ... ..	Rhode Island Reds ... ..	74	154
A. Shanks ... ..	Black Orpingtons ... ..	110	152
*F. A. Claussen ... ..	Rhode Island Reds ... ..	94	132
Th. W. Lutze ... ..	Black Orpingtons ... ..	72	115
Jar. Fitzpatrick ... ..	Rhode Island Reds ... ..	47	73
Totals ... ..	...	6,297	16,276

\* Indicates that the pen is engaged in the single hen test.

## RESULTS OF SINGLE HEN PENS.

Competitor.	A.	B.	C.	D.	E.	F.	Total.
LIGHT BREEDS.							
Dixie Egg Plant ... ..	70	72	78	65	74	77	430
G. W. Hindes ... ..	79	64	60	61	54	42	360
E. Chester ... ..	53	66	54	72	58	53	356
C. Knoblauch ... ..	55	48	67	54	63	62	349
C. P. Buchanan ... ..	59	49	63	52	65	60	348
G. Howard ... ..	53	55	65	53	56	63	345
Geo. Prince ... ..	30	60	67	64	62	60	343
T. Fanning ... ..	61	61	63	31	63	60	339
Mrs. L. Henderson ... ..	53	63	58	25	64	68	331
W. Becker ... ..	56	54	42	65	50	64	331
O.K. Poultry Yards ... ..	59	61	61	47	58	38	324
G. H. Turner ... ..	21	43	53	62	71	60	320
Oakland Poultry Farm ... ..	51	53	60	59	45	46	314
W. Lyell ... ..	59	58	59	53	41	42	312
Dr. E. C. Jennings ... ..	45	63	59	51	52	28	293
R. Holmes ... ..	64	53	42	43	41	51	294
L. G. Innes ... ..	43	69	70	27	25	57	291

RESULTS OF SINGLE HEN PENS—*continued.*

Competitors.	A.	B.	C.	D.	E.	F.	Total.
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LIGHT BREEDS—*continued.*

Range Poultry Farm ... ..	30	67	25	48	50	61	281
E. A. Smith ... ..	25	64	51	65	54	20	279
Thos. Taylor ... ..	27	57	56	35	44	54	273
Chris. Porter ... ..	9	49	50	39	56	57	260
J. Zahl ... ..	56	44	46	47	42	23	258
Quinn's Post Poultry Farm ... ..	62	27	36	34	66	31	256
Mrs. Coomber ... ..	18	54	39	43	20	60	234
Homalayan Poultry Farm ... ..	53	45	23	17	54	17	229
T. B. Hawkins ... ..	50	33	55	8	36	22	204
J. M. Manson ... ..	60	52	62	6	11	8	197
J. W. Newton ... ..	38	56	1	25	42	31	193
Mrs. R. Hunter ... ..	26	49	2	30	28	42	177

## HEAVY BREEDS.

Nobby Poultry Farm ... ..	72	65	57	56	62	73	385
W. H. Reilly ... ..	51	55	61	27	35	58	287
W. Smith ... ..	70	42	22	48	39	54	275
E. F. Dennis ... ..	67	43	40	5	71	47	273
E. Morris ... ..	29	54	63	60	39	16	261
A. E. Walters ... ..	37	60	30	42	66	7	242
J. W. Macrae ... ..	22	13	63	36	54	54	242
Mars Poultry Farm ... ..	33	47	55	38	32	20	225
R. Burns ... ..	29	28	18	24	58	47	204
D. Fulton ... ..	31	31	11	16	1	75	161
F. A. Claussen ... ..	32	31	6	25	37	1	132

## EGG-LAYING COMPETITIONS.

No egg-laying competition is worthy of the name unless it progresses in its methods from year to year, and is something more than a mere contest in the number of eggs that can be laid. The first egg-laying competition in Australasia, that of Hawkesbury Agricultural College, promoted, it may be observed, at the instigation of a newspaper, the Sydney "Daily Telegraph," has done great work for the industry, and to-day is probably the leading egg-laying competition in the world. Time was when the Hawkesbury test was declining in its educative influence on the industry. The standard of the birds exhibited was not what it should be. There was more than a suspicion that many of the competing birds were not pure-bred specimens of the breeds they were supposed to represent. A great advance, however, has been made in the standard of the test since it came under the control of Mr. Hadlington, the present New South Wales expert. Realising the necessity of maintaining type and checking that undesirable deterioration, especially in size, that is taking place in connection practically with all the egg-laying competitions, Mr. Hadlington decided upon a very sound policy. He instituted a weight clause in order to eliminate diminutive specimens. Combating the argument that birds should be accepted because they have been bred from tested high producers, he wisely emphasises

the fact that no matter what the birds are bred from, if the physique is not there they are not fit subjects for competition simply because they are not fit subjects for the breeding-pen. This being the case, it would be a waste of time to test them, and a delusion both to the breeder and the public. Here we see the great value of a test controlled by a Government Department as against tests conducted by societies and individuals. Had any of the New Zealand tests been under the direction of the Department of Agriculture we believe that the very important regulation adopted in New South Wales would have been in vogue in this country, for we very much doubt if any man in the poultry world of this or any other country has done more to fight for standard quality of utility stock than has Mr. F. Brown, the chief expert of this country. He has preached in season and out of season the policy that no matter what the egg-laying capacity of the bird is it is not fit for the breeding-pen if it has not the desired constitution, size, and breed quality. In some cases he has condemned the great majority of the birds in our leading tests as unfit for breeding purposes. Mr. Hadlington has been able to put into practice, by reason of the big New South Wales test being under State control, what has not been possible in this country owing to private direction of competitions. Though a weight class was instituted at Hawkesbury, Mr. Hadlington remarks that in the light breeds many poor specimens competed, and he declares that if strict culling were practicable at the commencement of the competition the average of the section would have been a great deal higher. There was a considerable improvement, however, both in type and physique in the heavy section. The result of doing something to eliminate the weedy types from the competition has provided a remarkable demonstration. Mr. Hadlington reports that the outstanding feature of the test is that the winning groups and many of the individual high producers are birds showing the best type and physique.

#### INTERESTING FACTS.

We make no apology for quoting the following paragraphs from Mr. Hadlington's instructive report:—

“As bearing upon this subject, the weights of the two leading groups (first-year hens), when received at the commencement of the competition and at the conclusion of the test, will be of interest:

“C. Judson's Black Orpingtons' weights at the commencement of the competition, with the weights at the close in parentheses, were as follow:—5 lb. 6 oz. (6 lb. 12 oz.), 5 lb. 6 oz. (6 lb. 8 oz.), 6 lb. 4 oz. (8 lb. 10 oz.), 6 lb. (7 lb. 2 oz.), 5 lb. 6 oz. (6 lb. 14 oz.), 5 lb. 9 oz. (6 lb. 6 oz.). The hen that has put up the score of 312 eggs increased in weight during the competition from 6 lb. to 7 lb. 2 oz. Mrs. Chalmers' White Leghorn weights at the commencement and close were:—3 lb. 14 oz. (4 lb. 8 oz.), 3 lb. 14 oz. (4 lb. 10 oz.), 4 lb. 4 oz. (5 lb. 2 oz.), 4 lb. (4 lb. 10 oz.), 4 lb. 2 oz. (4 lb. 12 oz.), 4 lb 3 oz. (5 lb. 4 oz.). These were all fairly typical, rather deep-bodied hens, perhaps a little on the racy side.

“The ration fed during the test was as follows:—Morning wet mash: Pollard 60 per cent., bran 20, lucerne dust 12, meat or blood meal 8. Evening grain ration: Two-thirds wheat, one-third crushed maize. These give a combined nutritive ratio of 1 to 4.5. With the morning mash 22 oz. of common salt was used, and, to ensure its even distribution through the mash, the salt is dissolved in the water with which the mash is mixed. Green feed was given at midday.

“Although the above ration is laid down to be fed, and has been fed as far as practicable during the test, as also in previous years, it should not be supposed

that feeding the competition birds has been entirely free from the difficulties more or less experienced by poultry farmers in general in regard to pollard, bran, and even wheat of good quality. During the first six months of the competition in particular a shortage of one or the other, as well as poor quality, was frequently experienced owing to the inability of the department to secure adequate supplies.

“It might be well to point out a few facts in connection with the conduct of these competitions. The first is that the hens are fed on simple food as shown above, such as is available to almost every poultry-keeper; no patent food, condiments, or other stimulating articles are used, nor are any methods to that end practised. Secondly, every hen receives exactly the same treatment, and there is no special pampering of individual hens or groups that may show promise of making big records. Thirdly, each hen must lay eggs not less than 2 oz. in weight in order to compete for a prize. It, therefore, follows that every hen making a record at this competition must have conformed to every essential imposed by straight-out utility qualifications.”—“New Zealand Farmer.”

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## The Orchard.

### BANANA CULTIVATION.

Mr. B. Jewitt, Buderim Mountain, writes:—“For many years I have cultivated bananas, and my experience teaches me not to scarify too deep. I have had areas of from one-quarter to half an acre in my plantation on which no scarifier was used, the only cultivation being done with the hoe. These patches have, for five years, given larger bunches than the bananas which were scarified. It appears to me that the scarifier scrapes the fine hairs or fibres off the horizontal roots, which are the chief agents in supplying nourishment to the plants. I would recommend growers of bananas to try merely chipping from a quarter to half an acre, and prove my statement for themselves. It is advisable to apply a little fertiliser after the first year of planting.”

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### “THROTTLE” FOR WOODY TREES.

#### A STEEL GIRDLE FOR FRUITFULNESS.

The County Horticultural Instructor in the Isle of Wight, Mr. C. Martin, referring to the treatment of superfluous wood in fruit trees, advocates the systematic compression of the wood of unfruitful trees that are making too much growth, in order to force them into a fertile condition. He has devised a simple form of band, bolted on one or both sides by a screw, which can be tightened at will. Mr. Martin recommends that this smooth band should be put in place when the sap is down, and holds that this method will do away with the labour of root-pruning. The “throttle” by a turn of the screws can have the pressure increased or released.

### THE LATE S. C. VOLLER.

In the passing away of Mr. S. C. Voller, the Department of Agriculture and Queensland generally have lost a man of sterling qualities; possessing keen powers of observation, indefatigable in his work, considering no trouble too great in carrying out his duties, and who was always ready and willing to impart advice and give assistance to anyone in need of instruction or help in all matters relating to Fruit Culture.

The late Mr. Voller possessed the happy knack of being able to impart information owing to his sincerity and keen enthusiasm, which not only enabled him to obtain the confidence of the man on the land, but secured him many friends by whom his loss will be severely felt. Although Mr. Voller was generally known in connection with his duties as an Instructor in Fruit Culture, he, at the same time, possessed a wide knowledge of stock and agricultural matters generally, and was always ready and willing to give advice to those in need of it.

His wide experience enabled him to undertake numerous departmental duties other than those connected with the fruit industry, and when so employed his work always gave satisfaction.

Through his death the Department has lost a very loyal and reliable officer who will be greatly missed, and whose place it will be extremely difficult to fill, as it is seldom one meets with anyone possessing his all-round qualifications. He was also a facile writer and an earnest public speaker. Mr. Voller was also a valuable contributor of articles on Fruit Culture and on other industries which were always favourably received by readers of "The Queensland Agricultural Journal."



PLATE 12.

## Viticulture.

### PRACTICAL HINTS ON ESTABLISHING A VINEYARD.—No. 3.

By P. MAHONEY.

#### TRAINING AND TRELLISING.

As the plant is growing, it is very important that the growth it makes should be made the best use of and not allowed to run as Nature chooses; for, to meet with success, Nature should be assisted with a little science, such as "training."

The two topmost buds only of the plant, or cutting, should be allowed to throw out shoots, and only permitted to grow until every danger is passed, which is caused by insects that are likely to eat such young tender shoots, or by being broken off by strong winds. These dangers are generally over when the shoots are about a foot long. When they attain that length, the strongest of the two should be allowed to grow and the weaker being pruned off, leaving a cut that can heal over quickly just above the remaining shoot.

By this time the trellis should be completed, for it is necessary to have it erected by the time the vine has reached this stage, if it is desired to bring the vine into bearing early, for without the trellis-wire it is not possible to train the vine effectually.

All side shoots on the one remaining shoot should be suppressed as soon as they appear, but on no account should the leaf at the axis of the shoot be destroyed, for it shelters the young tender stem from the hot summer sun. The suppressing of side shoots should continue until the vine has got within a couple of inches of the wire. Then the vine should be allowed to grow until a few inches above the wire.

"Now is the time when good judgment is needed," for at this stage it is necessary to make an evenly balanced vine. To do so, the vine must be pinched back so as to cause two buds from below the wire to send out shoots, leaving a little of the vine above the wire, by which to keep it in an upright position, by tying to the wire. The buds from which the shoots are to come should be close to one another and as close to the wire as it is possible to get them. It makes an unsightly and unevenly balanced vine if one shoot is under and the other over the wire.

These shoots are to form the main arms, and therefore they should be carefully trained along the wire, and furnished with spurs, &c. In the event of the arms making uneven growth, it is advisable to pinch the stronger of the two back a little, care being taken not to let any one of them outgrow the other. Do not allow too big a difference to occur before resorting to checking, for too big a check is likely to cause greater difference by encouraging growth instead of checking it. Though the arms may be making even growth, benefit can be derived from pinching the ends occasionally, so as to strengthen the vine and furnish it with spurs.

The method of trellising varies, according to the nature of the vine, just as in the case of pruning. For a non-vigorous spur-pruned vine, only a two-wire trellis is required, and the bottom wire should be no lower than 27 inches from the ground, so as to allow plenty of room for free circulation of air under the vine, which is most essential in a wet district, for low-pruned vines in such districts, or country, are very subject to oidium and other numerous diseases. The next wire should be about 18 inches above the first, to support the foliage.

The cordon system is the best way to train a vigorous trailing vine, as it is hard to balance them evenly if trained on the espalier system. In spite of close attention, one arm is apt to outgrow the other if trained in the latter way. The second wire is also necessary to carry the rods and foliage.

A rod-pruned vine also requires two wires; but "the most successful way of trellising such vines" is on a T trellis, more especially where the rainfall is great, for on such a trellis the bunches hang clear of the foliage and are protected in a roof-like manner from the rains. In this manner the possible loss caused by rains can be greatly minimised, for when the bunches hang clear of the foliage, &c., the moisture can be dried out of them by the wind. If they are protected from the winds by the foliage, then the moisture, being dried out of the bunch by the heat, has a disastrous effect, in splitting the berries when in the ripening stage.

Never should a vine have more than two main arms; with four arms, the two topmost receive the greater supply of sap, as it is only natural for the sap to flow

to the highest points most freely. Thus the bottom two arms do not get enough nourishment; consequently the spurs on it get weakly and die out. They also only produce small and few bunches, compared with the top arms.

It is a golden rule with practical viticulturists to keep the fruiting wood on the same level. It is also very noticeable, in citrus and deciduous fruit-trees, that there is a better setting of fruit on a horizontal branch than on a perpendicular one.

If vines are grown on a hillside, they should never be trellised up and down the hill, except when they are trained on a cordon system, and then the vine should be trained down the hill, for that will have a tendency to regulate the flow of sap more evenly. If trained otherwise, the sap will rush to the buds at the end of the vine, and, consequently, vigorous growth will commence from them, owing to their being the highest part of the vine, and the buds or spurs lower down the vine are at a disadvantage, and, failing to get enough nourishment, they become weak, and consequently die, thus leaving a lot of barren wood on the vine. If the vine needs to be trained on an espalier system, the trellis should run across the hill (not up and down), which will give the desired results.

The systematic training of the roots is also very important, as previously stated. If the plant consists of five or a given number of buds, it is then an easy matter to know what roots to cut away. It is necessary to go round about every three months and cut away all roots which are not required, as a young well-attended plant makes roots very quickly. Breaking the roots with plough or cultivator has not the results that cutting them away has, for they continue to grow from the portion of the broken root.

[TO BE CONTINUED.]

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## PHOTOGRAPHING STOCK.

Few breeders appreciate the difficulties of the photographer of live-stock in securing even a decent picture of an animal. Some, indeed, appear to think that the camera can hide breed defects, ignore dirt and draggled condition, and, generally, make an animal driven into the corner of a paddock have the appearance of a show champion. Happily, breeders of this class are the exception. It must be frankly admitted, however, that owners in general, even expert herdsmen, fail to realise the importance of condition and get-up to satisfactory photographic work. There are occasions when the camera—by reason of a combination of condition, pose, light, and background—will flatter an animal, but in the great majority of cases the camera will exhibit the weaknesses with exasperating vividness. The expert photographer may be trusted to get the subject in the best position for bringing out its good qualities and to secure the best lighting effect, but it remains with the attendant to have the animal in the best possible form. In the case of cattle the coat must be clean and in as good order as possible, and the tail should be well combed out. Of course, the ground must be level, and it is well to remember that untidy fences have a habit of standing out prominently in a picture. It will invariably pay to go over the fleece of a sheep and remove any irregularities. As with cattle, the ground must be quite level, and preferably the grass should be short. It would pay the breeder to have a photographic site, with a suitable background, facing the sun, and the ground level for some distance. A general rule, and one which should never be ignored, is that patience must be exercised. Seldom, if ever, can a good picture be obtained by exciting an animal. Certainly an alert expression is always desirable, but no attempt should be made to obtain this till the photographer is quite ready to press the trigger of his camera. Some owners have an idea that it looks well to have a prize ticket attached to the headstall. In this they make a mistake. It is just possible that the photographer may secure a striking photograph of the animal, one good enough to be enlarged to serve as a photographic model of the breed, but many an editor would not use the picture because of the disfiguring effect of the award ticket. The less harness there is about an animal the better. What a caricature some of the old Clydesdale grooms do make of their horses—a case of man making himself ridiculous by attempting to improve upon the work of Nature. The owner who desires to take photographs of his own stock should not neglect the details here enumerated. It may happen that he may get a really good photograph of an animal, but because of failure to prepare it, and have it look as well as possible, the picture is useless for publicity purposes—a fact he may have to regret more than once. In short, to obtain a good picture the animal must be good, and it must look to the very best advantage when its image is recorded on the sensitive plate. Many of the photographs of animals sent to us for publication would do the breeder more harm than good were we to publish them, and they would prove a very poor advertisement for the live-stock of this country.—“Exchange.”

## Neglected Industries.

### PROSPECTS OF RUBBER-GROWING IN QUEENSLAND.

That the Pará, Ceara, and other rubber-producing plants will thrive to perfection in tropical Queensland has long been established, but when capitalists have been approached with a view to inducing them to embark on the rubber industry, the reply has always been: "How can Queensland, with its labour conditions, high rate of wages, and imminence of strikes at critical periods, attempt to compete with countries where there is an abundant supply of coloured labour, where rations are cheap, and strikes unknown, and where rich rubber lands can be obtained for a mere nominal rental, as, for instance, in Papua (British New Guinea)?" At first sight, this argument would appear unanswerable; but, when we come to figure the matter out, it can be shown that rubber-growing under white-labour conditions in this State would be almost as profitable as in black-labour countries. Without going into details, the cost of planting and of upkeep of 500 acres of rubber in Queensland, including wages, buildings, implements, fencing, &c., would amount to about £34,000, the number of trees being 75,000. These trees would be ready for tapping in the sixth year, yielding a net return of £15,000. Leaving a debit balance of £18,872. In the seventh year, the net return would be £30,000, less debit from previous year, or £11,128. In the eighth and following years the net return should be £45,000.

There will, of course, be many contingencies and unforeseen expenses to be provided for, such as, possibly, cost and upkeep of a motor launch, renewal of tools, repairs, &c., whilst the manager's and overseers' salaries still go on, the wages of the labourers being included in the cost of collecting the rubber.

As there is little likelihood of wealthy rubber companies being established in the State for a long time, if ever, let us see

### HOW RUBBER-GROWING ON SMALL AREAS WILL PAY.

There are, in North Queensland, on the eastern and western coasts of the Peninsula, areas of sugar land eminently suited for rubber-growing, whilst the climate and rainfall are all that can be desired. Following is an

#### ESTIMATE OF EXPENDITURE AND RETURNS ON TWENTY ACRES OF RUBBER IN QUEENSLAND.

Supposing the land to have been cleared, the purchasing price may be £20 per acre, on extended terms. From the first to the sixth year the total expenditure on purchase of young trees, annual instalments, interest on purchase money, planting, and cultivation would come to about £432.

In the sixth year the trees will be ready for tapping, yielding 1 lb. of dry rubber per tree; in the seventh year, 2 lb.; in the eighth year, 3 lb. and even more, equal in that year to a return of 9,000 lb. in addition to 3,000 lb. in the sixth year, and 6,000 lb. in the seventh year. The price of rubber being, say, 3s. per lb., the cash return would be £2,700, less cost of collecting, say, 1s. per lb., £900, and about £25 for cases and freight, leaving a net profit of £1,800. During the sixth and subsequent years no cultivation is required.

Many a farm in Queensland is bordered either on one or on all sides by forest or scrub trees which yield to the farmer little beyond firewood. These could be removed and rubber-trees planted in their place. In six years' time these latter would begin to be productive, and to increase in productivity every year afterwards. The tapping process is easily learnt, as is the coagulation of the latex and the subsequent production of marketable rubber, the price of which, after the war, may fluctuate between 2s. and 3s. per lb., a remunerative price, especially where trees have reached the stage when they need no more attention in the way of cultivation, nor any pruning as do the majority of fruit trees.

Some years ago, Mr. A. Molyneux, late of the Agricultural Bureau of South Australia, who is an acknowledged authority in all matters agricultural, contributed to a West Australian journal an excellent article on "Some Minor Products for Farmers," in which he said:

“With regard to many products which might be mentioned, it will be said that the labour bestowed on their production would not be repaid in the price realised for them. That is doubtless correct if we had something better to do with our time, but it does not pay to do nothing, and the innumerable small rills of money rolling into the general income during a year will make quite a considerable amount when added up. The value of a cow and a hen is scarcely worth the attention of the man who expects to grow 3,000 bushels of wheat by the end of the season; and yet he finds that his wife makes more profit from a dozen cows and fifty hens during the year than he makes from his large fields of grain. Why is it thus? Simply because the hens keep on laying, and the cows give their dole of milk every day for the greater part of the time, whilst he only gets the one crop for all his labour. Seeing, then, that these smaller items make profit, it is desirable that we should give them some thought.”

What applies to the wheatgrower applies with equal force to the dairy and general farmer, and to the sugar-grower. These all have most of their eggs in one basket. A rust year, a drought, a severe frost, and the bottom of the basket falls out, with the result that the wheat or cane farmer loses, and neither has anything to fall back upon. But with one or two subsidiary crops, such as are unaffected by seasons, work is provided for many hands, and profit for the farmer, even although losses are sustained on the main crop. The intelligent farmer need never be idle. When the wheat or the cane has arrived at a certain stage of growth, there is no more labour attached to either until harvest time. Why not devote the interval to raising some such crop as will produce the results we have here indicated?

As Mr. Molineux said: “We must try to divide our labour so that there shall be no dull round of similar occupation. It may even be a relaxation to ‘knock off work and carry bricks.’ We want one crop to follow another, and to learn how to harvest, and even to manufacture, such crops, so that the product shall bring approbation as well as profit to us.” Both these ends can be achieved by utilising the waste places of the farm for sisal, kapok, cotton, castor oil, and similar self-cultivating crops for which, in normal times, a world’s market exists. Then should we hear little of the common complaint of the unemployed, for there would be no unemployed, although there would inevitably be some “unemployable.”

As an instance of what may be done in the above manner let us consider the production of

### KAPOK.

This is a product for which there is a large demand in Australia, and which can be produced almost anywhere in North Queensland with little trouble and less expense. At present our supplies of kapok come mainly from Java, whence 38,000 bales (of 80 lb. each) are exported annually to Holland, Australia, China, and America, Australia taking over 8,000 bales. This kapok is often called “tree cotton,” and is largely used in the upholstering trade, for stuffing furniture, pillows, bed quilts, &c. The tree producing it grows to a large size, and is propagated either from seed or cuttings taken from a mature tree. The trees may be planted on any well-drained land, on roadsides, in back yards, or on allotments where the land cannot profitably be used for other crops, or on large estates. The only cultivation required is the clearing away of brush or undergrowth. The trees grown from seed begin to bear pods in two years, and in three years will yield a fair crop. If grown from very large cuttings pods will be produced in the first year, but with small, thin cuttings, the time for bearing is the same as for seedling trees. The crops should be harvested in the dry season when the pods are fully ripe, and the seeds can be easily separated from the lint. So far, the only means adopted for clearing the lint are hand labour, but small iron mills have of late been used in Java, which will produce about 250 lb. of lint in a day’s work. Four women are employed for each mill.

Now, as to production per tree. In Java there are over fifty plantations where kapok is produced as a subsidiary crop, whilst on some it is the principal crop. The yield per tree of fibre (after removal of the seed) is given in the “Indische Mercur” at from 2 lb. 3¼ oz. to 111 lb. from young two-year-old trees to 111 lb. from a mature tree yielding 5,000 pods. As to value, we can find no late quotations for kapok fibre in our commercial exchanges from England. Before the war, cleaned kapok (*i.e.*, free from seeds) was quoted at 7½d. per lb., and ordinary kapok, not thoroughly cleaned, at 6½d. per lb.

The planting of kapok-trees requires but little capital and a very small amount of labour. They require practically no care, and flourish on the poorest soil, and there is a constantly increasing demand for the fibre. Here we have a product for which there is a large demand in Australia and which can be produced almost anywhere in Central and North Queensland with little trouble or expense. There are several mature kapok-trees growing and shedding quantities of kapok in several coast towns in the North, whence seed and cuttings could be obtained. The seeds produce a valuable oil, quoted in England in 1918 at £56 per ton.

# Forestry.

## RATES OF TREE GROWTH.

The Acting Director of Forests, being questioned as to the rate-growth of various trees, gave the following information, which was published last month in the "Brisbane Courier":—

"An area of  $5\frac{1}{2}$  acres of *Pinus insignis* was measured. The trees were twenty-six years old, and the total volume per acre was found to be 6,600 cubic feet, nearly 80,000 feet super., a result which has broken the record for rapid growth and bulk per acre, as the quickest-growing pine in Europe—known in Great Britain as the Scotch pine—takes sixty years to produce the same quantity, according to the standard records of growth which have been carefully kept there over a long series of years." (South Australian official report.)

"In New Zealand, Australian eucalypts have grown to be 60 ft. high in less than thirty years, in plantations, while a Californian paper proudly claims that the fastest growth the world has ever known was made by an Australian bluegum, at Pasadena, California, which reached a great height (figures not given), and 5 ft. in diameter, in thirty years. (Some growth.)

"At Gosford, in New South Wales, a Queensland hoop pine planted in poor soil girthed 5 ft. 7 in. at twenty-five years of age, and was estimated to contain 490 super. feet of timber.

"Turning now to Queensland, the home of the hoop and bunya pines, official records of growth don't go back for more than five or six years, so perhaps some of your readers (writes a correspondent) could give authentic information of the growth of these pines when planted for shade, shelter, or ornamental purposes as many have done round their home, both in townships and in the farming districts. As an instance, a very fine grove of bunya pine is to be found at Yandina. Perhaps some of the pioneers there can give dates of planting and present size?

"Forty years ago hoop pine seed was collected at Kin Kin in the natural pine forest for a Brisbane firm. The ultimate destination was believed to be a plantation on Moreton Island. Did this venture succeed? It is surprising that in a State so richly endowed by Nature with forest wealth as Queensland is, possessing timber trees unequalled in the world for durability, strength, toughness, and cabinet timbers which cannot be surpassed, that so very little is known of the silvicultural characteristics of these trees. This may be because all energies have been directed to exploitation, leaving reforestation to come later. However, this problem cannot be deferred much longer, and if tree-lovers will briefly record their experiences in the growth of Queensland trees, a new, valuable, and highly interesting chapter will be added to silviculture, and will go far to remove the reproach that has been aimed at Australia that the best plantations and cultural knowledge of wattles for tan bark is to be found in Natal, and that the United States have better publications on Australian trees than Australia possesses."

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## TO DESTROY BORING INSECTS IN TREES.

Insert a flexible wire into the burrows and inject a small quantity of turpentine or kerosene into the latter, plugging the holes with soft wood or clay. Spraying with a lime sulphur and salt wash is a good preventive, as it acts as a deterrent to the mature insects depositing their eggs (from which the borers are evolved) on the parts sprayed.

## General Notes.

### THE EXHIBITION.

Beef cattle entries this year are far more numerous than in August last year, when the entries numbered 390, a record at that date. This year there are 750 individual beef cattle entries, not including fats, and more than 100 animals which did not reach the standard of qualification demanded by the National Association were rejected. The great increase in entries demanded additional accommodation, and this has been arranged for.

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### THE NATIONAL ASSOCIATION.

The Annual Exhibition of the Queensland National Agricultural and Industrial Association, which will open on the 12th of this month, promises to prove highly successful. In a report presented at a meeting of the Association in July, the Secretary, Mr. J. Bain, said that never in the history of the Association had the prospects for a highly successful show been better. Entries in the district exhibit sections constituted a record, there being no fewer than three A and six B Grade exhibits—Darling Downs, Wide Bay and Burnett, and Central Queensland for A Grade; and Crow's Nest, Gympie, Northern Downs, Fassifern, Kingaroy, and Wallumbilla for B Grade. District displays of fruit promised to be exceedingly good, and the Red Lands, which include all that country from Tingalpa Creek to Redland Bay, would compete as a fruit district this year. The fruit displays promised to be amongst the best yet submitted. Live stock entries were so heavy that forty new cattle stalls and yarding accommodation for over sixty head had had to be erected. The export butter and cheese classes, which last year were a record, had this year been exceeded in the classes which had already closed. Perhaps the most pleasing feature of the show would be the fine displays of machinery to be located on Machinery Hill. Quite a number of firms had secured space, and the hill would be a busy and noisy spot during Exhibition week. Owners of the best jumping and trotting studs had notified their intention to compete, and as a result the ring programme would be of exceptional interest. The demand for accommodation in the poultry and dog sections was exceedingly heavy, the same remarks applying to swine and sheep. Although entries would not close for practically another fortnight, applications already received showed that fruit and farm produce space would be taxed to its utmost capacity. The space for commercial purposes inside the annexes had been over-applied for, and in the sideshow area every inch would be occupied.

Mr. J. Beard, Instructor in the Poultry Industry, stated later that the entries in the poultry sections numbered 1,061, which constitutes a record in the history of the Association.

**SOCIETIES, SHOW DATES, ETC.**

Ingham.—Herbert River Pastoral and Agricultural Association. Show dates: 30th and 31st August.

Innisfail.—Johnstone River Agricultural Society. Show date, 5th October.

Longreach.—Longreach P. and A. Society. Secretary, H. J. Forrest.

Maroochy River Branch of the Queensland Farmers' Union, Yandina. Secretary, F. T. Latten, *vice* F. O. Venning.

The Maroochy Progress Association no longer exists.

Warwick.—Eastern Downs Horticultural and Agricultural Association Show date, 11th, 12th, and 13th February, 1919.

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**SOAPMAKING.**

Replying to a correspondent, "Town and Country" gave the following recipe for making soap without boiling:—

"Take exactly 10 lb. of double-refined 98 per cent. caustic soda power, put it in a can or jar, with 48 lb. (4½ gallons) of water. Stir it once or twice, when it will dissolve immediately, and become quite hot. Let it stand until the lye thus made is cold. Weigh out, and place in any convenient vessel for mixing, exactly 75 lb. of clean grease, tallow, or oil (not mineral oil). If grease or tallow be used, melt it slowly over the fire, until it is liquid, and just warm; say, temperature not more than 100 degrees Fahrenheit. If oil be used, no heating is required. Pour the lye slowly into the melted grease or oil in a small continuous stream, at the same time stirring with a flat wooden stirrer, about 3 in. broad. Continue gently stirring until the lye and grease are thoroughly combined, and in appearance like honey. Do not stir too long, or the mixture will separate itself again. The time required varies with the weather, and the kind of tallow, grease, or oil used; from fifteen to twenty minutes will be enough. When the mixing is completed, pour off the liquid soap into any old square box for a mould, sufficiently large to hold it, previously damping the sides with water, so as to prevent the soap sticking. Wrap up the box with old blankets, or, better still, put it in a warm place till the next day, when the box will contain a box of 130 lb. of soap. Remember the chief points in the above directions, which must be exactly followed. The lye must be allowed to cool. If melted tallow or grease be used it must not be more than warm. The exact weight of double-refined 98 per cent. powdered caustic soda and tallow, or oil, must be taken, also the lye must be stirred into the grease, not grease or oil added to the lye. If the grease or tallow used be not clean, or contains salt, it must be rendered or purified previous to use; that is to say, boiled with water, and allowed to become hard again to throw out the impurities. Any salt present will spoil the whole operation entirely, but discoloured or rancid grease or tallow is just as good as the finest for soapmaking purposes."

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PLATE 13.—ALGAROPA ; OR MESQUIT BEAN.

# The Markets.

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

Article.	JULY.	
	Prices.	
Bacon ... ..	lb.	9d. to 10d.
Barley ... ..	bush.	2s. 6d. to 4s.
Bran ... ..	ton	£6 10s.
Broom Millet ... ..	"	£70 to £76
Broom Millet (Sydney price) ... ..	"	...
Butter (First Grade) ... ..	cwt.	128s. 6d.
Chaff, Mixed ... ..	ton	£3 10s. to £3 15s.
Chaff, Oaten ... ..	"	£6 to £9
Chaff, Lucerne ... ..	"	£8 10s. to £12 5s.
Chaff, Wheaten ... ..	"	£6 5s.
Cheese ... ..	lb.	7½d. to 10½d.
Flour ... ..	ton	£12
Hams ... ..	lb.	1s. 3d. to 1s. 10d.
Hay, Oaten (Imported) ... ..	ton	£9 10s.
Hay, Lucerne ... ..	"	£3 to £7 15s.
Hay, Wheaten ... ..	"	£4 10s. to £5
Honey ... ..	lb.	3½d. to 4½d.
Maize ... ..	bush.	5s. to 5s. 6d.
Oats ... ..	"	3s. 3d. to 4s.
Onions ... ..	ton	£17 to £20
Peanuts ... ..	lb.	4d. to 5d.
Pollard ... ..	ton	£6 10s. to £7 10s.
Potatoes ... ..	"	£8 to £10 5s.
Potatoes (Sweet) ... ..	cwt.	2s. 9d. to 3s. 6d.
Pumpkins (Cattle) ... ..	ton	£3 10s. to £4 15s.
Eggs ... ..	doz.	1s. 3d. to 1s. 8d.
Fowls ... ..	per pair	3s. 6d. to 9s.
Ducks, English ... ..	"	3s. to 4s.
Ducks, Muscovy ... ..	"	3s. 6d. to 7s.
Geese ... ..	"	7s. to 8s. 6d.
Turkeys (Hens) ... ..	"	7s. 6d. to 12s.
Turkeys (Gobblers) ... ..	"	12s. to 20s.
Wheat (Milling) ... ..	bush.	4s. 6d.

### VEGETABLES—TURBOT STREET MARKETS.

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

**SOUTHERN FRUIT MARKETS.**

Article.	JULY.	
	Prices.	
Bananas (Queensland), per case ... ..	10s. to 14s.	
Bananas (Tweed River), per case ... ..	17s. to 18s.	
Bananas (Fiji), per bunch... ..	8s. to 10s.	
Bananas (G.M.), per bunch ... ..	8s. to 10s.	
Bananas (G.M.), per case ... ..	20s. to 23s.	
Lemons (local), per bushel-case ... ..	5s. to 6s.	
Mandarins, per bushel-case ... ..	3s. to 7s.	
Oranges (Navel), per case ... ..	3s. to 9s.	
Oranges (Other), per case... ..	6s. to 7s.	
Oranges (Queensland), per case ... ..	6s. to 9s.	
Papaw Apples, (Queensland), per quarter-case ... ..	8s. to 9s.	
Passion Fruit, per half-case ... ..	11s. to 12s.	
Pineapples (Queens and Roughs), per double-case ... ..	8s. to 10s.	
Pineapples (Ripleys), per double-case ... ..	6s. to 7s.	
Tomatoes (Queensland), per half-case ... ..	2s. to 6s.	

**PRICES OF FRUIT—TURBOT STREET MARKETS.**

Article.	JULY.	
	Prices.	
Apples, Eating, per case ... ..	7s. 6d. to 12s. 6d.	
Apples, Cooking, per case ... ..	7s. to 8s.	
Bananas (Cavendish), per dozen ... ..	3d. to 4½d.	
Bananas (Sugar), per dozen ... ..	3d. to 4½d.	
Cape Gooseberries, per quarter case ... ..	6s. 6d. to 10s.	
Citrons, per hundredweight ... ..	7s. to 8s.	
Cocoanuts, per sack ... ..	15s. to 25s.	
Cumquats, per quarter-case ... ..	3s. to 3s. 6d.	
Custard Apples, per quarter-case ... ..	2s. 6d. to 5s.	
Lemons (Lisbon), per case ... ..	4s. to 6s.	
Mandarins, per case ... ..	8s. to 14s.	
Oranges (Navel), per case ... ..	6s. 6d. to 8s. 6d.	
Oranges (Seville), per hundredweight ... ..	14s.	
Oranges (Other), per case ... ..	4s. to 6s.	
Papaw Apples, per quarter-case ... ..	1s. 3d. to 3s. 6d.	
Passion Fruit, per quarter-case ... ..	5s. to 8s.	
Peanuts, per lb. ... ..	3d. to 5d.	
Pineapples (Ripley), per dozen ... ..	2s. 6d. to 3s.	
Pineapples (Rough), per dozen ... ..	6d. to 1s.	
Pineapples (Smooth), per dozen ... ..	1s. to 2s.	
Pomelos (poor man's orange) per hundredweight ... ..	14s.	
Rosellas, per sugar bag ... ..	5s. to 7s.	
Strawberries, per dozen boxes ... ..	4s. to 13s.	
Tomatoes, per quarter-case ... ..	2s. to 5s. 7d.	

## TOP PRICES, ENOGGERA YARDS, JUNE, 1918.

Animal.	JUNE.	
	Prices.	
Bullocks ... ..	£18 to £21	
Cows ... ..	£16 to £16 15s.	
Cows (Single) ... ..	...	
Merino Wethers ... ..	43s.	
Crossbred Wethers ... ..	40s.	
Merino Ewes ... ..	30s.	
Crossbred Ewes ... ..	35s.	
Lambs ... ..	34s.	
Pigs (Baconers) ... ..	...	
Pigs (Porkers) ... ..	...	
Pigs (Slips) ... ..	...	

## LONDON QUOTATIONS.

Cotton: 2s. 6d. per lb.

Rubber: Para, 3s. 0 $\frac{3}{4}$ d. per lb.; Plantation, 2s. 2 $\frac{1}{2}$ d. per lb.; Smok'd, 2s. 1 $\frac{1}{2}$ d. per lb.

## THE MAIZE MARKET.

Early in July last the price of maize advanced rapidly from about 4s. 2d. per bushel, the average price at the Roma Street markets in June, to 5s. 3d. and 5s. 4d. per bushel on rail, and later, in July, to 5s. 7d. The reasons for this sudden rise are the shortage of the maize crop in the Atherton district owing to the late cyclone, the persistent dry weather elsewhere, and the impossibility of importing maize as in pre-war times from the Argentine, Java, or South Africa, whilst it is difficult even to secure freightage from the Southern ports to Queensland.

The *Brisbane Courier* (11th July) published the following Brisbane merchants' explanation of the situation:—

“In January and February the prospects for the Queensland maize crop were excellent, and everything pointed to an absolute record, but the continued wet weather upset the early crop, and dry weather caused the failure of the late grain. The middle crop, however, was a record. In January and February, with the good prospects, Brisbane merchants sold forward. They took the risk, and to-day are executing orders at prices which in most cases involve severe losses. There have been

several new features in the market, such as the entrance of New Zealand and Tasmania, which were not at any previous time maize consumers. The prices of fodder lines generally, too, are worth nothing. The oat crops in both New Zealand and Tasmania have failed, and the price of oats in Queensland to-day is £18 4s. per ton, maize being quoted at only £11 3s. 4d. Oaten chaff is quoted at £9, prime lucerne at £12, while barley, if imported from Adelaide, the only selling market, would cost £12 10s. per ton. Again, Queensland has no wheat. There is a suspicion, also, that New Zealand may have been shipping maize to America, as large quantities were going to the Dominion by every boat, it being known that there no labour troubles were to be feared, and easy shipment would be assured. Mention has been made by some of the Cairns crop, but as far as that is concerned, maize will have to be shipped to there during the last months of the year, in return for all that is exported now. Without taking the dry weather into consideration at all, it must not be forgotten that the prices of all other feed lines are high, and interfere with the price of maize. Further, rice has not been obtainable, which means that starch and a number of other lines are being manufactured from maize, and the Maize Products Company has been buying very large quantities. As an instance of the great shortage, it may be mentioned that four weeks ago there was an inquiry on the Brisbane market from America, offering for anything from 1,000 to 10,000 tons, and freight space was guaranteed. Maize in America is at 12s. 6d. per bushel, but it was pointed out to the inquirers that Queensland could not possibly supply the quantity mentioned, and that before the year was out she herself would have to seek maize from outside sources. Townsville is on the Brisbane market for maize, as are also the Northern Rivers of New South Wales, which were supposed to have had a big crop. In fact, it can be said safely that there are orders aggregating at least 150 to 200 tons on the market to-day, while there are many inquiries on the spot from local consumers. There the matter stands. In the past, Java supplied many of the manufacturing concerns, but freight space is not available from there at present, and even if it were, local merchants could not afford to buy. America, Holland, and England will take every pound of the grain that can be obtained, and the case in a nutshell is that there is a big shortage of maize throughout the world. As far as stocks in Queensland are concerned, they are only those which are being held back by the farmers themselves and those bought by merchants to fill forward orders.''

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**RAINFALL IN THE AGRICULTURAL DISTRICTS.**

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

Divisions and Stations.	AVERAGE RAINFALL.		TOTAL RAINFALL.		Divisions and Stations.	AVERAGE RAINFALL.		TOTAL RAINFALL.	
	June.	No. of Years' Records.	June, 1918.	June, 1917.		June.	No. of Years' Records.	June, 1918.	June, 1917.
<i>North Coast.</i>					<i>South Coast—continued:</i>				
Atherton ... ..	In.		In.	In.	Nambour ... ..	In.		In.	In.
Cairns ... ..	1·69	17	0·19	0·51	Nanango ... ..	3·39	22	0·21	0·27
Cardwell ... ..	2·83	36	0·38	0·38	Rockhampton ...	1·96	36	0·28	0·09
Cooktown ... ..	2·07	46	1·14	0·36	Woodford ... ..	2·05	31	0·12	0·16
Herberton ... ..	2·05	42	1·33	0·30		2·63	31	0·34	0·48
Ingham ... ..	0·99	31	0·05	0·03	<i>Darling Downs.</i>				
Innisfail ... ..	2·43	26	1·05	0·48	Dalby ... ..	1·65	48	0·25	0·62
Mossman ... ..	7·08	37	3·99	4·23	Emu Vale ... ..	1·40	...	0·29	0·25
Townsville ... ..	2·43	10	0·29	0·79	Jimbour ... ..	1·64	...	Nil	0·59
	1·33	47	0·05	0·07	Miles ... ..	1·96	33	0·05	0·25
<i>Central Coast.</i>					Stantborpe ... ..	1·80	45	0·67	0·70
Ayr ... ..	1·36	31	0·04	0·42	Toowoomba ... ..	2·34	46	0·54	0·60
Bowen ... ..	1·64	47	0·07	0·61	Warwick ... ..	1·64	31	0·48	0·31
Charters Towers ...	1·44	36	0·01	0·04	<i>Maranoa.</i>				
Mackay ... ..	2·73	47	2·40	0·54	Roma ... ..	1·68	44	0·02	0·34
Proserpine ... ..	3·92	15	0·48	1·16	<i>State Farms, &amp;c.</i>				
St. Lawrence ... ..	2·52	47	0·70	0·40	Bungewongorai ...	1·48	4	0·02	0·40
<i>South Coast.</i>					Gatton College ...	1·65	...	0·22	0·16
Biggenden ... ..	1·92	...	0·05	0·07	Gindie ... ..	1·59	...	Nil	0·49
Bundaberg ... ..	2·82	35	0·02	0·04	Hermitage ... ..	1·93	...	0·91	0·40
Brisbane ... ..	2·59	67	0·20	0·21	Kairi ... ..	0·84	4	0·13	0·23
Childers ... ..	2·28	23	Nil	Nil	Kamerunga ... ..	2·57	...	0·44	0·35
Crohamhurst ... ..	4·13	25	0·27	0·58	Sugar Experiment	2·44	...	...	0·64
Esk ... ..	2·00	31	0·42	0·27	Station, Mackay	1·59	4	0·28	Nil
Gayndah ... ..	1·84	47	Nil	0·05	Warren ... ..				
Gympie ... ..	2·52	48	0·02	0·56					
Glasshouse M'tains	3·97	10	0·58	0·70					
Kilkivan ... ..	1·98	39	Nil	Nil					
Maryborough ... ..	2·88	47	Nil	0·27					

NOTE.—The averages have been compiled from official data during the periods indicated; but the totals for June 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.	MAY.		JUNE.		JULY.		AUGUST.	
	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.
1	6:13	5:17	6:30	5:0	6:39	5:3	6:30	5:18
2	6:14	5:16	6:30	5:0	6:39	5:3	6:30	5:18
3	6:14	5:15	6:31	5:0	6:39	5:4	6:29	5:19
4	6:15	5:14	6:31	5:0	6:39	5:4	6:29	5:19
5	6:15	5:13	6:32	5:0	6:39	5:4	6:28	5:20
6	6:16	5:13	6:32	5:0	6:39	5:5	6:27	5:20
7	6:16	5:12	6:33	5:0	6:39	5:5	6:27	5:21
8	6:17	5:11	6:33	5:0	6:39	5:6	6:26	5:21
9	6:17	5:11	6:34	5:0	6:39	5:6	6:25	5:22
10	6:18	5:10	6:34	4:59	6:39	5:7	6:24	5:22
11	6:19	5:9	6:35	4:59	6:39	5:7	6:23	5:23
12	6:19	5:9	6:35	4:59	6:39	5:8	6:22	5:24
13	6:20	5:8	6:36	4:59	6:38	5:8	6:21	5:24
14	6:20	5:8	6:36	4:59	6:38	5:9	6:20	5:25
15	6:21	5:7	6:36	5:0	6:38	5:9	6:19	5:26
16	6:21	5:6	6:37	5:0	6:38	5:10	6:19	5:26
17	6:22	5:6	6:37	5:0	6:37	5:10	6:18	5:27
18	6:23	5:5	6:37	5:0	6:37	5:11	6:17	5:27
19	6:23	5:5	6:38	5:0	6:37	5:11	6:16	5:28
20	6:24	5:4	6:38	5:0	6:36	5:12	6:15	5:28
21	6:24	5:4	6:38	5:1	6:36	5:12	6:14	5:29
22	6:25	5:3	6:39	5:1	6:36	5:13	6:13	5:29
23	6:25	5:3	6:39	5:1	6:35	5:13	6:12	5:30
24	6:26	5:3	6:39	5:1	6:35	5:14	6:11	5:30
25	6:26	5:2	6:39	5:1	6:34	5:14	6:10	5:30
26	6:27	5:2	6:39	5:2	6:34	5:15	6:9	5:31
27	6:27	5:2	6:39	5:2	6:33	5:15	6:8	5:31
28	6:28	5:1	6:39	5:2	6:33	5:16	6:7	5:32
29	6:28	5:1	6:39	5:2	6:32	5:16	6:6	5:32
30	6:29	5:1	6:39	5:3	6:32	5:17	6:5	5:33
31	6:29	5:0	...	...	6:31	5:17	6:4	5:33

PHASES OF THE MOON.

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

H. M.

- 4 May ) Last Quarter 8 26 a.m.
- 10 " ) ● New Moon 11 1 p.m.
- 18 " ) ( First Quarter 6 14 a.m.
- 26 " ) ○ Full Moon 8 32 a.m.

The Moon will be nearest the earth on the 8th, and farthest from it on the 29th.

- 2 June ) Last Quarter 2 20 p.m.
- 9 " ) ● New Moon 8 3 a.m.
- 16 " ) ( First Quarter 11 12 p.m.
- 24 " ) ○ Full Moon 8 38 p.m.

The Moon will be nearest the earth on the 5th, and farthest from it on the 17th. It will be 12 times its diam. north of the planet Uranus on the 1st at 7:30 p.m.

There will be a very partial Eclipse of the Moon on the 24th June, commencing about 7:46 p.m. and ending about 9:10 p.m.

- 1 July ) Last Quarter 6 43 p.m.
- 8 " ) ● New Moon 6 22 p.m.
- 16 " ) ( First Quarter 4 25 p.m.
- 24 " ) ○ Full Moon 6 35 a.m.
- 30 " ) ) Last Quarter 10 14 p.m.

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

- 7 Aug. ) ● New Moon 6 30 a.m.
- 15 " ) ( First Quarter 8 16 a.m.
- 22 " ) ○ Full Moon 3 2 p.m.
- 29 " ) ) Last Quarter 5 27 a.m.

The Moon will be farthest from the earth on the 12th, and nearest to it on the 24th.

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 May, June, and July, and to the middle of August may be roughly arrived at by adding 20 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.

[All the particulars on this page were computed for this Journal, and should not be reproduced without acknowledgment.]

## Farm and Garden Notes for September.

FIELD.—Spring has now arrived, and with it there will be the usual trouble with weeds, especially on carelessly prepared ground. Therefore, the cultivator and the horse and hand hoe must be kept vigorously at work to check the weed pests and save the growing crops as well as much future labour. Attend to earthing up any crop which may require it. There may possibly occur drying winds, dry weather, and even very late frosts, which have not been unknown in parts of this State even as late as September. Still, good showers may be looked for in October, and much useful work may be done during the present month which will go far to afford a fair prospect of a good return for labour. Plant out *Agave rigida*, var. *Sisalana* (sisal hemp plant), in rows 6 to 8 feet apart, according to the richness of the soil. All dry places on the farm, too rocky or too poor for any ordinary crops, should be planted with this valuable aloe. Especially should limestone country be selected for the purpose. If the soil is very poor, and the plants very small, it is better to put the latter out into a nursery of good soil, about 1 foot apart. Next year they will be good-sized plants. Keep down tall weeds in the plantation, and do not allow couch or buffalo grass to grow about the roots. Sisal will do no good if planted on low-lying wet land, or on a pure sandy soil. It thrives best where there is plenty of lime, potash, and phosphoric acid, all of which (except potash, unobtainable under present war conditions) can be cheaply supplied if wanting in the soil. Sisal requires so little labour from planting to maturity that it should be grown to good profit despite the high cost of white labour. The price of the fibre now ranges from £70 to £100 per ton for British East African, the Mexican being unobtainable. Sow cotton—Sea Island near the coast, and Uplands generally. *Caravonica* succeeds best in North Queensland. Sow maize, sorghum, imphee, mazzagua, Indian cane, prairie grass, Rhodes grass and paspalum, panicum, tobacco, pumpkins, and melons. Sugar-cane planting should be vigorously carried on. Plant sweet potatoes, yams, peanuts, arrowroot, turmeric, chicory, ginger, and canaigre, the latter a tuber yielding a valuable tanning substance. Plant out coffee.

KITCHEN GARDEN.—Now is the time when the kitchen garden will richly repay all the labour bestowed upon it, for it is the month for sowing many kinds of vegetables. If the soil is not naturally rich, make it so by a liberal application of stable manure and compost. Failing a sufficient supply of these, artificials may be used with good results. Dig or plough the ground deeply, and afterwards keep the surface in good tilth about the crops. Water early in the morning or late in the evening, and in the latter case, stir the soil early next day to prevent caking. Mulching with straw, leaves, or litter will be of great benefit as the season becomes hotter. It is a good thing to apply a little salt to newly dug beds. What the action of salt is, is not exactly known, but when it is applied as a top dressing it tends to check rank growth. A little is excellent for cabbages, and especially for asparagus, but too much renders the soil sterile, and causes hardpan to form. French or kidney beans may now be sown in all parts of the State. The Lima bean delights in the hottest weather. Sow the dwarf kinds in drills 3 feet apart and 18 inches between the plants, and the climbing sorts of 6 feet each way. Sow Guada bean, providing a trellis for it to climb on later. Sow cucumbers, melons, marrows, and squash at once. If they are troubled by the red beetle, spray with Paris green or London purple. In cool districts, peas and even some beetroot may be sown. Set out egg plants in rows of 4 feet apart. Plant out tomatoes 3½ feet each way, and train them to a single stem, either on stakes, trellis, or wire netting. Plant out rosellas. Sow mustard and cress, spinach, lettuce, endive, vegetable marrows, custard marrows, parsnips, carrots, chicory, eschalots, cabbage, radishes, khol-rabi, egg-plant, &c. These will all prove satisfactory, provided the ground is well worked, kept clean, and that water, manure, and, where required, shade are provided.

FLOWER GARDEN.—Continue to plant bulbs as directed last month. Protect the plants as much as possible from cold westerly winds, which may still occur, notwithstanding the increasing temperature. Be careful that the bulbs do not come in contact with fresh manure. Keep a good lookout for slugs. Plant out chrysanthemums, palms, and all kinds of tropical and semi-tropical plants. If hot weather should ensue after planting, water and shade must be given. Sow dianthus, snapdragon, and coleus, seed or cuttings of the latter. Roses will now be in full bloom. Keep them free from aphid, and cut off all spent blooms. This latter work should be done in the case of all flowers. If you wish to save seeds, do not wait for the very last blooms, but allow some of the very best to go to seed. If you have any toads in the garden or bush-house, encourage them to take up their abode there. They are perfectly harmless, in spite of their ugliness, and they destroy an astonishing number of insects injurious to plants. Fill up all vacancies with herbaceous plants. Sow zinnia, gaillardia, amaranthus, cockscomb, balsam, sunflower, marigold, cosmos, summer chrysanthemum, coreopsis, portulaca, mesembryanthemum, calendula, &c.

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## Orchard Notes for September.

### THE SOUTHERN COAST DISTRICTS.

The marketing of citrus fruits, in the later districts, of the late winter or early spring crop of pines and bananas, also of strawberries and Cape gooseberries, will continue to occupy the attention of fruitgrowers. We can only repeat the advice we have so often given in these Notes respecting the marketing of all kinds of fruit—viz., to grade the fruit evenly, pack honestly, and display it to the best advantage if you want to get good returns.

September is a very important month to the fruitgrower, owing to the fact that it is usually a dry month, and that it is essential in all cases to keep the land in a high state of tilth, so as to retain the moisture that is required by the various trees that are in blossom, thus securing a good set of fruit. Where irrigation is available, it is advisable to give the trees a good watering should the ground be dry, as this will induce a good growth and cause the fruit to set well. If an irrigation is given, it should be a thorough one, not a mere surface watering, and once the land is saturated the moisture must be retained in the soil by constant and systematic cultivation. If this is done, one good watering will usually be enough to carry the trees through in good condition to the thunderstorms that come later or even to the summer rains, if the soil is of a deep sandy loamy nature.

No weeds must be allowed in the orchard or vineyard at this time of the year, as they are robbing the trees and plants of both the water and plant food that are so essential to them at this period of their growth.

There is not much to be done in the way of fighting scale insects during the month, as they are more effectually dealt with later on; but where young trees are showing signs of distress, owing to the presence of scale insects, they should be treated, the gas method being the most efficacious. Plant out strawberries.

Beetles and other leaf-eating insects often make their appearance during the month. The best remedy is to spray the trees or plants with one or other of the arsenical washes that are recommended by me in this journal. The vineyard will require considerable attention. Not only must it be kept well worked, but any vines that are subject to the attack of black spot must be sprayed from time to time with Bordeaux mixture. Disbudding must be carefully carried out, as this work is equally as important as the winter pruning, as it is the best means of controlling the future shape of the vine. A very common fault with vines grown in the coast districts is that the buds often remain dormant, only the terminal bud and possibly one other starting into growth, thus leaving a long bare space on the main rods, which is undesirable. When this takes place, pinch back those shoots that have started, and

which are taking the whole of the sap, and force the sap into the dormant buds, thus starting them into growth. This will result in an even growth of wood all over the vine—not a huge cane in one part and either a stunted growth or dormant buds on the rest.

Every care should be taken during the month to prevent the fruit-fly from getting an early start. All infested oranges, loquats, kumquats, or other fruits should be gathered and destroyed, as the keeping in cheek of the early spring crop of flies, when there are only comparatively few to deal with, will materially lessen the subsequent crops. Land that is to be planted to pines or bananas should be got ready now, though the planting need not be done till October, November, or even later. Prepare the land thoroughly; don't scratch the surface to the depth of a few inches, but plough as deeply as you have good surface soil, and break up the subsoil as deeply as you can possibly get power to do it. You will find that the extra money expended will be a profitable investment, as it will pay every time.

### THE TROPICAL COAST DISTRICTS.

September is usually a very dry month, and fruit trees of all kinds suffer in consequence. The spring crop of citrus fruits should be harvested by the end of the month, as, if allowed to hang later, there is a great risk of loss by fly. The fruit should be well sweated, and, if carefully selected, well-graded, and well packed, it should carry well to, and fetch high prices in, the Southern States, as there are no oranges or mandarins grown in Australia that can excel the flavour of the best of the Bowen, Cardwell, Cairns, Port Douglas, or Cooktown fruit.

As soon as the fruit is gathered, the trees should be pruned and sprayed with the lime and sulphur wash, as this wash is not only a good insecticide, but it will keep down the growth of all lichens, mosses, &c., to which the trees are very subject.

Every care should be taken to keep down the crop of fruit-fly during the month. All infested fruit should be gathered and destroyed, particularly that in or adjacent to banana plantations. Watch the banana gardens carefully, and keep well cultivated. New land should be got ready for planting, and where land is ready planting can take place.

Papaws and granadillas are in good condition now, and, if carefully gathered and well packed in cases only holding one layer of fruit, they should carry well to the Southern markets if sent in the cool chamber.

### THE SOUTHERN AND CENTRAL TABLELANDS.

Prune grape vines at Stanthorpe in the early part of the month, leaving the pruning as late as possible, as the object is to keep the vines back in order to escape damage from late spring frosts. All vines subject to the attack of black spot should be treated with the winter dressing when the buds are swelling; this treatment to be followed by spraying with Bordeaux mixture later on.

Where fruit trees have not received their winter spraying, they should be treated at once before they come out into flower or young growth. Where the orchard or vineyard has not been ploughed, do so, taking care to work the land down fine as soon as it is ploughed, so as to keep the moisture in the soil, as the spring is always the trying time for fruit trees.

Look out for fruit-fly in the late oranges and loquats in the Toowoomba district. Keep the orchards and vineyards well cultivated; disbud the vines when sufficiently advanced. Spray for codlin moth.

In the Central tablelands irrigate vines and fruit trees, and follow the irrigation with deep, constant, and systematic cultivation. Keep down all weed growth, and fight the red scale on citrus trees with cyanide. The objective of the fruitgrowers throughout Queensland during September and the following months is, "How best to keep the moisture in the soil that is required by the trees, vines, plants, and vegetables"; and this objective can only be obtained by irrigation where same is available, or by deep, systematic, and constant cultivation where there is no water available for irrigation.

# Government State Farms.

## Stud Notices, etc.

(Applications to "The Manager.")

### KAIRI (N.Q.) STOCK.

ORDERS TAKEN for supply, as available, of 6 MONTHS OLD JERSEY PEDIGREE BULL CALVES, from high-class registered animals.

### WARREN (Q.C.R.) STOCK.

ORDERS TAKEN for supply, as available, of 6 MONTHS OLD AYRSHIRE PEDIGREE BULL CALVES, from high-class registered animals.

#### Stud Animals for Service:

AYRSHIRE BULL Howie's Sun Yat, imp., No. 12501 A.H.B. of S. 193, Vol. VI., A.H.B. of Q. FEE 5s. per cow, with 1s. per week agistment. Only approved cows accepted.

**PIGS:—Berkshires, Young Boars and Sows for Sale.**

#### Attention is directed to the following;

any information relative to which  
will be furnished on application to

The Under Secretary for Agriculture and Stock  
Brisbane.

**Cotton.**—The Department of Agriculture and Stock is prepared to receive RAW COTTON, gin, and market it on owner's account. An advance of 2d. a lb. for the year 1918 will be made upon the raw cotton received, and any surplus after sale after deducting charges will be paid to the grower *pro rata*. Consignments are to be forwarded addressed to the Under Secretary, Department of Agriculture, Brisbane, who should be advised of despatch. The Department will be pleased to supply growers with cotton seed free of cost, and railage paid, allowing 10 lb. of seed per acre, to provide for replants or any other contingencies.

**Wool.**—The Department will also receive, on Farmers' account, Wool for classification and sale on their behalf, but the privilege is limited to owners of less than 1,500 sheep. Advances to farmers are made up to 60 per cent. of the estimated value of the consignment. The classing of lots, and the low rates of commission obtained, is of considerable benefit to small growers.

## Yeerongpilly Stock Experiment Station

Owing to the Increases in Cost  
of Chemicals, etc., the follow-  
ing charges are made for the  
preparations mentioned as from

1st June, 1918.

Pleuro Virus	-	4/-	per 50 animals.
Blackleg Vaccine	}	4/-	" 10
(Powder Form) Tubes			" (double doses)."
Lactic Cultures	-	1/6	per bottle.
Tested Blood for Tick Fever Inoculation	}	6d.	per dose with a minimum charge of
			1/6

Stud Animals received and stalled for Tick  
Fever Inoculation, 3/- per day (agistment  
charges extra).

Cash must accompany the order in  
each case, and all applications are  
to be addressed to

**The Govt. Bacteriologist,**  
**Stock Experiment Station,**  
Yeerongpilly, near Brisbane.

## QUEENSLAND RAILWAYS

# Special CHEAP Week-End TICKETS to the Seaside and Country

(available from Saturday afternoon until Sunday night)

Affording an opportunity of getting away from Town after working hours on SATURDAY and returning SUNDAY night to start work on MONDAY morning

A splendid opportunity to spend a refreshing day by the breakers on the Main Ocean Beach, to enjoy the glorious scenery on the Mountain Ranges, or the quiet glades of the Scrub

### Some of the Fares:

	First Class.		Second Class.	
	s.	d.	s.	d.
Southport	6	0	4	0
Tweed Heads, Currumbin, and West Burleigh	9	0	6	0
Landsborough (for Caloundra)	9	0	6	0
Palmwoods	10	0	7	0
Nambour	10	0	7	0
Cooroy (for Tewantin and Noosa)	12	0	8	0
Gympie	14	0	9	0
Gatton College	9	0	6	0
Helidon	11	0	7	6
Murphy's Creek	12	0	8	0
Spring Bluff	13	0	8	6
Toowoomba	14	0	9	0

These tickets will be issued by any train running between mid-day Saturday and mid-day Sunday, but will not be available by Mail Trains on the Toowoomba or North Coast Lines.

Trains leave South Brisbane for Southport on Saturday at 2:15 p.m. and 6:18 p.m., returning from Southport on Sunday at 6:15 p.m. (Express) and 6:35 p.m.

Trains leave South Brisbane for Tweed Heads on Saturday at 2:0 p.m., returning on Sunday at 4:50 p.m.

Trains leave Central Station for Toowoomba on Saturday at 2:10 p.m. and Sunday at 6:55 a.m., returning from Toowoomba on Sunday at 4:50 p.m.

Trains leave Central Station for Gympie on Saturday at 1:40 p.m. and 6:5 p.m., returning from Gympie on Sunday at 4:40 p.m.

ARTHUR J. CROWTHER, Secretary.

# Grain and Seed For Sale.

In the June issue of the Journal reference is made under the heading of "Utility of Seed Selection" to seed improvement work being carried on by the Department of Agriculture. The following kinds of seed are offered for sale at prices detailed:—

## Maize.

**Yellow Varieties:**—Improved Yellow Dent; Hawkesbury Champion; Reid's Yellow Dent.

**White Varieties:**—Cornplanter; Boone County White; Brazilian White.

## Sorghums.

**Non-saccharine Grain Varieties:**—Cream Milo; Feterita (Soudan Dhoura); Standard Milo; Dwarf Milo; Shantung Dwarf Kaoliang; Valley Kaoliang; Red Kaffir Corn; Giant Honduras Sorghum.

**Saccharine Fodder Varieties:**—Sorghum saccharatum; Early Amber Cane.

## Broom Millets.

White Italian; Improved Evergreen.

## Grass Seeds.

Soudan grass seed; Phalaris minor grass seed.

## Conditions of Sale.

Application for seed, with accompanying remittance (exchange added), should be addressed to the Under Secretary for Agriculture, Brisbane.

For "prepaid" stations and gatehouses, freight should be added, according to Railway Department rates.

Orders will be supplied according to priority. It will be taken for granted, unless otherwise specified, that a similar type and kind of grain to the one ordered can be sent as a substitute. This provision applies only in the cases where orders exceed the available supply of seed.

Advice will be sent when seed is despatched.

Purchasers are requested to write promptly after receipt of seed should any matters require adjustment.

## Prices.

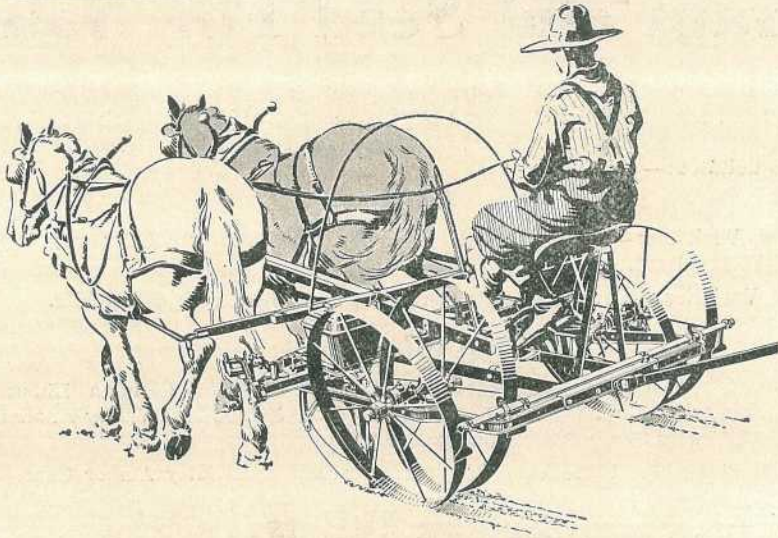
**Maize.**—Price per bushel, 10s. f.o.r. Not less than half-bushel lots will be supplied.

**Postage Packets.**—A 10-lb. minimum postage packet (including weight of seed envelope) will be supplied for 5s.

**Sorghums.**—Postage packets for all kinds of sorghum and broom millet, Soudan grass seed, and Phalaris minor grass seed will be made up as follows:—Orders of not less than 3 lb. of any one variety will be supplied. Three sizes will be made up, viz.:—3 lb. for 2s. 6d.; 7 lb. for 5s. 6d.; 10 lb. for 7s. 6d., respectively (including weight of seed envelope).

**Railage Lots.**—The price of seed in lots of from 10 to 28 lb., 6d. per lb. f.o.r. Over this amount, 5d. per lb. (bags included).

**Freight for prepaid stations should be added to remittance.**



## A Good Team

requires more than pasturage and fodder, and something more wholesome than Rock Salt, to keep in first-rate condition and health.

# Leslie Salt Licks

fulfil a long-felt want. They are made of pure sterilised sea-salt, hardened into 5-lb. blocks by hydraulic pressure. They do not chip nor crack, and have a loop by which they can be hung to manger, tree, or post.

**Leslie Salt Licks are guaranteed free from alum, gypsum, or dirt. One block lasts one animal four months.**

**2/- per block, or 22/6 per case of one dozen.**

### WHOLESALE FROM—

Buzacott & Co. Ltd.	Adelaide St., Petrie's Bight, Brisbane.
Smellie & Co. Ltd.	Brisbane, Cairns, Ayr.
Siemon & Sons Ltd.	Brisbane, Ipswich, Townsville, and Charters Towers.
New Zealand Loan & Mercantile Agency Co. Ltd.	Eagle Street, Brisbane.
G. & W. Barter	South Brisbane and Toowoomba.
Butler Bros.	Charlotte Street, Brisbane.
Hooker Chapman & Co.	Edward Street, Brisbane.

Country Orders—Freight to be Added.