QUEENSLAND AGRICULTURAL JOURNAL

VOL. III. JUNE, 1915. PART 6.

Agriculture.

SISAL HEMP.

Since the year 1897, when this Journal came into existence, we have advocated the cultivation of sisal hemp. We have repeatedly pointed out that waste lands (dry and rocky), useless for any other marketable vegetable product, could be utilised for the production of a crop which, although, as we shall show, subject to fluctuations in price, yet, under the most adverse climatic conditions of drought, when all other crops suffer and yield not only no profit but prove an absolute loss to the farmer, is able to hold its own and give substantial returns to the grower.

The principal source of this fibre has, for a long series of years, been Mexico, and of later years East Africa. Now, however, that both these countries are handicapped as to their agricultural products, especially Mexico, the urgent demand for sisal hemp cannot be complied with. Had the farmers of Queensland utilised some of their waste lands by planting sisal hemp, which after the first or second year requires no attention, they would to-day be reaping a highly profitable harvest. We have, in previous articles, shown how a clear profit of £12 per acre has been made in a few districts in the State. The profits are, of course, regulated by supply and demand, and on several occasions the demand has so far exceeded the supply that prices have risen by over 100 per cent.

For instance, to-day fair seconds hemp is quoted at £37 per ton. A crop of sisal four or five years old will amount to 1 ton, and even more, of fibre per acre, and the cost of production, as shown by a grower at Childers, is about £12 per ton. Only twice since 1879 has the price

of sisal fibre exceeded this figure. That was in 1889 and 1902, when the price rose to £50 per ton. In 1888, and again in 1903-4-5-6 and '7, fair seconds brought £37 per ton. The lowest prices were in 1893, £17; 1894, £15; 1895, £18; 1896, £19; and 1897, £17 per ton. Then in 1897 the price suddenly rose to £27 per ton; in 1898 the price was £33; in 1900, £37; and in 1902, £50 per ton; in 1908 it fell to £25, and in 1909 it was steady at £27. To-day (1st May) it is impossible to say what the value may be. Even Furcrea (Mauritius hemp) is worth £34 per ton. Messrs. Landauer and Co., London, in their trade circular on the fibre market (17th March), write as follows:—

"What would happen in this market if any heavy demand set in, in view of the critical position of Mexican sisal hemp, is best left to the imagination. We estimate sales for the week at 10/12,000 bales, which includes a very fair percentage of business done with consumers. Closing values are £28 10s. to £28 15s. for good seconds, £36 10s. to £37 for fair current, February/April and March/May shipment.

"Spot hemp has been in heavy demand, but very little offering, and the value has advanced to the basis of £29 for good seconds.

"*Mexican Sisal Hemp.*—American twine manufacturers have suffered a great surprise, and view with considerable alarm the prospect of being deprived of their supplies, so urgently needed for the manufacture of binder twine for the approaching season. The port of Progreso has suddenly been closed, and all communications, both by mail and cable, suspended. It is impossible to over-estimate the seriousness of the position for American twine producers, seeing that they annually consume fully seven-eighths of the total supply of Mexican sisal hemp, in addition to having taken for some years past the bulk of the production of kindred articles such as Java, East African, and Bahama sisal, supplies of which are now also cut off. The position is a most critical one when it is reflected that the total production and consumption of the various descriptions of sisal hemp are approximately double in weight the production of Manila hemp. With these various factors to face, no one can predict what may be in store for the fibre markets in the near future. It seems fairly certain that the value of all hemps that are available will be greatly enhanced, and when the heavy demand (which seems inevitable) sets in we may easily experience a 'panicy' market. It is to be hoped that the Government of the United States will succeed in getting the port of Progreso reopened; otherwise it is difficult to see where the raw material is to come from which is necessary for the manufacture of binder twine for the approaching harvest, and the critical nature of the position becomes more pronounced when one appreciates the extreme difficulty experienced by Manila shippers to secure freight, and in addition the fact that the approaching new system of grading in the Philippines adds to the troubles of shippers in trading to any large extent."

Department of Agriculture and Stock, Queensland.

SEEDS FOR SALE.

SEED MAIZE.

The Department of Agriculture and Stock has a limited quantity of the following varieties for sale at 8s. per bushel, f.o.b. Brisbane.

Remittance to accompany order.

The quantity of seed grain which will be supplied to any individual applicant will not exceed three bushels, and orders will be attended to according to priority of application.

In the event of orders exceeding the available supply of any one variety, the right of substituting another is reserved.

The seed offered has its origin from grain imported from U.S. America:—

Golden Beauty	Hildreth
Hiawatha Yellow Dent	Pride of the North
Reid's Yellow Dent	Boone County White

SORGHUMS AND MILLETS.

The Department of Agriculture and Stock has a limited quantity of the following varieties for sale at 4d. per lb., f.o.b. Brisbane.

Remittance to accompany order. In the event of having to forward by parcel post, the cost of same should be included with remittance.

The quantity of seed grain to be supplied to any individual applicant will not exceed 10 lb., and orders will be attended to according to priority of application.

In the event of orders exceeding the available supply of any one variety, the right of substituting another is reserved; if this arrangement is not acceptable, notification to this effect should be made when ordering.

The seed offered has its origin from grain imported from U.S. America, the varieties having been introduced there from different parts of the globe.

The non-saccharine sorghums came here with a reputation for drought resistance:—

Oklahoma Dwarf Broom Millet	Black-hulled Kaffir Corn (non-saccharine)
Improved Evergreen Millet	Valley Kaoliang (non-saccharine)
Dwarf Milo (non-saccharine)	Soudan Dhoura (non-saccharine)
Shantung Dwarf Kaoliang (non-saccharine)	Planters' Friend (saccharine)
Cream Milo (non-saccharine)	Early Amber Cane (saccharine)
Standard Milo (non-saccharine)	Sorghum Saccharatum (saccharine)

Pastoral.

JUDGING A BULLOCK'S WEIGHT.

Messrs. Armour and Co., Chicago, who have brought the science of cattle-buying to a fine point, publish in "Armco," their house magazine, their buyers' methods for judging the weight of cattle:—

"To the experienced buyer there are quite a number of ways to make certain of the beef-yielding qualities of any bullock or steer.

"These points stand out boldly before the eye of a man who is constantly in the game for many years, and who trains himself to look for and see them. Among the first points an expert buyer looks for are a fat wattle under an animal's jaw and width across the shoulders. The shoulders should be thick and square clear up to the neck, so that there will be a good yield of beef all the way along. If a bullock is broad along the back, but sharp at the neck, there is want of beef there.

"Another way to judge a bullock is from a point several feet straight behind him. Notice the conformation of his hips and back. If he has been thoroughly fed, his 'pants' will be tight, and he will be straight and flat across the buttock. If not, he will be divided and have the appearance of being split all the way up, which indicates a lack of meat between the legs or in the rounds.

"Again, get him into action, and when he stops notice whether he pushes a good flank. If he does, this indicates that a good yield of beef can be expected from him."—"New Zealand Farmer."

LIBERATING POTASH.

While the supply of potash manures from Germany has been stopped by the war, and a good many users of kainit and sulphate of potash will now have to do without these fertilisers, it is well to remember that there is a natural supply of potash in the ground which may be locked up. While they could get constant supplies of potash many farmers were content to keep adding, but the time has come to look for the magic key which unlocks the door, liberates the potash, and makes it available for crops. Our forefathers used this key for the same purpose, but perhaps without quite knowing why, years before the potash mines in Germany were opened up, and the key was a dressing of lime. If we return to it again, and this valuable essential to fertility is applied to land requiring it, the door will be unlocked and Nature's reserve of potash be liberated in a form that crops can avail themselves of it. If this hint be taken, and we utilise other sources of potash that are available, we shall carry through until potassic salts are again available.—"Garden and Field."

The Horse.

THE HIGHLAND PONY.

BY P. R. GORDON.

Although the extensive adoption of mechanical traction will not bring about a serious decrease in the demand for horses, it will, to a considerable extent, limit the demand for heavy and light draught horses for road traffic. Its effects are seen in cities where the motor-car has completely superseded the stylish carriages and pairs, and to a large and constantly increasing extent the buggy, the van, and even the lorry horse. Even in the far West, station managers have abandoned the favourite hack for the motor-car on station work. While this change is developing, however, there is an ever-increasing use found for the pony, and among the various native breeds of ponies the Highland pony holds a high position. I am indebted to a friend, a fellow-countryman, for much valuable information about the Highland pony, his experience of the breed dating many years subsequent to the date of my leaving Scotland.

There have always been small horses in Britain—at all events, in Scotland. The remains found recently in the Roman camp at Newstead include horse bones which indicate that the native horses were from 11 to 13 hands in height. It is impossible to disregard the limiting influence of local conditions, which prescribe to each district, at each period of its development, the size and type of horse which can be maintained within it. Therefore, the original Highland pony is not a horse reduced in size by the scarcity of herbage; but the horse whose type and qualities favoured its survival in those conditions which prohibited any increase in size. These same conditions fixed other characteristics as well. They prescribed and produced a degree of vigour and robustness fitted for its maintenance of life in adversity and for its performance of feats of labour and endurance that would otherwise be impossible for so small a frame. The original Highland pony—small, robust, gay, shaggy, alert, strong-boned, short-eared, large-eyed—is the product of natural conditions and human needs in the Highlands. It is a definite race established by long selection, having characteristics indelibly fixed. It has already been said that within this variety of race there remains real and very considerable variety of type—a variety hardly less great than that which we find between larger breeds of horses; and the fact that the various types do not breed true, but are interchangeable, points to a far back mixture of races. Yet in its widely varying development the pony remains a fixed breed. Highland ponies may be divided into three classes. First: The representatives of the original pony of Baria and the outer islands, in height from 12·2 to 13·3. They have good hard legs and feet; their heads are rather large and plain, and their shoulders rather straight, but they are hardy little

animals, well suited to stand exposure and poor feeding, and when brought on to good keep it is wonderful how they improve in width and rotundity. Second: The high-class riding pony of the West Highlands, in height 13·2 to 14·2. They belong to Mull, Tirèe, Skye, and Uist, and show a very strong cross of Arab blood, believed to have come with the Spanish Armada horses or Arab chargers brought home by Highland officers. These ponies have beautiful heads and good shoulders; are good all over, and are famous for staying through long journeys under heavy weights and on poor keep. Third: The Highland garron, belonging chiefly to Perthshire and the central Highlands. They have good

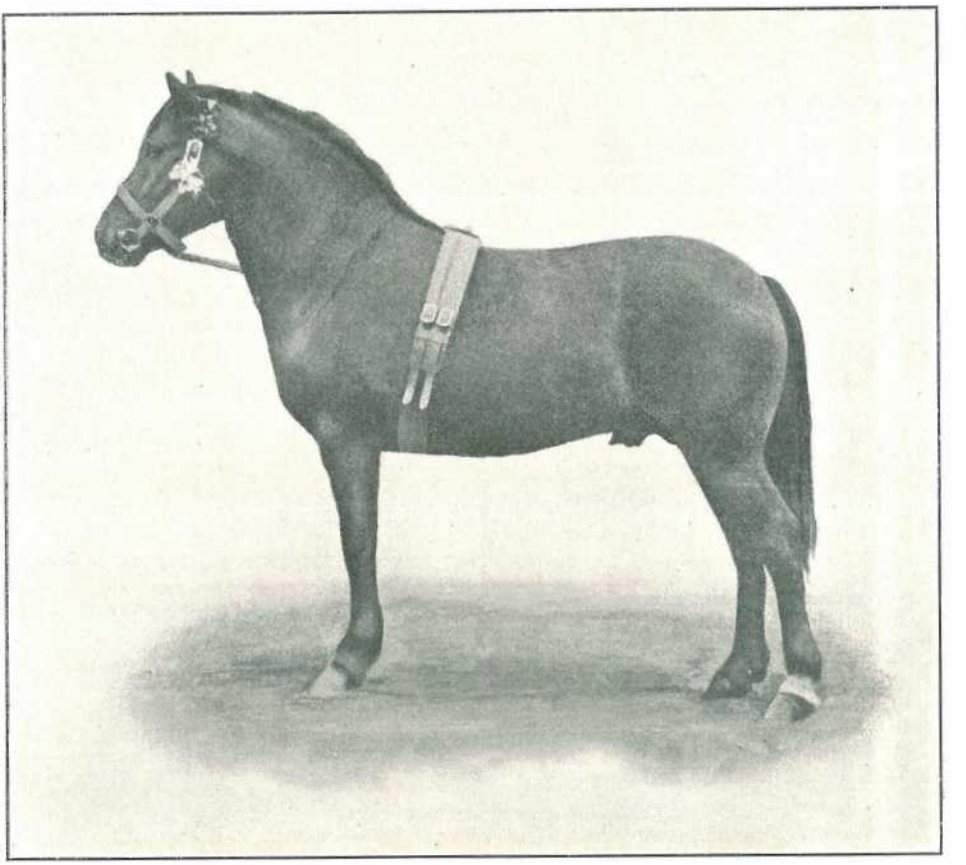

PLATE 24.—HIGHLAND PONY, MOUNTAINEER, 3 years old, first in the Heavy Stallion Class, and winner of the President's Medal as best Highland Pony at the Highland and Agricultural Society's Show, Hawick, 1914.

game heads, bold eyes, shoulder a little too straight, and back long, with the best of legs and feet; a good tuft of hair on the heels, and a well-set-on tail. They are short but strong in the pastern, with a very short distance between knee and fetlock. They have short ears, good eyes, sagacious-looking heads with great strength of jaw and big, wide, open, clean-cut nostrils. There is no trace of Arab blood in their origin. They are up to 15 hands, and are the biggest and most substantially built pure-bred ponies in Scotland—the majority of them strong enough

to pull with ease a ton load on a macadamised road. They are unequalled hill ponies for staying power, sure-footed, and for carrying heavy loads of deer and taking the sportsmen to the shooting ground. They possess the strength of the cart-horse with the nuggety built steep powerful shoulders and low withers of the best normal type of pony.

The Highland pony has much to commend it to Australia for the production of military horses, which will be a profitable pursuit for many years to come; its reputation for such purposes has already been recognised. The Boer war so well established its fame as the *beau ideal* of a hard military horse, leaving a most enviable record as to their hardiness and utility. One has only to read of the feats of Lovat's scouts in the South African campaign to understand the estimation in which they are held and the strong demand that has sprung up in the United States and the Argentine for Highland sires to cross on thoroughbred mares. If this were applied to Australia, where our light horses are on the "racy" side, an important industry would at once spring up, and a perfect type of military horse would be evolved that would bring wealth to our country.

Since the above was written, an article has appeared in the Press in which the writer states that the present war has shown that the skin of the English thoroughbred horse is too thin and delicate to stand the rough usage and riding of a battlefield, resulting in back and girth galls, while the French war horse, which is strongly impregnated with the blood of the Percheron, having a less sensitive skin, is faulty both in limbs and feet; and the writer fully concurs with the oft-expressed opinion that the best type of a battlefield horse is a Highland pony sire crossed on a thoroughbred mare.

WORMS IN HORSES.

The first symptoms of worms are a staring coat, tucked-up flanks, loss of condition, and usually a ravenous appetite. When those symptoms are noticed, the animal should be given 2 oz. of turpentine and 1 pint of raw linseed oil on an empty stomach, followed daily with the following powder in dry food:—Sulphate of iron, 4 drs.; tartar emetic, 1 dr.

ANOTHER SOURCE OF POTASH.

The "Board of Trade Journal" for 14th January, 1915, states that the most promising American source of potash is found to be the annual crop of giant kelp on the Pacific coast. The area of the commercially available beds aggregates nearly 400 square miles, capable of yielding annually, either as dried kelp or as potassium chloride, over six times the present consumption of soluble potash salts in the United States, or something more than the world's present production. The development of a great potash-producing industry in the United States seems now to be a matter of time only.

Poultry.

REPORT ON EGG-LAYING COMPETITION, QUEENSLAND AGRICULTURAL COLLEGE, APRIL, 1915.

The twelfth egg-laying competition held here commenced on 1st April, with 53 competing pens, made up as follows:—40 pens White Leghorns, 7 Black Orpingtons, 2 S.L. Wyandottes, 2 Rhode Island Reds, and 1 each Barred Plymouth Rocks and Brown Leghorns. The pens of the following owners are suffering from warts:—J. H. Gill, Cowan Brothers (White Leghorns), and W. Lindus; while a few birds in various pens have broken into moult. The birds must have brought the warts with them, as none of the College stock had been affected, and we took the precaution to thoroughly disinfect all the houses before putting in the new competitors. Mrs. Jobling's Black Orpingtons (?) win the monthly prize with 123 eggs. The following are the individual records:—

Competitors.	Breed.	April.
Mrs. J. Jobling, Plattsburg, N.S.W.	White Leghorns (?) ...	123
Jas. McKay, Gatton	Do.	122
S. E. Sharpe, Childers	Do.	120
C. B. Bertelsmaier, Clare, S.A.	Do.	117
J. D. Nicholson, Flora st, Arncliffe, N.S.W. ...	Do.	102
W. Parker, Sunnybank	Do.	100
T. Fanning, Ashgrove, Brisbane	Do.	97
O.K. Poultry Yards, Fredericks st., Toowoomba	Do.	95
A. T. Coomber, Brown's Estate, Bundaberg ...	Do.	87
J. R. Wilson, Eudlo	Do.	85
J. Gosley, Childers	Do.	83
Dunheved Poultry Farm, St. Mary's, N.S.W. ...	Do.	82
Mrs. Munro, Sunnyside, Warwick	Do.	82
A. H. Padman, Pirie, st., Adelaide, S.A.... ...	Do.	81
C. T. Clark, Kenwyn st., Red Hill	Do.	80
E. A. Smith, Hawthorne st., Paddington... ...	Do.	80
R. Jobling, Brookstown, Wallsend, N.S.W. ...	S. L. Wyandottes ...	71
C. Knoblauch, Hawthorne st., South Brisbane ...	White Leghorns ...	68
J. M. Manson, care of Brabant and Co., Brisbane	Black Orpingtons ...	66
A. W. Bailey, Kenwyn st., Red Hill	White Leghorns ...	66
H. Harnill, Kogarah Bay, Kogarah, N.S.W. ...	Do.	61
J. M. Manson, care of Brabant and Co., Brisbane	Do.	61
R. Jobling, Brookstown, Wallsend, N.S.W. ...	Do.	57
Moritz Bros., Kalangadoo, S.A.	Do.	56
W. Purvis, Granville Beach, Port Adelaide, S.A.	Do.	55
W. Lyell, Graceville Avenue, Graceville... ...	Do.	54
T. Fanning, Ashgrove, Brisbane	Black Orpingtons ...	54
Cowan Bros., Acton st., Croydon North, N.S.W.	White Leghorns ...	53
J. Zahl, Boonah	Do. (No. 2)	53
P. Clayton, Blacktown, N.S.W.	Do.	50
Derrylin Poultry Farm, Mutdapilly	Do.	49
E. F. Dennis, Herston road, Kelvin Grove ...	Do.	48
E. V. Bennett, Kalangadoo, S.A.	Do.	48
J. H. Gill, Moorabbin road, Cheltenham, Victoria	Do.	44
Kelvin Poultry Farm, Kelvin Grove	Do.	43

Competitors.	Breed.	April.
W. Meneely, Freestone Creek, Warwick	Black Orpingtons ...	30
R. Burns, Sladevale, Warwick	Do.	37
J. Zahl, Boonah	White Leghorns (No. 1)	34
Geo. Tomlinson, Boonah	Do.	33
E. Pocock, Palmer street, Windsor	Do.	31
G. H. Turner, Aratula, Fassifern	Do.	30
Loloma Poultry Farm, Rockdale, N.S.W. ...	Rhode Island Reds ...	26
E. A. Smith, Hawthorne st., Paddington	Black Orpingtons ...	23
E. Le Breton, McNab st., Milton	White Leghorns ...	22
J. Aitcheson, Oxford st., Paddington	Do.	18
Cowan Bros., Acton st., Croydon North, N.S.W.	Black Orpingtons ...	17
W. H. Forsyth, Willoughby, N.S.W.	White Leghorns ...	15
J. G. Richter, Aratula, Fassifern	Do.	8
W. Lindus, Main st., Cessnock, N.S.W.	Do.	6
R. Burns, Sladevale, Warwick	S. L. Wyandottes ...	4
F. Clayton, Blacktown, N.S.W.	Rhode Island Reds ...	0
J. R. Johnston, Junction Estate, Warwick ...	Plymouth Rocks ...	0
S. Chapman, Murphy's Creek	Brown Leghorns ...	0
Totals	...	3,936

FINAL REPORT, EGG-LAYING COMPETITION, QUEENSLAND AGRICULTURAL COLLEGE, 1914-15.

Our eleventh egg-laying competition was brought to a close on 31st March, 1915. Forty-two entries had been received, but two withdrew, leaving forty competing pens. These were made up as follows:—White Leghorns, 32 pens; Black Orpingtons, 4 pens; Brown Leghorns, 2 pens; and 1 pen each of Silver-laced Wyandottes and Rhode Island Reds, making a total of 240 competing birds. The number of eggs laid during the twelve months was 54,202, an average of 1,355 per pen, or nearly 226 per bird, constituting a new world's record. The birds were a splendid lot of layers, for although many of them had a bad start, owing to chicken-pox and moulting, they performed well when once they commenced to lay, there being only four pens that did not reach the 1,200 eggs; these four were, moreover, very unlucky at the start, while one (J. Murchie's) contained only five hens during the last three and a-half months. It may be mentioned also that the pens owned by J. D. Nicholson, Mrs. Bradburne, J. N. Waugh, and R. Jobling were returned on the morning of 28th March, thus losing three days of the twelve months.

The total value of the eggs laid was £248 10s. 1d., while the cost of food was £84 16s. 8d., leaving a profit, exclusive of labour, of £163 13s. 5d. over the cost of feeding. This profit is less than last year's, owing to the higher price of wheat, and it would have been still further reduced if we had not been fortunate enough to have the bran and pollard supplied under an old contract which only expired at the end of February last.

Nineteen birds died during the year. This is the largest percentage of deaths we have yet had in our competition, due largely to chicken-pox and the after effects thereof, one of which was indigestion, while four died from a growth in the throat.

As in previous years, strict attention has been paid to the feeding. For the benefit of beginners, it is proposed to go a little more fully into this question than has formerly been the case. Many people want to know exactly how much we feed; so, although it is impossible to lay down any hard-and-fast rules, we are giving the average. It must, however, be distinctly understood that the quantities given must not be fed every day in the year. Birds when not laying eat far less than they do when laying heavily, hence the feeder must find out just what is required at certain times. For instance, the quantity of wheat is given as six handfuls, one to each bird, but sometimes they will only eat five, whilst at others the same six birds will eat seven handfuls. For the morning meal the following were mixed together:—14 lb. pollard, 9½ lb. bran, 1½ lb. sunlight oilcake, and 1¼ lb. desiccated meat. The above were all weighed dry, making about 1¾ oz. for each bird, before having the water added. This quantity fed 240 birds. At mid-day they were given chaffed green lucerne, a good handful for six birds, also, once or twice a week, the same quantity of soup meat. The evening meal consisted of about 12 oz. of wheat per pen, or 2 oz. per bird average, the latter being fed about 5 o'clock. Oats and peas were fed on Sunday mornings and holidays, when bran and pollard were omitted. Fresh clean water was given every morning, while shell grit was at all times available. Two hundred and sixteen birds were broody during the competition period.

The following amounts were won as prize money:—

	£	s.	d.
A. T. Coomber, Brown's Estate, Bundaberg	7	17	0
Moritz Bros., Kalangadoo, S.A.	4	14	0
Loloma Poultry Farm, Rockdale, N.S.W.	2	12	0
T. Fanning, The Gap, Ashgrove, Brisbane	2	3	4
J. T. Coates, Harveston, Rockhampton	0	10	0
Cowan Bros., Acton street, Croydon N., N.S.W. ..	0	3	4
Derryling Poultry Farm, Mutdapilly, Harrisville ..	0	10	0
E. V. Bennett, Kalangadoo, S.A.	0	10	0
J. E. Bradley, Marville Poultry Farm, Moorabbin, V. ..	0	10	0
R. Burns, Sladevale, *viâ* Warwick	0	3	4
Total prize money	£19	13	0

The following are the details of eggs laid each month, also balance-sheet of the competition:—

Competitors.	Breed.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Grand Totals.
A. T. Coomber, Bundaberg	White Leghorns	110	107	100	111	143	162	158	154	152	131	122	95	1,545
Moritz Bros., Kalangadoo, S.A.	Do.	58	50	118	142	152	157	152	163	160	154	128	110	1,544
Loloma Poultry Farm, Rockdale, N.S.W. ...	Do.	53	93	100	115	154	154	157	169	154	149	119	117	1,534
T. Fanning, Ashgrove, Brisbane	Do.	98	114	132	132	134	144	142	145	131	115	104	97	1,488
G. Tomlinson, Boonah	Do.	19	48	119	137	159	158	158	150	154	136	130	110	1,478
Marville Poultry Farm, Moorabbin, Victoria	Do.	27	39	91	102	148	156	160	161	148	153	140	131	1,456
R. Burns, Sladevale, Warwick	Black Orpingtons (No. 1)...	17	47	115	151	162	163	146	132	142	130	115	129	1,449
A. H. Padman, Adelaide, S.A.	White Leghorns	44	27	72	123	159	159	159	159	141	149	128	127	1,447
Mrs. Munro, Sunnyside, Warwick	Do.	57	21	69	116	153	152	160	165	154	141	126	129	1,443
T. Fanning, Ashgrove, Brisbane	Black Orpingtons	0	8	84	157	165	163	150	157	141	143	132	141	1,441
Cowan Bros., Burwood, N.S.W.	White Leghorns	44	74	82	112	154	163	159	150	146	137	109	110	1,440
E. Le Breton, Milton, Brisbane...	Do.	21	32	95	137	160	159	161	187	147	137	109	131	1,426
A. F. Camkin, Kogarah, N.S.W.	Do.	21	67	92	117	145	156	153	158	152	141	117	103	1,422
E. V. Bennett, Kalangadoo, S.A.	Do.	10	25	87	140	151	151	147	134	146	158	131	127	1,416
Derrylin Poultry Farm, Mutdapilly	Do.	29	22	87	120	144	153	163	150	152	138	129	129	1,416
F. McCauley, Maryborough	Do.	36	18	81	123	142	153	154	149	142	142	128	112	1,380
R. Burns, Sladevale, Warwick	Silver Laced Wyandottes ...	4	38	111	147	162	153	148	129	130	122	117	118	1,379
Loloma Poultry Farm, N.S.W.	Rhode Island Reds... ...	40	87	106	126	152	153	156	130	131	124	97	71	1,373
R. Burns, Sladevale, Warwick	Black Orpingtons (No. 2)...	17	27	102	139	153	158	147	141	138	136	106	108	1,372
J. T. Coates, Harveston, Rockhampton ...	White Leghorns	45	21	80	124	141	156	147	147	137	139	123	98	1,358
Mrs. Bieber, Childers	Brown Leghorns	75	57	73	92	142	151	152	148	135	132	111	84	1,352
J. R. Wilson, Eudlo	White Leghorns	55	47	110	136	124	141	126	145	133	115	102	116	1,350
J. Franklin, Red Hill, Coolabunia	Do.	18	31	92	126	155	150	147	153	139	122	111	105	1,348
J. Zahl, Boonah	Do.	46	16	48	123	140	138	143	147	144	145	129	125	1,344
Kelvin Poultry Farm, Brisbane...	Do.	84	108	117	133	141	128	131	123	128	104	93	44	1,334
J. M. Manson, Brabant and Co., Brisbane ...	Do. (No. 1)...	19	67	79	110	139	144	140	141	141	136	106	103	1,326
J. T. Coates, Harveston, Rockhampton ...	Black Orpingtons	23	67	133	119	142	149	135	129	114	110	104	94	1,319
Range Poultry Farm, Toowoomba	White Leghorns	58	19	24	126	148	147	148	140	142	128	118	119	1,317
C. E. Austin, Boonah	Do.	77	53	77	101	132	133	138	139	140	121	108	95	1,314
J. Kilroe, Brisbane...	Do. (No. 2) .	72	30	49	107	134	144	145	151	136	137	105	88	1,298
D. Moreton, Coraki, N.S.W.	Do.	15	24	88	121	140	141	138	140	135	131	98	91	1,262
J. D. Nicholson, Arncliffe, N.S.W.	Do.	29	53	100	119	131	132	135	121	125	118	94	83	1,240
J. N. Waugh, Bankstown, N.S.W.	Do.	17	49	96	78	125	130	139	133	125	135	119	94	1,240
Mrs. Bradburne, Kogarah, N.S.W.	Do.	40	32	54	111	135	148	151	139	120	105	110	82	1,227
J. Gosley, Childers...	Do.	60	52	80	111	135	146	132	136	114	121	82	46	1,215
R. Jobling, Wallsend, N.S.W.	Do.	67	42	88	104	140	139	138	136	134	109	72	36	1,205
J. Murchie, Childers	Brown Leghorns	31	16	31	101	139	146	149	140	140	124	107	72	1,196
J. Kilroe, Brisbane...	White Leghorns (No. 1)...	54	31	89	112	119	131	128	125	123	106	96	80	1,194
J. M. Manson, Brisbane	Do. (No. 2)...	9	42	66	73	128	149	140	135	129	130	93	71	1,165
C. M. Jones, Rockhampton	Do.	29	39	35	95	144	151	147	147	134	105	79	44	1,149
	Totals	1,637	1,840	3,452	4,769	5,766	5 961	5.879	5,748	5.529	5.209	4,447	3.965	54,202

BALANCE-SHEET.

Receipts.

	£ s. d.	£ s. d.
Entry fees, 42 at 10s.		21 0 0
Sales—		
Orient Co., 1,299 doz. eggs	75 15 6	
College dining-hall, 2,479 10/12 doz.	132 9 7	
Barnes and Co., net returns, 738 doz.	40 5 0	
		248 10 1
Total receipts		£269 10 1

Expenditure.

	£ s. d.	£ s. d.
Feed—		
Wheat, 186 bus.	51 6 8	
Oats, 15 bus.	5 9 3	
Peas, 6 bus.	1 15 6	
Bran, 140 bus.	7 0 0	
Pollard, 210 bus.	10 10 0	
Oilcake, 4 cwt.	2 7 9	
Bone, 1 cwt. 1 qr. 20 lb.	1 2 10	
Desiccated meat, 3½ cwt.	3 4 8	
Green lucerne	1 10 0	
Soup meat	0 10 0	
		84 16 8
Deduction by Orient Co., account broken eggs		0 7 0
Legbands		0 16 9
Prize money		19 13 0
Net profit on competition		163 16 8
Total expenditure		£269 10 1

P. M. PITT, for Principal.

CHOKING.

Cases of choking are frequently heard of, have occurred to our own knowledge in Brisbane, and once in our own case at Texas. In this latter case fortunately a doctor was at the dinner table and relieved us of the trouble. The "Journal of the Jamaica Agricultural Society" writes on this subject:—

"It is seldom that people know what to do in such cases, in the absence of a skilled physician; yet relief may be surely and quickly obtained by pouring the white of an egg (raw) down the sufferer's throat. This remedy never fails because the egg will slip down the throat and render the obstruction so smooth that it will readily pass on down. This remedy is just as effective for animals as for human beings. To administer the dose to an animal, however, is not always easy. The correct way is to place the white of the eggs in a bottle, raise the animal's head, thrust the bottle well back, and empty."

Dairying.

THE DAIRY HERD, QUEENSLAND AGRICULTURAL COLLEGE, GATTON.

MILKING RECORDS OF COWS FOR MONTH OF APRIL, 1915.

Name of Cow.	Breed.	Date of Calving.	Total Milk.	Test.	Commercial Butter.	Remarks.
			Lb.	%	Lb.	
Lady May ...	Ayrshire	7 Mar., 1915	823	3·6	34·68	In addition to pasture on natural grasses, the dairy cows received a ration of ensilage.
Thornton's Fairetta	Jersey	27 Mar. ,,	566	4·9	32·70	
Miss Melba...	Holstein	6 Mar., 1914	724	3·6	30·51	
Iron Plate ...	Jersey	21 Feb., 1915	481	5·1	28·95	
Madame Melba	Holstein	8 Sept., 1914	596	4·0	27·98	
Honeycomb	Shorthorn ...	27 July ,,	481	5·4	26·98	
Lady Melba	Holstein	6 Mar. ,,	535	4·2	26·40	
Nina ...	Shorthorn ...	18 Feb., 1915	638	3·5	26·10	
Bella ...	Ayrshire	19 Jan. ,,	578	3·8	25·73	
Miss Jean ...	,, ...	24 Jan., 1914	459	4·7	25·42	
Cocoatina ...	Jersey	6 Mar., 1915	493	4·3	24·94	
Miss Lark ...	Ayrshire	31 Oct., 1914	428	4·8	24·22	
Sweet Meadows	Jersey	28 July ,,	330	6·2	24·22	
Burton's Lily	Shorthorn ...	17 Nov. ,,	488	4·2	24·09	
Simple Interest	Jersey	24 Nov. ,,	440	4·6	23·84	
Nellie II. ...	Shorthorn... ...	20 July ,,	570	3·6	23·79	
Glen ...	,, ...	20 Oct. ,,	453	4·4	23·46	
Lady Loch II.	Ayrshire	8 Feb., 1915	470	4·2	23·19	
Butter ...	Shorthorn... ...	20 Nov., 1914	514	3·8	22·89	
Lady's Maid	,, ...	2 Feb., 1915	472	4·1	22·72	
Lady Margaret	Ayrshire	19 June, 1914	384	5·0	22·65	
Lady Annette	,, ...	26 Dec. ,,	417	4·6	22·60	
Miss Bell ...	Jersey	3 Aug. ,,	318	6·0	22·57	
Violette's Peer's Girl	,, ...	22 Oct. ,,	378	5·0	22·30	
Rosebud II.	Ayrshire	20 Sept. ,,	375	5·0	22·12	
Silver Nell...	Shorthorn ...	5 Oct. ,,	369	5·0	21·77	
Pauline ...	,, ...	12 Oct. ,,	363	4·9	20·97	
Lowla II. ..	Shorth'rn-Ayrshire	23 Sept. ,,	442	4·0	20·74	
Countess of Brunswick	Shorthorn ...	27 July ,,	391	4·5	20·72	
Lady Dorset	Ayrshire	20 Sept. ,,	394	4·4	20·40	
Special Edition	Jersey	19 Dec. ,,	345	5·0	20·35	
La Hurette Hope	,, ...	21 Aug. ,,	316	5·4	20·16	
Dolly ...	Shorthorn... ...	19 Dec. ,,	478	3·6	20·14	
Auntie's Lass	Ayrshire	16 Feb., 1915	504	3·4	20·2	

State Farms.

BUNGEWORGORAI—REPORT FOR MONTH ENDING 31ST MARCH.

Meteorological.—Dry conditions prevail, and are at present acute, as during the last three months only 60 points have been recorded, whilst the total precipitation during the last eight months only totals 654 points. The maximum temperature recorded was 104 degrees—average, 92·0 degrees. The minimum temperature recorded was 56 degrees—average, 67·8 degrees. Rainfall, nil.

Orchard.—The effects of the continued dry weather are very evident here, more especially in the citrus area, where a number of trees have been completely destroyed.

Vineyard.—Even in this department the effects of the absence of rain are very marked.

Farm.—Operations in connection with the preparation of land for the forthcoming winter cereal crop have been suspended for some considerable time, owing to condition of the ground preventing satisfactory work being accomplished.

Stock.—Horses and cattle look exceptionally well. All are being fed on silage, chaff, and grain, and have been for some time past. So far the lack of natural food in the paddocks has not occasioned any sickness amongst them.

Water.—A fair amount of the water required for the stock has to be pumped, owing to lack of sufficient wind and absence of surface water.

Paddocks.—The prickly-pear throughout the paddocks has been poisoned with an injector, fair results being obtained. Advantage has been taken of the dry spell to burn some of the fallen timber with which some of the paddocks are littered, and will be continued with as other work permits.

Three lots of farmers' wheats have been graded. Samples submitted were extremely dirty, being infested with oats, barley, chaff, &c.; but the machine did splendid work, the growers being more than satisfied.

NOTES FROM KAMERUNGA STATE NURSERY, CAIRNS, APRIL, 1915.

Meteorological.—Rainfall, 3·52 inches.

Days on which rain fell, 11.

Maximum temperature, 90·5 degrees on the 12th.

Minimum temperature, 63 degrees on four days.

Rainfall since 1st January, 1915, 15·52 inches, being only half of the previous minimum rainfall (1897) for the same four months. While

no rain fell during the first half of the month, in the latter half we were blessed with nice steady soaking showers, and advantage was taken to plant out many seedlings into Nursery beds.

Coffee.—Pickings have already started; that for young trees—which are the most forward—has been cleaned as parchment, while the small pickings from the older trees have been prepared for seed.

Vanilla.—For a time it looked as though this crop was going to suffer badly, owing to continued dry weather; but with the rain the vines have picked up and show a good healthy colour.

Bananas appeared to suffer less than anything else from the shortage of rain—that is, where cultivation had been carried on—and the fruit has been very free from attacks of fruit fly.

A POSSIBLE QUEENSLAND INDUSTRY—COTTON SEED OIL AND CAKE.

We have for many years advocated the growing of cotton by farmers on small areas, and have especially laid stress on the value of the crop in a dry season such as we are now experiencing, owing to its drought-resisting capabilities. When few other crops survive a protracted dry season, cotton continues to grow and to produce its crop. We have never yet seen a cotton field destroyed by drought. During the long drought of 1902, we saw cotton plants in full bearing in the Western country. The fibre is not the only valuable portion of the crop. The seeds contain a valuable edible oil, which, it is said, is often sold as olive oil. When the oil is expressed, there still remains the oil cake, which, as all dairymen know, forms an excellent food for stock.

In the far North, near Cairns, we find the only progressive cotton company in the State. This is the Gossypium Park Company, whence many hundreds of bales of cotton have been shipped during the past few years. A paragraph in the "Cairns Post" informs us the the company has now added the manufacture of cotton-seed oil and cake to its activities. The "Post" says:—

"We have had forwarded from Gossypium Park Estate a sample of crude oil extracted from cotton seed by an hydraulic pressure of 85 tons. This oil Mr. Campbell is placing on the local market for culinary purposes in the preparation of fish and other dishes, while the cake is finding a ready sale among stock fatteners in the country districts. It will probably come very largely into use in place of the cake hitherto used, as it can be supplied at 12s. 6d. per cwt., as against 14s. per cwt. in the case of the other, and Mr. Campbell guarantees it to be 25 per cent. richer. In the ordinary cake all the oil is extracted except some 5 or 10 per cent., but at Gossypium Park 45 per cent. of the oil is left, to the great improvement of the cake, of which only 4 lb. per diem per head is required for fattening stock.

The Orchard.

BANANA CULTIVATION—PRUNING AND TREATMENT OF SUCKERS.

By R. G. BARTLETT, Buderim.

In Jamaica a great deal of attention is given to this subject in order to produce fruit when the market demand is keenest and prices therefore highest.

Queensland growers know the great difference in prices obtaining in January and February compared with those of May to September or October. The returns from plantations would be very materially increased if we could regulate our fields to throw bunches in, say, March or April. These bunches are always large and they mature during the months of good prices.

It has been the practice on the school plot to carry out the main pruning in February and March. At that time a fair-sized "follower" is left to each of the three main suckers forming the stool. During the rest of the year the small "peepers" (suckers) are pruned out as they appear. The result has been that 66 per cent. of the total crop has been harvested in the six months, June to December. Actual figures are 54 bunches for six months, January to June, and 103 bunches from July to December. Out of the total 157 bunches only 24 bunches were harvested in January and February—months of wet weather and exceedingly low prices.

Of course it will require careful testing before conclusive results are obtained to show which is the best month or months to allow "followers" to go ahead in order to gain the desired end—*i.e.*, majority of bunches harvested during time of best prices. In this connection, the views of your readers who have considered this matter would be valuable if you could spare space in your Journal for the discussion of this subject.

THE SEX OF PAWPAW PLANTS.

Mr. Ernest C. Davies, Charters Towers, writes:—

"Mr. C. Ross, in your May number, tells 'A.H.F., Diddillibah,' that there is no way to tell sex in young papaw plants. Here's an idea that is advocated by Mr. Geo. Johnson, Curator of Lissner Park, Charters Towers. I have tried it repeatedly with marked success. To get females, plant only about 5 per cent. of your seedlings, choosing the very smallest and sickliest-looking plants. Destroy all the big strong fellows. Watch for the plants that come up after the main lot have germinated; they are often females. The idea is taken from the general rule of Nature, that the female is mostly weaker and smaller in infancy. Watch a litter of puppies or a batch of chickens, for instance. Of course, the rule is not absolutely certain, for there is often a sickly male in every part of Nature, and, *vice versa*, an extra sturdy female; but I get over 80 per cent. of female papaws in this way, and I recently scored twenty-four out of twenty-five plants."

A FINE BUNCH OF BANANAS.

The accompanying illustration shows a magnificent bunch of bananas grown by Mr. W. Power on his farm in the parish of Goomboorian, about 11 miles from Gympie.

The bunch originally consisted of 307 fruits, and was part of a first crop grown on virgin scrub land. The season had been very

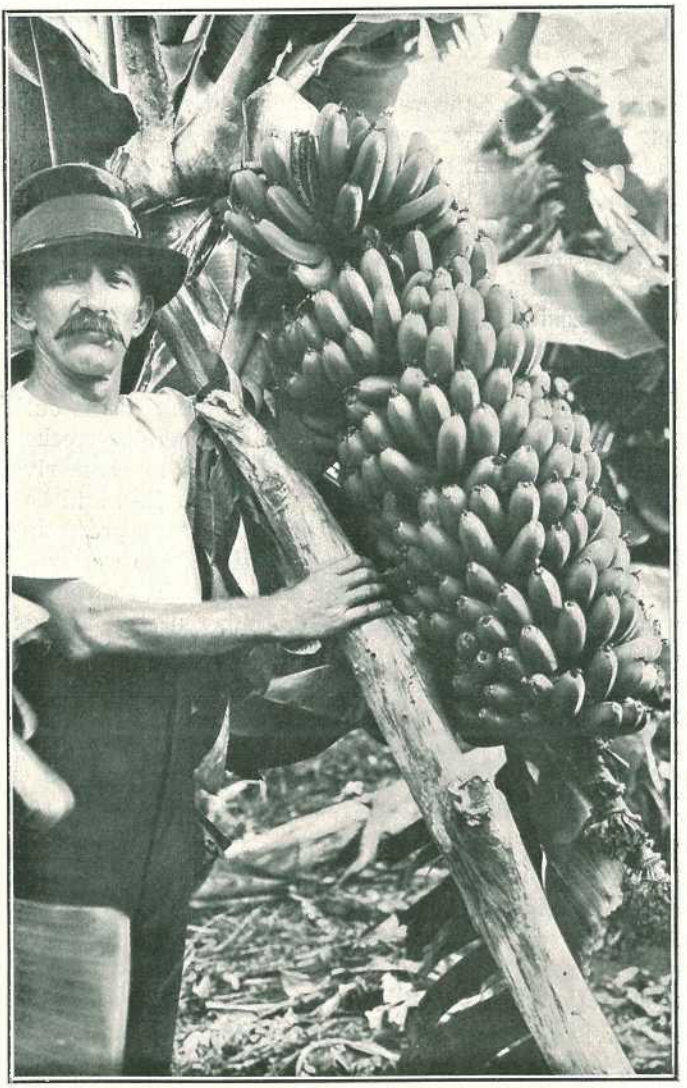

PLATE 25.—BANANAS GROWN BY MR. W. POWER, GOOMBOORIAN.

unfavourable, no rain having fallen since Christmas. Mr. Power says there is a very large scope of country in Goomboorian still standing scrub—equal or superior to the country on which this bunch was grown. The drawback to the country is want of good roads.

Tropical Industries.

NOTES ON VANILLA CULTURE.

By HOWARD NEWPORT, Instructor in Tropical Agriculture, Cairns.

PLANTING.

The planting up of the vanilla demonstration plot at Babinda was carried out during the first week in February. The plot is situated in the Babinda Valley, about 3 miles from the railway station of that name. This valley runs between the two highest mountains of North Queensland (and second highest in Australia), Bellenden Ker on the north and Bartle Frere on the south, and is an offshoot of one of the finest valleys of agricultural land to be found anywhere in the world. This grand valley runs for some 100 miles more or less parallel with the coast, and is watered by a series of rivers, commencing with the Mulgrave and including the Russell, North Johnstone, South Johnstone, Moresby; Liverpool and Maria Creeks (really rivers, having direct outlet to the sea); the Hull, Tully, Murray, &c., and by innumerable creeks, many of them as big and important as rivers, tributary to these rivers. The valley is of varying width, from 2 to 5 or more miles, and has a range of foothill between it and the sea on the eastern side protecting it from unduly strong sea gales, with a higher range on the western side high enough to attract and insure a regular and sufficient rainfall. The land is fairly flat, excellently watered, richly timbered, and affords some of the finest agricultural land to be found in the State. At Nelson, Babinda, Goondi, and the South Johnstone, sugar mills are situated and cane is found to grow to perfection, as will almost any tropical staple; while for vanilla, owing to its natural protection from gales, its humidity, and the straight and uniform growth of timber, it presents conditions unique in their eminent suitability for the staple and such as are to be found hardly anywhere else in the world.

In this valley, and on a small flat of sandy loam of a sedentary basaltic origin, on the bank of a permanent creek of clear, cool, sparkling water, a tributary of Babinda Creek (itself really a river, but emptying into the Russell some 10 miles from its mouth), is situated the Government demonstration plot of vanilla.

The land is portion of a farm belonging to Dr. J. H. Reed, of Cairns, who has entered into an agreement with the Department of Agriculture and Stock, in consideration of the Department supplying plants, and, through its officers, the requisite knowledge and experience, at his own expense, to carry out all the work required in cultivating and bringing the plantation to fruition, and in harvesting, curing, and marketing the crop for a term of years.

The planting up of the plot occasioned some interest. The first remark of visitors generally was, "Ah! I see you are opening an experimental plot." On my replying that it was not an experimental plot

but a demonstration plot, they said, "Well, what's the difference?" The difference is just this—An experimental plot necessitates every few plants being treated differently for some object or other, and involves a certain amount of dead, unprofitable, or negative work, and also implies some uncertainty as to results, whereas in vanilla the experimental work has been done at the Kamerunga State Nursery in past years, and in these demonstration plots it is not proposed to experiment or to do any unprofitable work, but to demonstrate on a commercial scale the feasibility of the practical culture of the staple in hand.

The Babinda vanilla plot is an acre in extent; this may sound small, but for so high priced a commodity, and for the purpose, it is sufficient.

The cuttings necessary for planting up were obtained from the experimental plot known as the old vanillary at the Kamerunga State Nursery.

In taking cuttings, the vines that had been allowed to run up the trees especially for the purpose were taken where possible. These were strong and straight, but other parts of the vines cut could not be discarded merely because they had grown crooked or bent. A considerable proportion were strong, straight cuttings, and all were good healthy specimens, 2½ to 3 ft. long, averaging six to ten eyes or nodes. The vanilla being soft-bodied, the fear in transport is bruising on the one hand and drying or withering on the other. The more leaves on the cuttings, therefore, the more recourses they have for moisture, hence they travel best without trimming. On unpacking, the first work, therefore, was to trim them, which was done with a small pair of secateurs. Each cutting was taken up and examined, and was first topped and tailed—*i.e.*, any portion of the stem that had been left on more than half an inch or so above or below the last eye or node at each end was cut back to that length. This was with cuttings that had been cut at both ends, as most of them were. Those having a growing tip at one end only required tailing, of course, unless the tip had been damaged by being crushed or broken. Tip cuttings, generally speaking, are better than those cut at both ends and come away quicker, but are more delicate and do not survive a long or rough journey half so well as ordinary cuttings. For planting near the source of supply tip cuttings are preferable, if obtainable, but the proportion in an ordinary consignment is naturally small, for a length of vine of 20 to 30 ft. divided into cuttings will afford ten to twelve ordinary ones with, normally, only one tip cutting. Branch shoots and shorter vines supply a larger proportion, but no consignment could be made up consisting purely of tip cuttings.

After topping and tailing, the base end which is to be put in the ground has to be relieved of its leaves. It is not always easy at first glance to tell which is the base end, for the leaves do not always incline upwards. When taken from a vine that has been looped over supports the leaves may be at right angles, be inclined downwards, or even twisted right round. No mistakes can be made if it is borne in mind that

the bud is always in the axil of and *above* the base of the leaf, which protects it. While sitting in the shade of the clearing with a crate of cuttings before one, the trimming, easy as it is, requires a little attention to business to prevent mistakes being made with the knife or secateurs that cannot be remedied. Roughly, one-third of the length of the cutting has to go below ground and two-thirds above against the supports. While the cuttings are usually made fairly uniform in length, the length of the nodes differs materially—a 2 ft. 6 in. cutting may have six to ten eyes. In a six-eyed cutting three, and in an eight to ten eyed cutting four leaves are removed. This is done by clipping the petiole or stalk of the leaf as near the stem as possible without damaging the bud, and has been found advisable in expediting root growth. Cuttings planted with the leaves adhering to the portion underground will not necessarily die, but they have been found to rely for an unduly long time on the sap in the fleshy leaves without making roots, and the ultimate rotting of the leaves may extend to the stem to which it is still attached. The portion aboveground, on the other hand, needs all the nutriment it can obtain from, and per medium of, the leaves, which in no way interfere with but rather encourage the growth of tendrils, adventitious roots, and new shoots, by protecting the eyes, &c. Similarly to the portion below ground, it does not necessarily mean that in the absence of leaves the cutting is doomed. It may still thrive, though it has been found more advantageous for the portions covered to be leafless, while they are retained on the visible portion when planted.

The next operation is the removal of all tendrils or adventitious roots or rootlets from all parts of the cutting, whether new and fresh or old and dry, which is done in a similar manner to the leaves on the basal portion. It has been found that once a tendril or adventitious rootlet has been separated from anything to which it has been attached it very seldom grows again, generally dying off and new ones making their appearance. The presence of the old tendrils, &c., even if fresh looking, only hinders the production by the plant of new ones, while their neat removal materially encourages new growth of this nature. The appearance of tendrils is the first sign of activity the plant makes, and they serve to anchor the vine to its support and hold it in place for the growth that will follow. These sucker-like tendrils are what are first looked for by the planter as evidence of vitality and development in the newly planted clearing.

After topping and tailing, removing the requisite number of leaves and all tendrils or adventitious roots, the cuttings are ready to plant out. In carrying them to the different parts of the clearing care must be taken, for the 2½ to 3 ft. length of soft vine is quite heavy enough, if only a dozen or two are taken carelessly or by one hand, to cause the lower ones to fold or break. Once thus broken very seldom will any growth be made above the break, and if so broken a cutting has much better chance if subdivided at any such break and planted separately. This calls to mind the experience of one grower who, on having been supplied with 200 2 ft. 6 in. cuttings, promptly proceeded to double the number by cutting them in half, and was subsequently

disappointed at the amount of growth compared with other planters. Such subdivision would seem all right and might work with many other plants, but with vanilla the growth is largely in ratio to the length of cutting used. Cuttings longer than 5 or 6 ft. have not been experimented with certainly, being too cumbersome and extravagant when plants are at a premium; but it has been amply demonstrated that up to that length the longer the cutting the quicker the growth, and *vice versâ*.

A young vine with 6 ft. of growth, if the upper half be taken for a cutting and planted adjacent to it, is thrown back so as to be no nearer advanced to maturity and crop-bearing than its progeny. Hence taking cuttings from a new plantation of, say, a year old, while enabling the area to be increased, retards the bearing of the original planting by just that period; and reducing the cuttings to less than 2½ ft. (which has been found here the most satisfactory size, in view of the limited quantity of stock plants and a reasonable time of coming into bearing) only reduces the rate of development proportionately.

The next process, the actual planting of the cuttings, is a comparatively simple matter and quickly done. The pitting merely consists of loosening the ground to a depth of a few inches—4 or 5 is ample—and removing roots or stones that may be met with. The point is to get the plant in the most advantageous position. If the clearing has been properly brushed, the side of the tree against which the cutting is put does not matter very much. If convenient, it should be on the leeward side from the prevailing wind and on the shady side. Vanilla grows quickest in the comparatively more shaded parts and bears best in the comparatively lighter parts, but the vine can be trained later into the best position, which matter will be dealt with when that work is being done on the demonstration plot.

It is best to carry a trowel or some such implement with one when planting, and also to have a mattock handy. Sometimes the spot decided on is found to have big roots just below the surface, and as the vanilla must be planted *close* to the trunk of its living support it is not allowable to go further off, so another spot must be selected further round the tree. The soil is loosened but not taken out, to a width of, say, 3 or 4 in., and of sufficient length to take the cutting—generally 12 to 15 in. at most. When loosened, the part of the cutting from which the leaves have been removed is laid not more than 2 in. below the surface, and the soil firmed down by hand, the larger portion of the cutting with its leaves intact is gently bent so as to lean vertically against, and close to, the tree. It is best to complete the planting as quickly as possible, to prevent any possibility of the cuttings wilting unduly, and then to come back for the next operation of tying.

For tying, a soft sort of rather thick, tarred twine known as "marlin" has been found the best, but anything that is not thin and hard enough to cut the vines or rot away in the wet too quickly will do. In tying care must be taken to bend the cutting so that at least one, and as many eyes as possible, are actually in contact with the bark of the supporting tree, for from these eyes will the new tendrils grow and fasten themselves on. In round trees the marlin is passed right round

the tree and cutting and tied firmly, but not too tightly. Where a tree has flanges and encircling would not accomplish its purpose, nails are used, two being put in 6 in. or more apart on each side of the cutting, and the tie made from one to the other over the cutting. Generally it is best to plant one cutting to each tree 1 ft. or less in diameter, and two to trees larger than this. The actual number to an acre will be found to vary as the density of the scrub varies, and if trees are too far apart for rails or bars of 9 or 10 ft. to be conveniently fastened from one to another the number of vines that can be planted will be found less than 500, but this number is made up later by planting against the posts that will have to be put in to support the rails. In such cases it is best to plant a greater area and to wait till the first planting necessitates the erection of rails—a year or perhaps two years later, and then to get more plants to fill up. Five hundred is quite enough for an acre, though it would be quite easy to plant more.

The last process of planting is covering in—that is, covering with dead leaves the soil over the basal end of the planted cutting. This is to prevent drying and evaporation of the moisture as well as to supply plant food for the roots when they appear, and which is obtained largely from decaying leaf and vegetable matter. This may be done when planting the cuttings, but if left to the last serves also as an opportunity to have a final look round and see that all the other operations are correct, that none have been overlooked, and that all is ship-shape.

The clearing will be now under way and should require no more attention for some time. With reasonable weather growth may be expected in four to six weeks, which will become more and more rapid for a year. It is as well, of course, to see that undergrowth, or other ærides and epiphytes on the trees, do not interfere with the vanilla, but no further attention should be required until the operation of erecting the bars.

The principal cost, so far, will have been the plants themselves. The 520 for the Babinda demonstration plot, valued at 6d. each, amount to £13. The brushing took seven men in all, and was heavy on account of the necessity for cutting up heavy limbs of trees that had fallen in parts against the base of the trees. The planting took four men, making eleven men in all, who at 9s. 2d. (sugar rates) cost £5 0s. 10d. Freight on the crates of cuttings and return of empty crates amounted to 4s. 2d., and the marlin for tying (8 hanks) cost 12s., making a total of £18 17s.

CHICORY *(CICHORIUM INTYBUS).*

Chicory, or succory, as it is sometimes called, is an herbaceous perennial plant belonging to the natural order Compositae. Its roots are strong and fleshy, penetrating to a considerable depth in loose open soil. The lower leaves resemble those of the well-known dandelion: the upper leaves are ovate (egg-shaped). The stems are alternately branched, from 2 to 6 feet high, and they become woody after the flowering period. The flowers, of which a great many are borne, are

arranged along the stems, two being usually placed close together, and are of a bright sky-blue colour, rarely white. The fruits are small, one seeded, angular nuts.

The plant is common in many parts of England on gravelly and chalky soil, in waste places, and along road-sides. It is grown in many parts of the continent of Europe, especially where small holdings are prevalent, as a forage crop, to be cut and consumed in a green state, or used for the grazing of sheep and cattle, which are very fond of it. The young leaves are often used like spinach, and in Europe the tender young roots are used as a vegetable, like carrots. The root of the chicory plant is of the order of the beet or salsify root. As a cultivated plant it has three distinct applications. Its roots, roasted and ground, are used as a substitute for, adulterant of, or addition to, coffee. Both roots and leaves are employed as salads, and the plant is grown as a fodder or herbage crop, which is greedily eaten by cattle.

The largest quantities of chicory were grown in Belgium and France previous to the great war of 1914. When grown for the sake of the root, the leaves should not be cut or pastured before harvesting. It is important to note that the leaves should not be fed to milch cows, as they make the milk bitter.

As a farm crop, its chief advantages are its adaptability to dry poor soils, its power of growing several large cuts of green food per annum when once established, its perennial character and easy cultivation. It is an exceedingly hardy crop.

SOIL PREPARATION.

Experience has shown (we learn from Messrs. Wilcox and Smith's "Farmers' Cyclopaedia of Agriculture") that chicory is adapted to any good loam soil that will produce good root crops, and that it will thrive wherever the sugar beet or mangolds do well.

Land for chicory should be deeply ploughed in the spring, be well harrowed, and worked down to pulverise all lumps and make it compact, and again harrowed just before the seed is sown, to kill all germinating weed seeds.

PLANTING.

The seed may be sown at any time in fine weather in the spring, in rows 18 to 24 inches apart if horse cultivation is intended, and from 12 to 24 inches apart if the crop is cultivated by hand. From 1 to 1½ lb. of seed is required per acre, but for use as a green crop from 10 to 12 lb. of seed are usually sown. The seed should not be covered more than three-quarters of an inch deep, and not more than one-half inch in heavy or wet soils.

CULTIVATION.

After the plants are up, they will need frequent shallow cultivation with some of the light cultivators made especially for sugar beets, to kill the weeds and preserve the soil moisture. When the plants have attained the height of 2 or 3 inches, they should be thinned out to stand from 4 to 6 inches apart. Only one plant should be left in a place.

HARVESTING.

If chicory is grown for forage, a crop of leaves can be cut in the autumn, and afterwards two or three crops per annum will be provided. It is best cut just when the flowering shoots are extended, and before they become woody and hard, or the field can be grazed at intervals instead. The plant usually lasts (as a forage plant) in a productive state for four or five years.

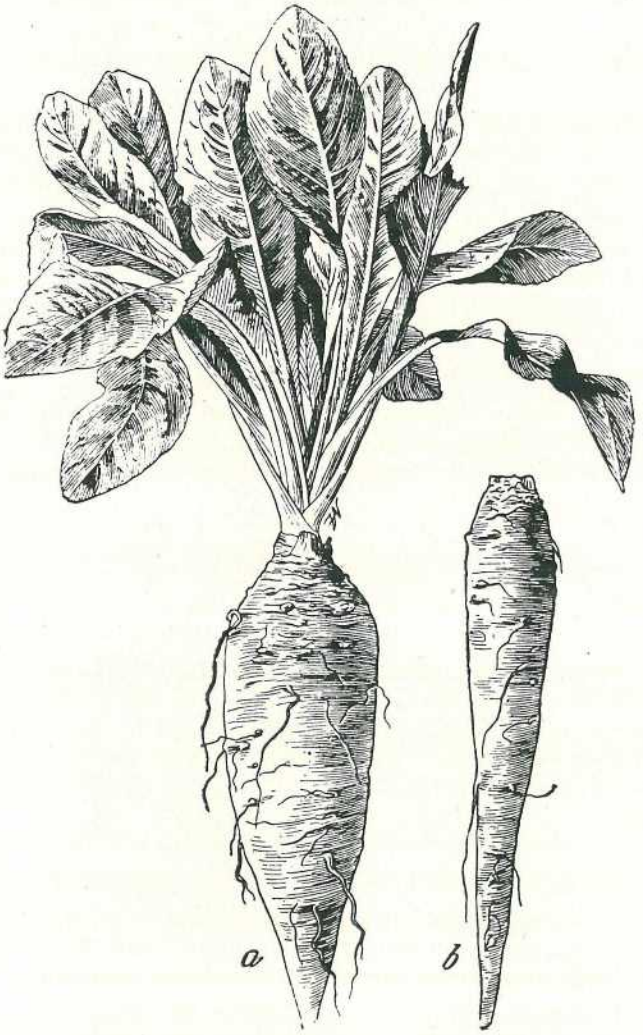

PLATE 26.—CHICORY ROOTS AND LEAVES.

In harvesting the root crop, a beet loosener may be run along the rows. This breaks the connection of the roots with the soil so that they can easily be lifted by hand. A less convenient way is to run a plough alongside the rows so as to expose the roots on one side. Special machinery has also been devised, and is procurable in the United States or in Europe (Holland, Belgium, Switzerland before the war) for

pulling the roots. After removal from the ground, the tops are cut off at the base of the bottom set of leaves. The roots should not be pulled until they are ripe, and this stage is indicated by the disappearance of the milk from the roots.

PLATE 27.—CHICORY PLANT IN BLOSSOM.

If it is desired to keep the roots some time before delivery to a factory, they may be stored out of doors in piles from 4 to 5 feet wide at the bottom, and covered lightly with straw and earth. The ridges of the piles should be left open for a few days to let the warm air escape. The yield varies from 5 to 10 tons of fresh roots per acre.

PREPARATION OF THE ROOTS.

For the preparation of chicory the older, stout, white roots are selected, and after washing they are sliced up and dried in a kiln. In our hot summer, however, the drying can be performed by spreading the sliced roots on a canvas framework, covering them at night to protect them from dew. In two or three days they are dry enough to bag. There are several varieties of chicory, but the sorts generally used for mixing with coffee are Magdeburg, Brunswick, and Elite, the last-mentioned variety being similar to the large-rooted Brussels or "White Loof" variety. The latter has a thick, stubby root and is the most profitable to grow for manufacture.

MARKETING.

The chicory-grower can either sell the dried, sliced roots or he may roast them in a revolving iron cylinder. The loss in weight by this process is from 20 to 30 per cent. During the roasting, 2 lb. of lard should be added to every hundredweight of chicory to give it a lustre like that of coffee. The ground chicory looks like ground coffee and smells like liquorice. There is a good market for it both in Brisbane and the Southern States, and now that the devastation caused by the war has practically put an end to the cultivation of many crops, such as beetroots, chicory, flax, and others—in Belgium and France—it would seem that there is a good opportunity for Queensland farmers to enter upon chicory cultivation, and afterwards retain a business which cannot but be profitable.

Before the above calamitous war overtook France and Belgium, the price of Belgian chicory was £7 5s. per ton, f.o.b. Antwerp; to-day Dutch chicory, f.o.b. Dutch ports, is quoted at £16 per ton for the dried roots. The wholesale price to retailers of manufactured (*i.e.*, roasted and ground) chicory was £27 per ton, whilst now it is £45, and the price still rising. Here is a good opening for Queensland farmers to seize upon this industry and hold it for the future.

As to the prices for the dried root, Messrs. Harper and Co. and Messrs. Thurlow and Co. are purchasers of good samples of dried and cured chicory roots, at prices which should enable the grower to make a good profit on his crop. The seed may be obtained in Brisbane, and we understand that the price is 3s. per lb.

CRUSHING DATES—1915 SEASON.

The "Queensland Sugar Journal" states that the following mills will commence crushing on or about the under-mentioned dates:—

Moreton—end of July.
Victoria—about end of June.
Kalamia—about first week in August.
Pleystowe—about August.
Nerang—early in August.
Maryborough—end of August.
Marburg—middle of August.
Baffle Creek—early in July.
Waterloo—early in August.
Marian—about last week in July.
Hambledon—about end of July.
Invicta—well into August or beginning of September.

THE LUCE CANE HARVESTER.

A little over a year ago (April, 1914) we published an account given in the "Louisiana Planter" of 6th December, 1913, of a cane harvester invented by Mr. George D. Luce, of New Orleans. About that time the machine was tried at the sugar experiment in Audubon Park on a crop estimated to yield 30 tons of cane per acre. The work done by this machine was so excellent as to "foreshadow the complete success of Mr. Luce along the lines which he has developed." At this trial

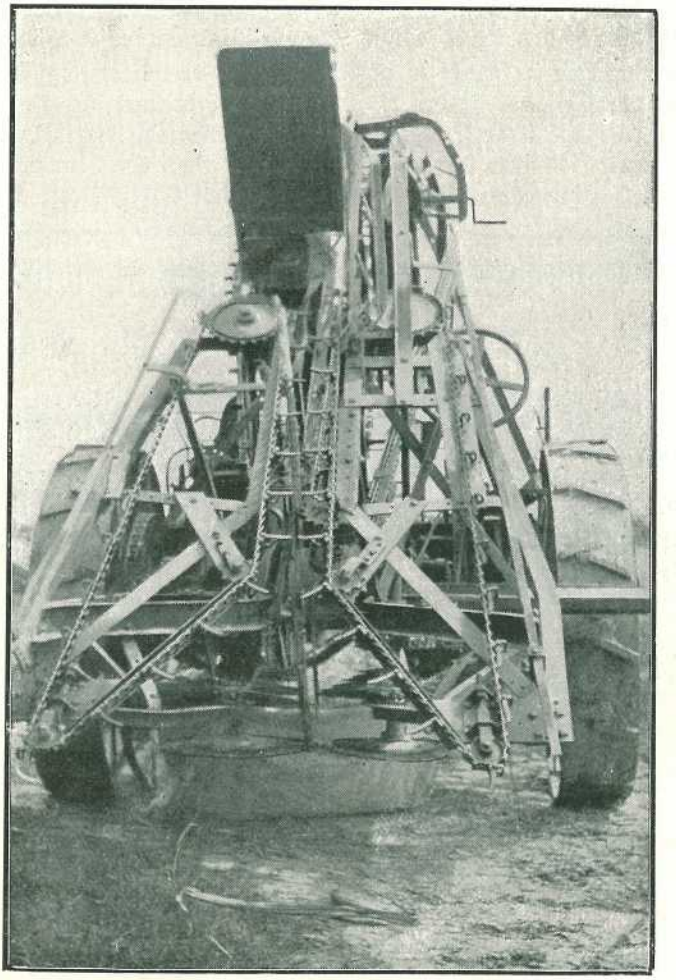

PLATE 28.—LUCE CANE HARVESTER, SHOWING PICK-UP CHAINS AND THE BOTTOM CUTTING DISCS.

the machine travelled a measured 42 feet in the 30-ton crop without any stopping. The "Planter" presumed that this was the first time that any sugar-cane harvester had accomplished that distance in heavy cane without a single stop. The machine is thus described in the above-named Journal:—

"Mr. Luce's machine weighs about 3¼ short tons. He believes that by gradual improvements this can be reduced to 1¾ short tons; but with

the weight of his present machine it made a surprising progress through the cane row.

"Mr. Luce has geared his cutting discs so that their movement makes sliding cuts on the cane, and not a direct, forcible cut, as is done with other disc machines. This may be one of the reasons of its successful traction in heavy cane.

"The cane where cut by the knives at the bottom is controlled by link belt chain guides that pick the cane up from close to the ground, as well as those that are standing vertically, and bring all of these canes in a vertical line to a point at which these guiding chains completely grasp the cane, holding it firmly in position. The stream of sugar-cane thus entering the machine enters at an angle established for the purpose, which, with some 5 or 6 feet of travel, carries the cane forward and upward until it strikes the top of the chute, when the firm grasp of the guide and feeding chains so hold the canes that the soft tops bend over,

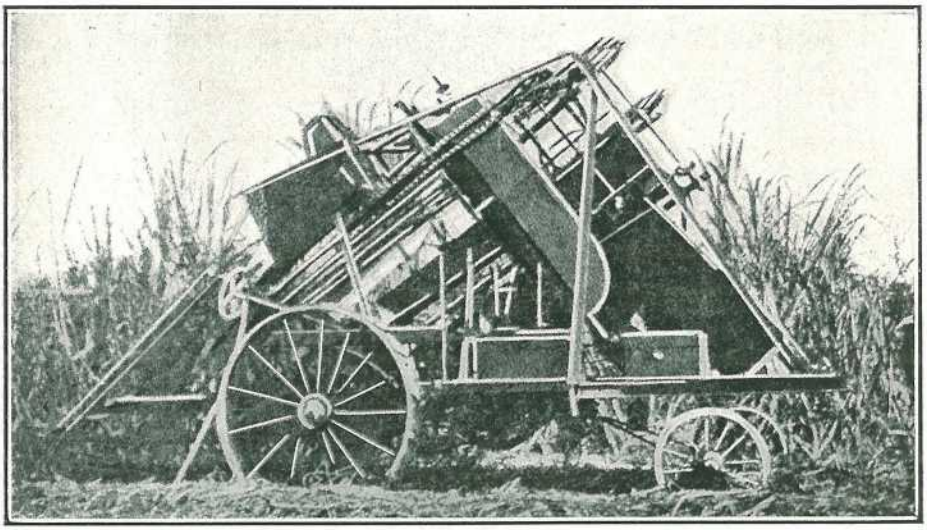

PLATE 29.—LUCE CANE HARVESTER IN THE FIELD.

sometimes breaking off, and at that point disc cutters are arranged so that all of the canes are cut at the desired point thus attained. It struck us that in this point Mr. Luce has made a wonderful display of inventive ingenuity, and it seems to be the solution of that most vexed problem of all, the cutting of the canes properly at the top. When we recognise the fact that our sugar-canes vary in length of ripe cane from 5 to 10 feet, more generally, say, from 5 to 8 feet, after the top is off, we can appreciate Mr. Luce's achievement. These canes thus topped have in the meantime been stripped by the spring whips that move in reverse direction from the movement of the cane.

THE LUCE CANE HARVESTER.

"The final delivery of the canes is down an open chute, forming a continuous wind-row.

"We especially inquired as to any control of the cutting apparatus as to height. Ordinarily plant canes or highly fertilised canes might give canes varying from 6 to 10 feet in length, while stubble canes and canes less well fertilised might run from 5 to 7 feet in length. We noted at once that there was an arrangement to shift from one length to another, just as readily as an automobile may have its speed changed. This, however, still leaves the Luce machine cutting the cane at the last ripe joint, whether the canes be long or short, as the bending of the top of the cane becomes a gauge point to determine their approach to the cutting discs of the topping part of the machine. It is stated that Mr. Luce has expended 100,000 dollars (£20,000) in developing his machine up to its present condition."

In a notice of the machine in the April issue of the "Queensland Sugar Journal," that Journal says:—

"The Southern Pacific Company has been so impressed by the work of the machine at Clotilda that in preparing their exhibit for the San Francisco Exhibition, they have included some moving pictures of the Luce cane harvester. These pictures show the Luce harvester cutting cane that averaged 35 tons to the acre. In this cane, it was cutting, stripping, and topping the stalks satisfactorily at the rate of 200 tons per day.

"Generally speaking, the machine is a combination of tractor and harvester. That is to say, the machinery for harvesting the cane can be lifted off after the grinding season is over, and this leaves the rest of the machine in the form of a tractor, which may be used for ploughing, cultivating, road making and grading, and for other work about the plantation. Thus, the machine is an all-the-year-round worker.

"The 'tractor' part of the outfit runs on its own rails—or, in other words, the traction is of the caterpillar type, made world famous lately by the pictures of the big guns being used in the European war. This enables the machine to travel over ground which would be impassable for either mules or horses.

"The cane is severed much closer to the ground than is the case with hand cutting, an average of from 4 to 5 inches of the richest part of the cane being added to each available stalk, and the cut is clean and square. The topping is done by rapidly-revolving knives, and by a simple but ingenious device the stalks are topped accurately, whether they are of a uniform length or not.

"Stripping is done by flexible steel fingers attached to the edges of flat, slab-like shafts, and the construction of these shafts acts as a fan that clears the trash as it is stripped from the stalk.

"Fallen cane is picked up and brought against the cutting knives as though it had always been straight, and had never fallen. This, and the design of the cutting mechanism, is the reason for the machine's successful operation in heavy cane.

"Two men are required to operate the machine, which will cut, top, and strip from 150 to over 200 tons of cane per day. Those who

have to search out and pay the ever-elusive plantation labour, can easily figure how many men can be released from actual harvesting for other work about the plantation by the use of this machine."

The illustrations appeared in the "Louisiana Planter," the second of which has been kindly loaned to us by the Editor of the "Queensland Sugar Journal."

EXPERIMENTS IN THE DESTRUCTION OF THE CANE GRUB.

The General Superintendent of the Bureau of Sugar Experiment Stations has received the following report from the Entomologist, Mr. E. Jarvis:—

"In November last a sample of dichlorbenzole which was imported by the Department of Agriculture from Germany before the war broke out was forwarded to me by the Sugar Bureau for experimental purposes. After trials I am inclined to think that it possesses efficient though temporary deterrent qualities.

"The following details will illustrate some of the methods employed in this investigation:—As a preliminary test six grubs were confined in a closed cage holding 54 cubic inches of sifted soil, with which had been mixed 15 grains of the deterrent (1 oz. to 1 cubit foot). After two and a-half days all larvæ were dead and partially rotten. This experiment was repeated on three subsequent occasions with similar results. On 27th February eighteen large grubs were placed in an open cage containing 1 cubic foot of unsifted soil infected with half an ounce of coarsely crushed dichlorbenzole. Thirty-six hours later three had succumbed, and the remainder were lying motionless as though paralysed, all dying in less than a fortnight. Tests were then applied to determine the effect on larvæ of isolated injections of the chemical in uncrushed form, administered at various depths, and these trials proving satisfactory it was decided to experiment in the open. A plot of red volcanic soil was accordingly dug 9 in. deep, a row of four-months'-old cane-stools planted, and on 5th March the land treated with a series of ¼-oz. injections 1 ft. apart in a straight line on each side of stools, 6 in. from same, and 7 in. in depth. About fifty grubs were then placed a couple of inches below the surface above injections, and the ground left undisturbed for a fortnight. At the expiration of that period a faint odour of dichlorbenzole was perceivable in the soil at a distance of 15 in. from injections, and strongly impregnating to the full depth of digging a strip of land 2 ft. wide. Examination revealed the presence of a few dead grubs only, the living ones having evidently been driven from the infected area. The cane plants continued perfectly normal, and were rooting freely. With a view to determining the action of the chemical on larvæ compelled to remain under its influence, a plot of ground was prepared on 3rd April by being dug 9 in. deep, allowed to settle for a few days, and treated with a single line of ¼ oz. injections placed 1 ft. apart and 5 in. beneath the surface. Grubs of the grey-back cane-beetle were then buried in the soil at various distances from the chemical, each larva being confined in a specially designed cage that, whilst preventing extended movement in a horizontal

direction, allowed it to descend vertically to a depth of 9 in. or ascend to within an inch of the surface, and at the same time ensured continuous natural conditions with respect to drainage, moisture, temperature, &c. Examined on the 12th instant (nine days later), the soil was found more or less impregnated with the odour of the deterrent to a distance of 1 ft. on each side of injections. Larvæ placed at distances of 6 and 8 in. were dead and discoloured, those at 9 in. dying but able to move convulsively, and those 1 ft. away alive and apparently healthy. Grubs situated 9 in. from the chemical succumbed on the 18th instant (after fifteen days); whilst those 1 ft. distant, and control specimens, continued unaffected throughout the experiment. This test was repeated later with practically identical results; and further trials, in which the injections were reduced to 80 grains placed 1 ft. 6 in. apart, also proved satisfactory.

With reference to the rate of evaporation of dichlorbenzole, I observed that in dry weather a quarter of an ounce, after being fifteen days underground at a depth of 7 in., subjected to an average temperature of 69 degrees F., weighed 3 scruples 5 grains, thus indicating a loss of nearly 50 per cent., but did not actually disappear until the end of six weeks. Better results could doubtless be obtained from injections made of a single lump like a "moth-ball," as in this form the same amount of chemical might last two months or longer, and its application would be simplified. Under wet conditions both evaporation and soil infection were retarded.

It is worth noting, however, that the deterrent odour remained in the ground long after all traces of its origin have vanished. Soil under cane-stools treated 5th March was found to be strongly infected on the 8th of May, three weeks after complete evaporation, from which we may reasonably assume that a limited area of such contaminated soil—comprising, say, a strip at least a foot wide—would continue repellant until the odour became less decided.

Dichlorbenzole is sold in the form of irregularly-shaped crystalline nodules possessing a somewhat pungent odour not unlike that of benzine, and differs from napthalene in being semi-transparent, duller in colour, and not flaked.

It is unfortunate that this article is at present unprocurable. The price was stated to be 6d. per lb., and at this rate it would cost £1 10s. to treat an acre with injections of 80 grains placed 1 ft. 6 in. apart under each row of cane; or £2 4s. for the same number of ¼-oz. injections. Dichlorbenzole should also prove serviceable as a repellant against oviposition, it being exceedingly improbable that the adult beetle would either enter or deposit eggs in soil contaminated with an odour fatal to its offspring. This is likely to be matter of exceptional interest for future investigation.

This report has been made and the experiments undertaken as a matter of general interest to canegrowers, but other experiments may, of course, prove disappointing, in view of the fact that success will be dependent to some extent on varying conditions of porosity due to the physical composition of soils, and influenced by different modes of cultivation and drainage.

Botany.

PLANTS POISONOUS TO STOCK.

BY FRANK SMITH, B.Sc., F.I.C. AND C. T. WHITE.

Dysphania myriocephala, *Benth.* (N. O. Illecebraceæ).

The uncertainty in many instances attaching to the definite ascribing of poisonous properties to suspected plants is attributable to various causes—the frequent absence of correct diagnosis, the difficulty of determining the harmful individual in mixed pasture, and the variation in degree of toxiety at different stages of growth.

Uncertainty can be rendered certainty by two methods of attack—the experimental feeding of animals upon the suspected plant, or by establishing by chemical examination the presence therein of principles the physiological effect of which can be foretold.

Various specimens of the weed *Dysphania myriocephala* (N. O. Illecebraceæ), despite its close alliance to the wholesome amanths (Amarantaceæ) and salt bushes (Chenopodiaceæ), have been found by the writers to contain both an amount of hydrocyanic acid yielding substance (a glucoside) and an alkaloid. The former has the property of yielding on disintegration and destruction of the cells by the digestive apparatus the powerful poison hydrocyanic (prussic) acid; the latter, to which class the drugs strychnine, morphine, atropine belong, would undoubtedly exercise marked physiological effect. The plant is, therefore, to be regarded as a virulent stock poison. Indeed, this role has already been assigned it, as the following references will show:—

Bailey and Gordon, in "Plants Reputed Poisonous to Stock" (1887), write:—"A specimen of this plant was forwarded from the north-western portion of the Warrego district, where the drover in charge stated that he lost thirty rams out of a small flock, deaths taking place immediately after the first appearance of the symptoms."

In June, 1914, Mr. M. Hayward, manager of Comongin South, Thargomindah, forwarded specimens to the Colonial Botanist with the following remarks:—"I am sending for examination a sample of a plant which I have reason to believe poisoned eight head of cattle here. The cattle are all dead within a radius of 20 yards, and appear to have died without a struggle. There is a patch of weed on which they had been feeding right alongside them."

The weed is found chiefly in the inland portions of the State, and, despite a fairly wide occurrence, the writers are not aware of any local or common appellation. Its presence has also been noted in the Brisbane district, though whether native or introduced from some Western locality it is impossible to say, and quite recently it was observed growing in great profusion in a suburban fowl-run, strange to say practically the only green stuff left standing in the area.

A brief description of the plant, together with a plate, will aid in its identification.

Dysphania myriocephala is a small diffuse or procumbent herb with branching ascending stems rarely more than 6 or 7 inches high. It has numerous small linear leaves in the axils of which are borne the greenish flower clusters. The clusters of flowers are small and globular, each containing 10-20 or even more minute flowers, and often occupy the greater part of the plant. The seed is minute, ovoid, dark-coloured, and slightly flattened.

PLATE 30.—DYSPHANIA MYRIOCEPHALA, *Benth.*

Entomology.

A FRUIT FLY ATTACKING PAPAW FRUITS.

The "Agricultural News" of Barbados (27th March) contains the following article on the Papaw Fruit Fly, which was published in the "Journal of Agricultural Research" for 21st September, 1914, a journal issued by the U.S. Department of Agriculture:—

"The Papaya of the Southern United States is the West Indian Papaw (*Carica papaya*), and as this plant has some importance from an economic point of view in certain of these islands, a brief abstract of the paper mentioned above, which appears under the joint authorship of Messrs. Frederick Knab and W. W. Yothers, may be of interest to readers of the "Agricultural News."

"The insect which forms the subject of this paper is *Toxotrypana curvicauda*, Gerstaecker. It was first brought to the notice of the U.S. Department of Agriculture in 1905, when it was bred from a maggot-infested papaw fruit, from the Subtropical Plant Introduction Field Station at Miami, Florida. Since that time, the increasing importance of the papaw as a possible commercial crop has led to investigations in connection with this insect.

"The papaw fruit fly is now recorded as occurring in the southern part of Florida, in Costa Rica, Yucatan, Brazil, Peru, Porto Rico, Bahamas, and St. Jean (? St. Jan), Danish West Indies. It is stated that this last record has been erroneously given as St. John, Antigua.

"*Description—the Adult.*—The papaw fruit fly (*Toxotrypana curvicauda*) belongs to the dipterous family Trypetidæ, and exhibits a certain superficial resemblance to a common brown wasp (Polistes). This is due not only to its similarity of size, form, and general colouration, but in life this is accentuated by the manner in which it walks about on the fruit, with its body well elevated upon its slender legs, and by a certain nervousness of movement. The female is remarkable for its long and slender curved ovipositor, which exceeds the length of its body.

"*The Eggs.*—The eggs were procured from gravid females by dissection. The number of eggs produced by a single female appears to be slightly in excess of 100; the counts from two females, both showing a distended abdomen and probably containing a nearly full complement of eggs, gave 103 fully developed eggs in each case. No eggs in process of development were present, which indicates that all the eggs are disposed of within a short period.

"*The Larva.*—The larvæ are shining, dirty, greenish-white in colour while feeding upon the interior seed mass. Larvæ that have matured within the ripened fruit, and that have penetrated into the meat, are the same rich golden-yellow colour as the ripe fruit.

"*Habits of the Larvæ.*—The larvæ of the papaw fruit fly occur in the interior of the fruit, first feeding in the central seed mass, but later, as they mature and the fruit ripens, working into the meat and ruining the fruit. The number of larvæ in a single fruit varies from two or

three to twenty or more. Sometimes larvæ of different sizes occur in the same fruit at the same time, showing that the infestation was from more than one oviposition.

"Cultivated fruit has been found to be generally less infested than that growing wild, and this is ascribed to the fact that the flesh of the cultivated fruits is usually thicker, the thin-fleshed varieties appearing to be more generally attacked. It seems that the eggs are deposited inside the seed cavity, or at least the insects develop best when this happens. Thick-fleshed fruits often showed numerous scars, indicating attempts at oviposition, when no injury to the seed mass or the flesh occurred to indicate the feeding of the larvæ. On the other hand, fruits were noticed, in which fully-grown larvæ were found dead. This is explained as being the result of an attack on fruits which were too young. The contact with the juice of the unripe fruit is quickly fatal to the larvæ. It is evident that the fruit was too young when attacked, and that the maggots became fully grown and attempted to penetrate into the flesh before it was sufficiently ripened, and they were killed by contact with the juice. In the ripe fruit the flesh is softer, and the gummy juice is no longer exuded.

" *Pupal Period.*—The larvæ when full grown usually leave the fruit and fall to the ground, where they pupate, under some bit of rock or buried in the soil at a depth of 1 or 2 inches.

"The length of the pupal period is given as seventeen to twenty-one days in Porto Rico, and from thirty to forty-two days in Florida. The latter figures were obtained as the result of observations in the cool season of the year.

"*Habits of the Adult and Oviposition.*—The adults of this species appear only for a short time just before sunset. A female fly was observed to alight on a well-developed but unripe fruit. After walking about a little she inserted the ovipositor its full length into the fruit. As soon as the rind was punctured, the milky juice which the unripe fruit exudes whenever injured welled forth and began to trickle down over the surface. It is evident that the female fly endeavours to thrust her ovipositor through the flesh to deposit the eggs in the central seed cavity, and that it is only in those varieties with the thinner-fleshed fruit that this is successfully accomplished. The larvæ are always found in the seed mass, except when they are full grown and the fruit is ripe, when they penetrate into the flesh with the object of working their way to the outside in order to get to the ground and pupate.

"*Food Plants.*—Up to the present time no other fruit than the papaw has been recorded as being attacked by this insect, and all attempts to induce the larvæ to feed on other fruits have, so far, failed.

"*Rapid Increase of the Fruit Fly.*—During the last two years the papaw fruit fly has rapidly increased in abundance, and has extended its range so as to threaten seriously the future development of the papaw industry in Florida. This is largely a result of the increased cultivation of the papaw in the southern part of the State. Some varieties of Philippine stock producing large fruits are apparently free from attack.

"*Control.*—It has been pointed out that fruit with very thick meat escapes infestation. While the papaw fruit fly attempts to oviposit on such fruit, the thickness of the meat prevents the tip of the ovipositor from reaching the seed cavity, and in the meat itself the larvæ cannot live. It was further found that in some fruits the larvæ had reached maturity before these had ripened, and had been killed by the sticky juice of the green fruit in endeavouring to escape. The means of control that now seem valuable are the production of varieties of papaw that have thick meat and that ripen slowly, and the conscientious destruction of adventitious or wild papaw plants and of all infested fruits. All plants with inferior fruit should be eliminated."

Statistics.

RAINFALL IN THE AGRICULTURAL DISTRICTS.

TABLE SHOWING THE AVERAGE RAINFALL FOR THE MONTH OF APRIL IN THE AGRICULTURAL DISTRICTS, TOGETHER WITH TOTAL RAINFALLS DURING APRIL, 1915 AND 1914, FOR COMPARISON.

Divisions and Stations.	Average Rainfall.		Total Rainfall.	
	April.	No. of Years' Records.	April, 1915.	April, 1914.
North Coast.	In.		In.	In.
Atherton	4·73	13	0·59	3·01
Cairns	13·23	27	3·44	11·53
Cardwell	9·94	27	4·33	7·04
Cooktown	8·99	27	7·73	13·29
Herberton	4·61	27	0·32	3·54
Ingham	9·11	22	3·81	8·38
Innisfail	23·44	27	9·15	22·29
Mossman	16·78	5	2·48	13·01
Townsville	3·66	30	0·62	4·89
Central Coast.				
Ayr	2·86	27	0·48	4·86
Bowen	2·82	27	0·69	3·18
Charters Towers ...	1·90	27	0·67	2·64
Mackay	6·33	27	2·10	4·98
Proserpine	6·96	11	4·12	4·65
St. Lawrence ...	2·91	27	0·06	1·48
South Coast.				
Biggenden	1·73	14	0·65	2·00
Bundaberg	3·06	27	0·44	2·55
Brisbane	3·62	64	2·41	0·42
Childers	2·52	19	0·11	0·87
Crohamhurst ...	5·22	22	1·30	0·53
Esk	2·65	27	1·91	1·85
Gayndah	1·47	27	1·36	1·48
Gympie	3·19	27	0·58	2·20
Glasshouse M'tains	4·52	6	3·19	0·79
Kilkivan	1·97	27	0·86	0·85
Maryborough ...	3·35	27	1·01	2·00

Divisions and Stations.	Average Rainfall.		Total Rainfall.	
	April.	No. of Years' Records.	April, 1915.	April, 1914.
South Coast—continued:	In.		In.	In.
Nanango	1·98	27	0·96	0·94
Rockhampton ...	2·40	27	0·02	0·88
Woodford	4·09	27	2·15	0·51
Yandina	4·55	21	2·67	3·31
Darling Downs.				
Dalby	1·56	27	0·44	0·86
Emu Vale	1·21	17	0·79	1·08
Jimbour	1·48	24	1·16	0·33
Miles	1·47	27	0·96	2·65
Stanthorpe ...	1·58	27	2·09	2·88
Toowoomba ...	2·60	27	1·00	2·44
Warwick	1·36	27	0·72	1·94
Maranoa.				
Roma	1·27	25	0·98	1·88
State Farms, &c.				
Gatton College ...	1·84	14	1·38	1·53
Gindie	1·42	13	0·08	1·31
Kamerunga Nurs'y	13·03	23	3·52	9·06
Kairi	2·24	2	0·82	3·65
Sugar Experiment Station, Mackay	5·07	16	2·57	5·67
Bungeworgorai ...	Nil	Nil	·50	1·74
Warren	1·19	2	Nil	2·38
Hermitage ...	1·32	7	0·80	2·03

NOTE.—The averages have been compiled from official data during the periods indicated; but the totals for April this year and for the same period of 1914, having been compiled from telegraphic reports, are subject to revision.

General Notes.

DRESSING FOR SEED WHEAT.

We have frequently given directions in this Journal for dressing seed wheat as a preventive of bunt or smut, but the pickling of the seed either with bluestone or formalin, followed by immersion in lime water, affords no protection against the depredations of birds. Although we are inclined to be sceptical as to the value of new patents, yet here is one we have just received from London which, under the name of "Corvusine," appears to have been largely used and much approved of by well-known farmers in England. It is claimed for this dressing that less seed can be sown per acre, that more vigorous plants are obtained, and, consequently, heavier crops, and that no birds or vermin will touch seed dressed with it, so that the whole of the seed sown is left to germinate, and two bushels per acre of reliable wheat are ample to produce a heavy and full crop. The cost of dressing wheat with Corvusine is stated to be 3d. per bushel, or 6d. per acre. Where birds have made vitriol-dressed wheat very thin in places, that dressed with this compound is said to be not touched by them. It does not injure the seed. In the case of maize, crows will wait till the green shoots appear, and then go down and play havoc with the plant. Neither fowls nor pigeons nor crows, it is claimed, will touch the seed once having tasted the grain. Should this be authenticated, as would appear by the testimonials in its favour, then the depredations of bandicoots in our Queensland maize fields would come to an end. The address of the proprietor, as stated on the circular we have received, is A. E. Hawker, 59 Mark Lane, London, E.C.

DOGS IN WAR.

The following interesting note on the use of dogs in war time in France appeared in "Animalia" in the "British Live Stock Journal" for 26th February last:—

"Mr. Ian Malcolm, M.P. for Croydon, who for some months has been Director of the Wounded and Missing Department of the Red Cross Society, in a letter home states: 'There is a very interesting society in France, known as the "Ligue des Chiens Sanitaires," which trains dogs of all sorts, apparently, to carry despatches from one trench to another or to hunt for wounded men. They very kindly asked me to their training ground, and I am very glad that I went. There, in a large open space, were airedales, curly-coated sheepdogs, black Belgian collies (with a dash of the hyæna in them, I should say), and Scotch collies. They were all kennelled up and brought out one at a time for their lesson. In the field there were trenches and fences, pits and gravel mounds, obstacles of all kinds. The dogs were each at different stages of proficiency in the art of tracking wounded; some had begun learning that week; others

had been with the trainer for months, and one was a perfectly trained dog which the police had used for a couple of years.

"'The latter was a little wonder; he could climb wire netting or a stone wall like a cat, and he had the nose and pace of a first-class pointer. It was beautiful to see him work. A man goes by devious paths and ultimately hides in a pit enclosed in a 15-ft. wire cage, like the walls of an aviary without the roof. The dog is brought on the ground by his trainer, picks up the scent almost at once, and off he goes. Finally he reaches the pit, makes three springs up the fencing, finds the man, takes his cap, and races back to his master. He is then put on a leash, and off he goes again at full speed, dragging the man with him as fast as his legs can carry him over the broken ground until he reaches the wounded soldier, who is then tended, and, if possible, brought back to the nearest field hospital. These dogs, I believe, are in general use in the French and German armies, but hitherto I fancy that there are few, if any, among our British regiments. It would be an interesting experiment to try some among our troops, who could certainly work the dogs, if any soldiers in the world could.'"

INSURANCE OF CONTENTS OF STACKS.

Why do not some farmers insure their stacks? We hear constantly of stacks and haysheds, the latter often adjoining a shed containing valuable agricultural implements, being destroyed by fire, but no insurance. Yet it is so easy to calculate the content of a stack of any crop that the wonder is that some farmers will not insure their stacks, the premium being really a mere bagatelle, based on the content—not on the material, which may be lucerne or any other crop. Every farmer should know how to calculate the weight and consequent value of the stacked crop. There is no difficult arithmetical problem needed to arrive at this. Any 4th class schoolboy can work it out.

The weight of hay per cubic yard in the stack varies from 112 lb. to 300 lb., depending on the nature of the hay, its age, the size of the stack, and the part of the stack taken.

Take the conditions of hay and stacks, and the number of cubic yards to a ton will approximately vary as follows:—

	Square Stacks. Cubic Yards.	Round Stacks. Cubic Yards.
If not well settled	12 ..	13
If fairly well settled	10 ..	11
If very compact	8 ..	9

If the reader will refer back to the Journals, vols. IV., X., XII., and XIX., he will there find simple directions for calculating the weight of hay in a stack, and, knowing that, he can effect an insurance at a small premium, which will ensure him against any loss by fire, such as occurs frequently in a dry season like the present. A wise farmer will insure not only his life and his house, but his crops, implements, and stock.

The following table shows the number of cubic yards in a ton at different weights per cubic foot:—

Weight per Foot in lb.		Yards to a Ton.
5·18	equals 16	7·50 equals 11
5·53	„ 15	8·25 „ 10
6·00	„ 14	9·18 „ 9
6·37	„ 13	10·31 „ 8
6·87	„ 12	11·85 „ 7

Having thus arrived at the weight of hay in the stack, and its market value, the owner can insure it at three-quarters of its estimated value.

DANGER IN POISONED PRICKLY-PEAR.

A letter was lately received by the Under Secretary for Agriculture and Stock, from a settler who lost a cow owing to its having eaten poisoned prickly-pear. The pear had been poisoned about four or six months previously, and was so decayed that practically only the fibre was left. He believed the poison was either arsenic or cyanide, probably both. The symptoms are: Legs becoming suddenly powerless; frothing at the mouth; badly scoured; death ensuing with great agony in about twenty-four hours.

As more of the cows appeared to be infected, he applied to the Department for information as to any treatment which could be applied. The cattle were grazing on dry Rhodes grass and in green belar scrub.

The matter being urgent, the Veterinary Department promptly wired a recipe for arsenical poisoning. As this is a very important matter as possibly affecting stockowners in districts where the pear has been killed by the poison, we give the recipe.

The veterinary surgeon to whom the matter was referred was of opinion that the symptoms described all pointed to arsenical poisoning; he recommended that the following mixture be made up, and that one wineglassful be given in half a pint of cold water morning and night:—

Dissolve 2 oz. washing soda in 1 pint of boiling water; add 1 oz. of strong, liquid perchloride of iron, and allow to cool. This mixture is the antidote for arsenical poisoning.

MEAD, OR HONEY BEER.

Boil 14 lb. of honey in 6 gallons of water for half an hour, breaking into it three or four new-laid eggs. Then add small bunches of flavouring from the garden, balm, thyme, &c., ½ oz. each of cinnamon, cloves, mace, and bruised ginger, and boil a quarter of an hour longer. Pour it out to cool, then toast a very large slice of bread of any kind, spread it over with fresh yeast, and put it into the liquor; let it ferment for a day, then put in the cask, but keep it open until the fermentation is complete. It may be bottled in a month, and the corks must be securely tied.—"Farm, Field, and Fireside."

RATS ON PLANTATIONS.

"L.A.W.," writing on this subject to the "Journal of the Jamaica Agricultural Society," describes a remedy for rats, which was given to him by an old cacao planter at Fellowship, who, he says, "informed me that seven years ago rats and rat bats played fits with his cocoa, and he tried the following experiment. Result, no rats or rat bats had come back again for seven years past. I being sceptical, he got a bit worked up and offered to bet £100 on the results, saying the rats would run from Fellowship to Moore Town and never return.

"The scheme is to build one or more wood fires ready for lighting on the windward side of the cocoa walk or cocoa field. At dusk on an evening with a steady breeze blowing, light same and throw on them 3d. frankincense, 3d. brimstone, 3d. sulphur, 3d. myrrh, the fancy ingredients, I suppose, and one quart of bird pepper, the real obeah. Then clear out or you repent it, and leave the rats and bats to enjoy the incense prepared for them. Results, he claimed, are exodus of rats and bats never to return. The question is, Is there anything in it? Three years ago cockroaches got into my new piano and began to make hay. I set some phosphorous paste and killed sixteen. From that day to this, three years, I have never seen one back in it. The news has been passed to the cockroach community that my piano is a bad place. If roaches have so much sense, what about rats? What price a trial?"

TO KEEP MICE FROM WHEAT BAGS.

Many farmers experience great difficulty in keeping their wheat bags free from the depredations of mice and rats, and the remedies tried are innumerable. A New South Wales farmer now states that if each of the bags is rubbed over with a few handfuls of sulphur, mice will never touch them, and the same procedure would probably answer in the case of rats. Bags thus treated have stood from stripping to sowing without a hole having been made in one of them.—"Pastoral Review."

GELIGNITE.

For the information of farmers and others who use explosives either for clearing or for subsoiling, Mr. J. B. Henderson, Chief Inspector of Explosives, states that, if gelignite is stored in a very damp box it would probably get into a dangerous condition. The moisture tends to drive the liquid nitro-glycerine out of the bulk of the explosive on to the paper wrapper, where it is distinctly visible. Crystals of saltpetre also tend to form on the outside of the wrapper when moisture affects the explosive. Unless there is some visible change of this kind, there is no other change likely to have occurred. Mr. Henderson, however, points out that explosives should be kept strictly under the provisions of "*The Explosives Act of* 1906" and Regulations of 1908, and, if kept in a permitted magazine, are not likely to get damp.

REMEDY FOR ZAMIA POISONING.

For cattle suffering from ricketts as the result of feeding on the zamia plant, the following remedy is recommended by the veterinary officers of the Department of Agriculture and Stock:—

Give 1 lb. Epsom salts in 1 quart tepid water, and follow twice daily with 2 drachms iodide of potassium in 1 pint of water.

GOOD GRASSES FOR DAIRYING.

Rhodes grass is recommended by Mr. Brooks, Agricultural Instructor, for the drier portions of a district, and West African Wonder (*Panicum muticum*) for low-lying situations. The latter is propagated by cuttings. It may be pointed out that the feeding value of paspalum can be vastly increased by a mixture of white clover, more especially during the winter months.

MORTALITY AMONGST YOUNG PIGS.

A correspondent lately wrote to this Department describing certain symptoms amongst his young pigs which resulted during six months in the death of twenty. The principal symptom was a dragging of the hind legs, when they lay about unable to rise but yet not going off their feed for two or three months before dying.

The case was submitted to one of the Government veterinary surgeons, who stated that the trouble was due either to rheumatism or worms in the kidney. If from the first cause, the animals should be kept dry, and away from draughts. A wooden floor should be placed about 1 foot from the ground, so that the animals would be kept comfortable. If from the second cause, 2 drs. of turpentine and 1 pint of sweet milk should be given daily for a week.

ANTIDOTE FOR ARSENICAL POISONING.

Dissolve 2 oz. washing soda in 2 oz. boiling water; filter same through a piece of blotting paper; then add 1 oz. strong perchloride of iron; and give half this dose morning and night.

Answers to Correspondents.

H. E. A. MINCHIN, Warrawoona, Evelyn—

The following answers to your various questions were given by the respective officers of the Department to whom they were submitted:—

Government Entomologist and Vegetable Pathologist (Mr. H. Tryon).—

Q. Can arsenate of lead be mixed with Bordeaux mixture?

A. Yes.

Q. Does arsenate of lead keep indefinitely?

A. This depends if kept away from chemicals that reaction it, but it is naturally a very stable compound.

Architect and Surveyor (Mr. A. Morry).—

Q. How should a varnish brush be kept?

A. Varnish brushes, when in constant use, should be kept from the air; they should not be left in the varnish during prolonged interruptions to work, but should be suspended in water, turpentine, or in kerosene, the bristles only being submerged without resting on the bottom, to prevent them turning up at the ends.

When work is finished, they should be carefully washed in soap and hot water if oil varnish, in turpentine or kerosene if spirit varnish, dried and put away. If not perfectly cleaned, oxidation takes place through exposure to the air, and the bristles are spoiled for future use. If brushes have become hard, wash them in hot turpentine in a frying-pan over a stove, or soak for some time in kerosene.

Q. Is there any way of preparing glue so that veneer work, &c., will not come apart in damp weather?

A. Glue may be made waterproof by mixing with it about 1 per cent. of bichromate of potash, which is 1 oz. to 6¼ lb. of glue. The bichromate should be dissolved in hot water, and the glue boiled in same. Too much bichromate will make it a yellow colour, and will not be effective; try half the quantity first and increase if necessary.

Poultry Expert, Gatton College (Mr. Hindes).—

Q. *Re* the shedding system of keeping hens: Does the thick layer of fresh horse dung effectively and healthfully do away with all smell and unpleasantness from the hens' droppings? What substitute could be used for this purpose in a place where fresh horse dung could not be obtained in a sufficient quantity?

A. There will be no bad smell for the first month; as soon as there is, the horse manure should be cleaned out and fresh material put in. Any rough grass or straw can be used instead of horse manure.

Q. Re "Hogan" system of poultry keeping: Could you furnish me with any details as to this (and others) intensive system?

A. The "Hogan" system is a secret for testing laying pullets, and can be purchased from any of his agents; it has nothing to do with intensive or any other system of poultry keeping. The method of carrying out the "Hogan" test can be bought from the "Poultry Bulletin," 200 Castlereagh street, Sydney, N.S.W. I have had no practical experience with any intensive system. There is a "Gordon" system (intensive), also a secret, which is sold by Mr. F. E. A. Gordon, care of G.P.O., Brisbane.

Q. What is the next best substitute for wheat as a poultry food?

A. Good heavy short oats, maize, barley, Kaffir corn, peas. Feed any of the above that may be procurable, giving as much variety as possible.

Agricultural Chemist (Mr. J. C. Brünnich).—

Q. Can laundry water containing soap and washing soda be safely used to water plants? If not, is there any inexpensive corrective?

A. Such water should not be used, or only very sparingly. There is no simple chemical corrective.

Q. Can laundry water containing soap and borax be safely used to water plants? If not, is there any inexpensive corrective?

A. The previous answer applies also to this question.

Q. Can "blue" water from a laundry be safely used to water plants? If not, is there any inexpensive corrective?

A. Yes, can be used.

Q. Why is rain so much more beneficial than irrigation? Does rain contain any appreciable amount of ammonia? To what extent can the spray systems of irrigation be compared with rain, especially as regards aeration?

A. The difference is partially due to considerable amounts of nitrogenous compound in rain water. It is not the aeration which would make the difference; even spray irrigation will not replace rain.

INDIGESTION IN COWS.

Indigestion and scours may be due to the nature of the pastures. When the disorder is first noticed, ½ lb. Epsom salts should be given, followed daily with ½ oz. prepared chalk. This can be had from any chemist.

There is no cure for hair balls in calves.

RICE HULLER.

"LUXMI," Cairns—

The "Luxmi" rice huller is made by Messrs. Ruston, Procter, and Co., Ltd., Lincoln, England. The weight of the machine is 5 cwt. It is guaranteed to deliver thirty bags of clean white rice in ten hours. In actual work in India, one of these machines is said to have turned out sixty bags in ten hours. We cannot tell you the price of the machine, but advise you to communicate with the makers.

SUNFLOWER CULTIVATION.

M.A.F., Kaimkillenbun.

With further reference to your letter of 26th April on the subject of Sunflower-growing, the Department has now a pamphlet on Sunflowers in the press, which will shortly be available. Meanwhile, for your information, Messrs. Chas. Taylor, seed merchants, Roma street, Brisbane, are purchasers of seed. We advise that you write to them as to price, &c. The seed runs from 30 to 35 lb. per bushel.

WORMS IN COW'S PAUNCH.

A correspondent at Mount Garnet writes describing a worm about half an inch long which, during very dry weather, appears in the honeycomb part of the paunch of many cattle, and asks for a remedy.

Two oz. oil of turpentine in 1 pint of raw linseed oil should be given on an empty stomach, followed daily with a powder consisting of 2 drs. sulphate of iron and 4 drs. powdered gentian. This should be given in a bottle of gruel, and the treatment continued for a week.

SPRAY WASH FOR VEGETABLES.

"SPRAY," Tiaro—

The spray mentioned by you was published in this Journal in May, 1903. As it is possible that you may not have been a subscriber at that date, we again give it:—

The spray, or wash rather, was declared by Mr. S. C. Voller, then Assistant Instructor in Fruit Culture to the Department of Agriculture in this State, to be an infallible means of destroying aphis and other insect life on vegetables. The trouble with Paris green is, that it will not stick to the glossy leaves of cabbages and cauliflowers, but collects at the base of the stalk and at the junction of the stalk and leaves. Sprays are open to the same objection. The following wash, however, will stick like varnish, and in an instant destroy all animal life on the plants:—

Take 20 lb. of resin, 4 lb. caustic soda (98 per cent.), or 6 lb. (70 per cent.), 3 pints of fish oil or 2½ lb. whale oil soap, and 140 to 150 gallons of water. Place all the above ingredients in a boiler with 20 gallons of the water, and let the whole simmer for three hours. Then add hot water slowly, and stir well till there are at least 40 gallons of solution. Then add cold water to make up the 140 or 150 gallons. Never add cold water when cooking. This wash, using only 80 gallons of water, will destroy the mussel, glover, and white scales on citrus trees, and the mussel scale of the apple.

The Markets.

PRICES OF FARM PRODUCE IN THE BRISBANE MARKETS FOR MAY, 1915.

Article.		MAY. Prices.
Bacon	lb.	9½d. to 11½d.
Bran (Mill price)	ton	...
Butter	cwt.	194s.
Chaff, Mixed	ton	£7 5s. to £8 10s.
Chaff, Oaten	,,	£6 to £10
Chaff, Lucerne	,,	£6 5s. to £8
Chaff, Wheaten	,,	£4 to £4 10s.
Cheese	lb.	1s.
Flour	ton	...
Hams	lb.	1s. 1d.
Hay, Oaten (Victorian)	ton	£15
Hay, Lucerne (Prime)	,,	£6 5s. to £7
Honey	lb.	3d. to 3½d.
Maize	bush.	5s. 3d. to 5s. 4d.
Oats	,,	6s. 6d.
Onions	ton	£8 10s. to £9
Peanuts	lb.	2½d. to 3d.
Pollard (Mill price)	ton	...
Potatoes	,,	£5 to £7 10s.
Potatoes (Sweet)	cwt.	4s.
Pumpkins	ton	£4 to £5
Eggs	doz.	1s. 6d. to 2s. 6d.
Fowls	pair	2s. 6d. to 4s. 3d.
Ducks, English	,,	3s.
Ducks, Muscovy	,,	3s. 6d. to 4s. 6d.
Turkeys (Hens)	,,	5s. to 6s.
Turkeys (Gobblers)	,,	7s. to 12s. 6d.
Wheat (Seed)	bush.	7s. to 7s. 6d.

VEGETABLES.

Cabbages	per dozen	5s. to 7s.
Peas	per sugar bag	4s. to 6s.
Beans	,, ,,	4s. to 7s 6d.
Parsnips and Carrots	per dozen bunches	9d. to 1s.
Cucumbers	per dozen	9d. to 1s 6d.
Custard Marrows	,,	3s. 6d. to 5s.
Vegetable Marrows	,,	3s. 6d. to 5s.
Beetroot	per dozen bunches	8d. to 1s.
Chocos	per quarter-case	1s. 6d. to 2s. 1d.
Sweet Potatoes	per cwt.	2s. 6d.
Table Pumpkins	per dozen	5s.
Tomatoes	per quarter-case	3s. to 4s 6d.
Lettuces	per dozen	9d. to 1s.

SOUTHERN FRUIT MARKETS.

Article.	MAY. Prices.
Bananas (Queensland), per case	12s. to 15s.
Bananas (Fiji), per case	21s.
Bananas (G.M.), per case	14s. to 18s.
Mandarins	5s. to 9s.
Oranges (Navel), per case	7s. to 10s.
Oranges, Italian, per case	...
Oranges (Other), per case	5s. to 6s.
Passion Fruit, per half-case	1s. to 4s. 6d.
Papaw Apples, per half-case	...
Pineapples (Queens), per case	9s. to 12s.
Pineapples (Ripleys), per case	8s. to 12s.
Pineapples (Common), per case	8s. to 10s.
Tomatoes, per half-case	3s. 6d. to 5s. 6d.
Persimmons, per half-case	...

PRICES OF FRUIT—TURBOT STREET MARKETS.

Article.	MAY. Prices.
Apples (American), Eating, per case	7s. to 8s. 6d.
Apples (Local), per case	6s. to 7s.
Apples, Cooking, per case	6s. to 9s.
Bananas (Cavendish), per dozen	2½d. to 4½d.
Bananas (Sugar), per dozen	3d. to 4d.
Cocoanuts, per sack	12s. to 15s.
Custard Apples, per quarter-case	3s. to 4s.
Lemons (Local), per case	2s. to 5s.
Lemons (Italian), per case	..
Mandarins (Northern), per case	3s. to 3s. 6d.
Oranges (other), per case	2s. 3d. to 3s.
Papaw Apples, per quarter case	1s. 6d. to 3s. 6d.
Passion Fruit, per quarter-case	2s. to 4s.
Peanuts, per pound	2½d. to 3d.
Pears (Victorian), per case	6s. to 10s.
Rosellas, per sugar bag	1s. 6d. to 3s.
Pineapples (Ripley), per case	7s. to 8s. 6d.
Pineapples (Rough), per dozen	2s. to 3s. 6d.
Pineapples (Smooth), per dozen	5s. to 6s.
Tomatoes, per case	1s. 6d. to 5s.

TOP PRICES, ENOGGERA YARDS, APRIL, 1915.

Animal.	APRIL. Prices.
Bullocks	£13 7s. 6d. to £16 10s.
Cows	£10 15s. to £12 7s. 6d.
Merino Wethers	22s. 9d.
Crossbred Wethers	23s.
Merino Ewes	18s. 3d.
Crossbred Ewes	25s. 3d.
Lambs	21s.
Pigs (Porkers)	45s.

TIMES OF SUNRISE AND SUNSET AT BRISBANE—1915.

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

Date.	MAY.		JUNE.		JULY.		AUGUST.	
	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.	Rises.	Sets.
1	6·14	5·17	6·31	5·0	6·39	5·3	6·30	5·18
2	6·14	5·16	6·31	5·0	6·39	5·3	6·30	5·18
3	6·15	5·15	6·32	5·0	6·39	5·3	6·29	5·19
4	6·15	5·14	6·32	5·0	6·40	5·4	6·28	5·20
5	6·16	5·13	6·33	4·59	6·40	5·4	6·27	5·21
6	6·17	5·12	6·33	4·59	6·40	5·4	6·27	5·21
7	6·17	5·12	6·34	4·59	6·40	5·5	6·26	5·21
8	6·18	5·11	6·34	4·59	6·40	5·5	6·25	5·22
9	6·18	5·11	6·34	4·59	6·40	5·5	6·24	5·22
10	6·19	5·10	6·35	4·59	6·40	5·6	6·24	5·22
11	6·19	5·10	6·35	4·59	6·39	5·6	6·23	5·23
12	6·20	5·9	6·35	4·59	6·39	5·6	6·23	5·23
13	6·20	5·9	6·35	4·59	6·39	5·7	6·22	5·24
14	6·20	5·8	6·36	4·59	6·39	5·7	6·21	5·25
15	6·21	5·8	6·36	5·0	6·38	5·8	6·20	5·26
16	6·21	5·7	6·36	5·0	6·38	5·8	6·19	5·26
17	6·22	5·6	6·37	5·0	6·38	5·9	6·18	5·26
18	6·22	5·5	6·37	5·0	6·37	5·10	6·17	5·27
19	6·23	5·5	6·37	5·0	6·37	5·11	6·16	5·27
20	6·23	5·4	6·38	5·0	6·36	5·12	6·15	5·27
21	6·24	5·4	6·38	5·0	6·36	5·12	6·14	5·28
22	6·24	5·4	6·38	5·0	6·36	5·12	6·13	5·28
23	6·25	5·3	6·38	5 0	6·35	5·13	6·12	5·29
24	6·25	5·3	6·38	5·1	6·35	5·13	6·11	5·29
25	6·26	5·3	6·39	5·1	6·35	5·13	6·10	5·30
26	6·26	5·2	6·39	5·1	6·34	5·14	6·9	5·30
27	6·27	5·2	6·39	5·2	6·34	5·14	6·8	5·31
28	6·28	5·2	6·39	5·2	6·33	5·15	6·7	5·31
29	6·29	5·1	6·39	5·2	6·32	5·16	6·6	5·32
30	6·30	5·1	6·39	5·3	6·31	5·17	6·5	5·32
31	6·30	5·1	...	...	6·31	5·17	6·5	5·33

PHASES OF THE MOON, 1915.

On or about the 150th Meridian, East Long.

			H.	M.	
6 May	☽	Last Quarter	3	22	p.m.
14 „	●	New Moon	1	31	„
22 „	☾	First Quarter	2	50	„
29 „	○	Full Moon	7	33	a.m.

The moon will be at its brightest not only when full, but because it will this month be at its least distance from the earth at that time.

5 June	☽	Last Quarter	2	32	a.m.
13 „	●	New Moon	4	57	„
21 „	☾	First Quarter	12	24	„
27 „	○	Full Moon	2	27	p.m.

The moon will be at its greatest distance from the earth on 11th June at 10 a.m., and nearest on the 26th at midday.

4 July	☽	Last Quarter	3	54	p.m.
12 „	●	New Moon	7	30	„
20 „	☾	First Quarter	7	9	a.m.
26 „	○	Full Moon	10	11	p.m.

The moon will be at its greatest distance from the earth on 8th July, about 9 p.m., and at its nearest on the 24th at 3·24 p.m.

3 Aug.	☽	Last Quarter	7	27	a.m.
11 „	●	New Moon	8	52	„
18 „	☾	First Quarter	12	17	p.m.
25 „	○	Full Moon	7	40	a.m.

The moon will be at its greatest distance from the earth on 5th August at 36 minutes after 12, midday, and at its nearest on the 20th about midnight.

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 will rise and set about 4 minutes later than at Brisbane, and at Oontoo (longitude 141 degrees E.) about 48 minutes later.

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

At Roma the times of sunrise and sunset during May, June, July, and to the middle of August may be roughly arrived at by adding 20 minutes to those given for Brisbane.

The moonlight nights 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 it 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 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 with regard to the ecliptic.

Farm and Garden Notes for July.

FIELD.—The month of July is generally considered the best time to sow lucerne, for the reason that the growth of weeds is then practically checked, and the young lucerne plants will, therefore, not be checked by them, as would be the case if planted later on in the spring. If the ground has been properly prepared by deep ploughing, cross-ploughing, and harrowing, and an occasional shower occurs to assist germination and growth, the lucerne will thrive so well that by the time weeds once more appear it will be well able to hold its own against them. From 10 to 12 lb. of seed drilled, or 15 to 16 lb. broadcast, will be sufficient for an acre. This is also the time to prepare the land for many field crops, such as potatoes, maize, oats, and barley for green fodder; also, rye, vetches, tobacco, cotton, sugar-cane, field carrots, mangolds, swedes, canaigre, &c. Early potatoes, sugar-cane, and maize may be planted in very early districts, but it is risky to plant potatoes during this month in any districts liable to late frosts or in low-lying ground. Under such conditions, it is far better to wait until well into the following month. The greatest loss in potatoes and sugar-cane has been, on more than one occasion, experienced in September, when heavy frosts occurred in low-lying districts in the Southern portion of the State. During suitable weather, rice may be sown in the North. The coffee crop should now be harvested, and yams and turmeric unearthed.

KITCHEN GARDEN.—Should showery weather be frequent during July, do not attempt to sow seeds on heavy land, as the latter will be liable to clog, and hence be injurious to the young plants as they come up. The soil should not be reworked until fine weather has lasted sufficiently long to make it friable. Never walk over the land during wet weather with a view to sowing. The soil cakes and hardens, and good results cannot then be expected. This want of judgment is the usual cause of hard things being said about the seedsman. In fine weather, get the ground ploughed or dug, and let it lie in the rough till required. If harrowed and pulverised before that time, the growth of weeds will be encouraged, and the soil is deprived of the sweetening influences of the sun, rain, air, and frost. Where the ground has been properly prepared, make full sowings of cabbage, carrot, broad beans, lettuce, parsnips, beans, radishes, leeks, spring onions, beetroot, eschalots, salisify, &c. As westerly winds may be expected, plenty of hoeing and watering will be required to ensure good crops. Pinch the tops of broad beans which are in flower, and stake up peas which require support. Plant out rhubarb, asparagus, and artichokes. In warm districts, it will be quite safe to sow cucumbers, marrows, squashes, and melons during the last week of the month. In colder localities, it is better to wait till the middle or end of August. Get the ground ready for sowing French beans and other spring crops. Sow Guada beans (snake gourd) at the end of September.

FLOWER GARDEN.—Winter work ought to be in an advanced state. The roses will now want looking after. They should already have been pruned, and now any shoots which have a tendency to grow in wrong directions should be rubbed off. Overhaul the ferneries, and top-dress with a mixture of sandy loam and leaf mould, staking up some plants and thinning out others. Treat all classes of plants in the same manner as the roses where undesirable shoots appear. All such work as trimming lawns, digging beds, pruning, and planting should now be got well in hand. Plant out antirrhinums, pansies, hollyhocks, verbenas, petunias, &c., which were lately sown. Sow zinnias, amaranthus, balsam, chrysanthemum tricolor, marigolds, cosmos, coxcombs, phloxes, sweet peas, lupins, &c. Plant gladiolus, tuberoses, amaryllis, pancratium, ismene, crinums, belladonna, lily, and other bulbs. Put away dahlia roots in some warm, moist spot, where they will start gently and be ready for planting out in August and September.

Orchard Notes for July.

THE SOUTHERN COAST DISTRICTS.

The notes for the month of June apply to July as well. The first crop of strawberries will be ripening during the month, though extra early fruit is often obtained in June, and sometimes as early as May, under especially favourable conditions. Look out for leaf-blight, and spray for same with Bordeaux mixture, also watch for the first signs of the grey mould that attacks the fruit, and spray with the sulphide of soda wash. The larvæ of the cockchafer, that eats the roots of strawberries, should be looked for, and destroyed whenever found. Pruning of citrus and other fruit trees may be continued; also, the spraying with lime and sulphur. Where the ringing borer, that either attacks the main trunks or the branches at or near where they form the head of the tree, is present, the main stems and trunks should either be painted or sprayed with the lime and sulphur wash during the month, as the mature beetles that lay the eggs that eventually turn to the borers sometimes make their appearance during the month, and unless the trees are protected by the wash they lay the eggs, which hatch out in due course and do a lot of damage. Keep the orchard clean, so that when the spring growth takes place the trees may be in good condition. There is usually a heavy winter crop of pineapples ripening during this and the following month, particularly of smooth leaves. See that any conspicuous fruits are protected by a wisp of grass, as they are injured not only by frost but by cold westerly winds.

THE TROPICAL COAST DISTRICTS.

See the instructions given for the month of June. Keep the orchards clean and well worked. Prune and spray where necessary.

THE SOUTHERN AND CENTRAL TABLELANDS.

Where pruning of deciduous trees has not been completed, do so this month. It is not advisable to leave this work too late in the season, as the earlier the pruning is done after the sap is down the better the buds develop—both fruit buds and wood buds; thus securing a good blossoming and a good growth of wood the following spring.

Planting can be continued during the month; if possible, it should be finished this month, for though trees can be set out during August, if a dry spell comes they will suffer, when the earlier planted trees, which have had a longer time to become established, will do all right—provided, of course, that the land has been properly prepared prior to planting, and that it is kept in good order by systematic cultivation subsequent to planting.

Do not neglect to cut back hard when planting, as the failure to do so will result in a weakly growth.

As soon as the pruning is completed, the orchards should get their winter spraying with the sulphur limewash, and either with or without salt, as may be wished. See that this spraying is thoroughly carried out, and that every part of the tree is reached, as it is the main treatment during the year for San José and other scale insects, as well as being the best time to spray for all kinds of canker, bark-rot, moss, lichens, &c.

Where the orchard has not been ploughed, get this done as soon as the pruning and spraying are through, so as to have the land in good order for the spring cultivations. See that the work is well done, and remember that the best way to provide against dry spells is to keep moisture in the soil once you have got it there, and this can only be done by thorough and deep working of the soil.

When obtaining trees for planting, see that they are on good roots, and that they are free from all pests, as it is easier to prevent the introduction of pests of all sorts than to eradicate them once they have become established. Only select those varieties that are of proved merit in your district; do not plant every kind of tree that you see listed in a nurseryman's catalogue, as many of them are unsuited to our climate. The pruning of grape vines may be carried out in all parts of the tablelands other than the Stanthorpe district, where it is advisable to leave this work as long as possible, owing to the danger of spring frosts.

Where grape vines have been well started and properly pruned from year to year, this work is simple; but where the vines have become covered with long straggling spurs, and are generally very unsightly, the best plan is to cut them hard back, so as to cause them to throw out good strong shoots near the main stem. These shoots can be laid down in the place of the old wood in following seasons, and the whole bearing portion of the vine will be thus renewed.

Where vineyards have been pruned, the prunings should be gathered and burnt, and the land should receive a good ploughing.

LIST OF AGRICULTURAL, HORTICULTURAL, AND PASTORAL SOCIETIES AND ASSOCIATIONS IN QUEENSLAND.

Societies and associations desirous of being registered and placed on the above list must make application to that effect, and forward to the Under Secretary for Agriculture and Stock the following particulars:—

Number of members who have paid their subscriptions for 1912.

Number of meetings held by the Society during 1912.

Date of the last meeting.

Name of the Secretary for 1913.

It is equally necessary that prompt notice be given to the Editor of changes in the Secretaryship of any Society or Association, a matter which is much neglected. Furthermore, information concerning dates on which shows are to be held must be forwarded to the Editor at least six weeks before the Show date. If these suggestions are not complied with, the Society whose Secretary neglects to supply the required information will be liable to be struck off the list of Societies published monthly in the Journal.

Postal Address.	Name of Society.	Name of Secretary.	Show Dates.	
			1914	1915.
Allora ...	Central Downs Agricultural and Horticultural Association	J. C. Marshall ...	17 and 18 Feb.	17 and 18 Feb.
Aloomba, *vid* Cairns	Aloomba Farmers' Association ...	Hugh A. Niven ...		
Amberley ...	Amberley Farmers' Progress Association	J. T. Goldsborough		
Atherton ...	Atherton Agricultural, Pastoral, and Industrial Association	H. McKnight ...		
Atherton ...	Atherton Table Land Agricultural Society	H. McKnight ...	...	22 and 23 Sept.
Ayr	Lower Burdekin Farmers' Association	R. W. Edwards ...		
Ayr	Lower Burdekin Pastoral, Agricultural, and Industrial Association	C. G. M. Boyce ...	11 and 12 June	
Bajool ...	Bajool and Ulam Farmers' Progress Association	A. T. Mitchell ...		
Ban Ban, *vid* Byrnestown	Dundar Branch of the Queensland Farmers' Union	Geo. Gwynne ...		
Barcaldine ...	Barcaldine Pastoral Agricultural and Horticultural Association	W. J. P. Chambers		
Beaudesert ...	Logan and Albert Agricultural and Pastoral Society	M. Selwyn Smith	12 and 13 May	11 and 12 May
Beenleigh ...	Agricultural and Pastoral Society of Southern Queensland	Capt. C. G. Gehrmann	3 and 4 Sept.	23 and 24 Sept.
Beenleigh ...	Logan Farmers' and Industrial Association	Wm. G. Winnett ...		
Beerwah ...	Coochin Creek District Agricultural and Progress Association	E. F. Jones ...		
Belli ...	Belli Creek Farmers' Progress Association	W. E. Neumann ...		
Berwen ...	Haughton River Farmers' Association	James Griffith ...		
Biggenden ...	Biggenden Agricultural and Pastoral Society	C. J. Stephensen ...	9 and 10 July	22 and 23 June
Bin Bin, *vid* Gooroolba	Bin Bin Farmers and Settlers' Association	Milo Burke ...		
Blackall ...	Barcoo Pastoral Society	C. M. Pegler ...		
Blenheim ...	Blenheim and District and Farmers' Progress Association	W. A. Zerner ...		
Blythedale ...	Blythedale Agricultural Progress Association	J. L. Quinn ...		
Boonah ...	Fassifern and Dugandan Agricultural and Pastoral Association	J. McKenzie ...	20 and 21 May	19, 20, and 21 May
Boowoogum...	Brooyar Farmers' Progress Association	Jas. Cahill ...		
Bowen ...	Bowen Farmers' Association... ...	H. Reye		
Bowen ...	Bowen Pastoral, Agricultural and Mining Association	F. Sellars	22, 23, and 24 July	

AGRICULTURAL AND HORTICULTURAL SOCIETIES—*continued.*

Postal Address.	Name of Society.	Name of Secretary.	Show Dates.	
			1914.	1915
Brisbane ...	The Queensland Dairy Herd Book Society	Alfred Gorrie ...		
Brisbane ..	National Agricultural and Industrial Association of Queensland	J. Bain	10 to 15 Aug.	9 to 14 Aug.
Brisbane ...	Queensland Chamber of Agricultural Societies	J. Bain		
Brisbane	Horticultural Society of Queensland	F. W. Woodroffe ...		
Bucca, *viâ* Bundaberg	United Farmers' Association ...	J. H. Hendy ...		
Buderim Mountain	Buderim Branch of the Queensland Farmers' Union	Capt. G. Burrows ..		
Bundaberg ...	Bundaberg Agricultural, Pastoral, and Industrial Society	Redmond Bros. ...	3 and 4 Sept.	9 and 10 Sept.
Bundaberg ...	Canegrowers' Union of Australia (Woongarra Branch)	O. H. Klotz ...		
Bundaberg ...	Woongarra Canegrowers' Association (A.S.P.A. Branch)	G. O. Strathdee ...		
Bunerba, Deeford (*viâ* Westwood)	Bunerba Farmers' Progress Association	H. J. Barnes ...		
*Burrum ...	Burrum District Farmers' and Fruitgrowers' Association	S. E. Tooth ...		
Byrnestown...	Byrnestown Farmers and Dairymen's Progress Association	Geo. H. Bomford ...		
Caboolture ...	Caboolture Pastoral, Agricultural, and Industrial Society	C. V. Hemming ...	1 May	29 and 30 April
Cairns ..	Cairns Agricultural, Pastoral, and Mining Association	H. McMahon ...		
Cairns ...	Cairns Horticultural Society ..	R. Tweedie ...		
Cedar Pocket, Gympie	Cedar Pocket Farmers' Association...	W. A. Fraser ...		
Charleville ..	Central Warrego Pastoral and Agricultural Association	T. C. Fallis ...	4 and 5 May	
Charters Towers	Charters Towers Pastoral, Agricultural, and Mining Association	A. H. Pritchard ...	1 and 2 July	6 to 8 July
Charters Towers	The Towers Horticultural Society ...	Jas. H. Chappel ...	19 and 20 August	25 and 26 August
Chatsworth ...	Chatsworth Combined Farmers' Association	F. W. Johns ...		
Chatsworth ...	Chatsworth Farmers' Progress Association	W. Allen		
Childers ...	Childers Pastoral, Agricultural, and Industrial Society	J. R. Wrench ...	18 and 19 June	10 and 11 June
Childers	Doolbi Canegrowers' Association ...	R S Rankin ..		
Chinchilla ...	Canaga Farmers' Progress Association	G. H. Rochester		
Chinchilla ..	Pelican Farmers and Settlers' Association	H. K. Nevell ...		
Chinchilla ...	Chinchilla Agricultural and Pastoral Association	B. Mackie	14 and 15 April	6 and 7 April
Clermont ...	Peak Downs Pastoral, Agricultural, and Horticultural Society	A. S. Narracott ...	23 and 24 June	
Clifton ..	Darling Downs Pastoral, Agricultural and Industrial Association	S. C. Mott... ...	30 Sept. and 1 Oct.	22 and 23 Sept.
Coochin ...	Coochin Farmers' Progress Association	W. Watson ...		
Cooktown ...	Cooktown District Pastoral, Agricultural, Mining, and Industrial Association	E. A. S. Olive ...	1 and 2 July	
Cooroy ...	Cooroy West Farmers' Progress Association	O. M. Proll ...		
Cooroy ...	Mount Cooroy Progress and Farmers' Association	L. H. Baldwin ...		
Coulsen ..	Coulsen Farmers' Progress Associatio	Gustav A. Lewald		
Coulston, *viâ* Biggenden	Coulston Lakes Branch of the Queensland Farmers' Union	P. E. Britnell ...		
Crow's Nest	Crow's Nest Agricultural, Horticultural, and Industrial Society	James Gleeson ...	28 and 29 April	6 and 7 April
Dalby ...	Northern Downs Pastoral and Agricultural Association	W. R. Hunter ...	26 and 27 May	21 and 22 April

* Monthly meetings held alternately at Burrum and Howard.

AGRICULTURAL AND HORTICULTURAL SOCIETIES—*continued.*

Postal Address.	Name of Society.	Name of Secretary.	Show Dates.	
			1914.	1915.
Dallarnil ...	Dallarnil Farmers and Dairymen's Association	H. J. Piper ...		
Didcot ...	Didcot Farmers and Settlers' Association	Fred. Jones ...		
Deeford, (Dawson Valley)	Dundee Farmers and Settlers' Progress Association	C. G. Young ...		
Degilbo ...	Emu Creek Farmers and Dairymen's Progress Association	J. E. Peterson ...		
Dirran, *viâ* Malanda	Dirran Settlers' Progress Association	Percy G. R. Dutton		
Emerald ...	Emerald Pastoral and Agricultural Society	J. Esmond	...	26 and 27 May
Esk	Esk and Toogoolawah Pastoral, Agricultural, and Industrial Association	Thos. C. Pryde ...	5 and 6 May (at Toogoolawah)	8 and 9 June
Eukey, *viâ* Ballandean	Eukey Farmers and Fruit-growers' Association	H. H. Stanton ...		
Evelyn ..	Millstream Farmers and Settlers' Association	H. R. Gardiner ...		
Fairford ...	Fairford Agricultural and Pastoral Association	H. E. Hollins ...		
Fordsdale, *viâ* Grantham	Fordsdale Farmers' Association ...	W. M. Ridley ...		
Forest Hill ...	Forest Hill Agricultural and Progress Association	J. Stoddart ...		
Gayndah ...	Philpott Creek Farmers' Progress Society	E. P. Earle ...		
Gayndah ...	Pastoral, Industrial, Agricultural, and Horticultural Association	M. C. Stephensen...	9 and 10 June	22 and 23 June
Gayndah ...	Gleneden Branch of the Queensland Farmers' Union	W. S. Morris ...		
Gayndah ...	Gurgeena Farmers' Progress Association	W. G. Leaver ...		
Gayndah ...	Binjour Farmers' Progressive Association	F. G. Hunter ...		
Gin Gin ...	Currajong and Gin Gin Agricultural, Pastoral, and Industrial Society	C. M. Morris ... Ploughing Match	27 and 28 May	17 and 18 June
Gladstone ...	Port Curtis Agricultural, Pastoral, and Mining Association	J. T. W. Brown ...	...	18 and 19 May
Glen Aplin ...	Ballandean Fruitgrowers' Association	W. H. C. Laird ...		
Gooburrum ...	Gooburrum Farmers' and Canegrowers' Association	W. J. Lutin ...		
Goomboorian road *viâ* Gympie)	Ross and Mullin's Creek Farmers' Progress Association	R. E. Kitchen ...		
Goombungee	Goombungee Agricultural, Horticultural and Pastoral Society	J. J. Morgan ...	...	24 March
Goondiwindi	Comoron-Moorobie Farmers' Progress Association	J. Johnston ...		
Goondiwindi	MacIntyre Pastoral and Agricultural Society	E. T. Drake ...	29 and 30 April	
Gooroolba ..	Gooroolba Farmers and Settlers' Progress Association	H. A. Harrison ...		
Grantham ...	Ma Ma Creek Farmers' Progress Association	A. McKenzie ...		
Gympie ...	Agricultural, Mining, and Pastoral Society	F. W. Shepherd ...	9 and 10 Sept.	1 and 2 Sept.
Gympie (Goomboorian road)	The Veteran and Scrubby Creek Farmers' Progress Association	T. T. Ramskill ...		
Hambledon (Cairns)	Hambledon Cane Farmers' Association	F. C. P. Curlewis		
Hawthorn (Daymar Siding)	Weengallon Farmers and Settlers' Progress Association	Laurence A. Seeger		
Helidon ...	Flagstone Creek Branch of the Queensland Farmers' Union	Fred Tuffrey ...		
Herberton ...	Herberton Mining, Pastoral, and Agricultural Association	Richard Barton ...	13 and 14 April	5 and 6 April

AGRICULTURAL AND HORTICULTURAL SOCIETIES—*continued.*

Postal Address.	Name of Society.	Name of Secretary.	Show Dates.	
			1914.	1915.
Hughenden ...	North Western Queensland Pastoral and Agricultural Association	H. P. Blackall ...	11 and 12 May	
Ingham ...	Herbert River Pastoral and Agricultural Association	R. L. Jones ...	4 and 5 Sept.	17 and 18 Sept.
Inglewood ...	Inglewood Agricultural, Pastoral, and Horticultural Society	J. F. Cheshire ...	19 and 2 March	24 and 25 March
Inkerman (Lower Burdekin)	Inkerman Farmers and Graziers' Association	L. M. Osborne ...		
Innisfail ...	Johnstone River Canegrowers and Manufacturers' Association	Ralph Reid ...		
Innisfail ...	Johnstone River Agricultural Society	T. Nesbet		
Ipswich ...	The Queensland Pastoral and Agricultural Society	G. W. Allen ...	27 and 28 May	26 and 27 May
Ipswich ...	Ipswich Horticultural Society ...	Hugh Parkinson ...		
Jackson (Western Line)	Parish Woleebee Settlers' Association	S. C. Griffin ...		
Jardine ...	Jardine Farmers' and Fruitgrowers' Association	R. Lemain		
Juandah ...	Juandah Dairy and Progress Association	R. Bowie		
Kamma (Cairns)	The Cairns Canegrowers' Association	C. V. Hives ...		
Kenilworth, *viâ* Eumundi	Kenilworth Farmers' Association ...	W. Price		
Kenmore ...	Brookfield, Pullen Vale, and Moggill Farmers' Association	F. B. Howard ...		
Kilcoy ...	Kilcoy Pastoral, Agricultural, and Industrial Society	W. E. Reason ...	14 and 15 May	6 and 7 May
Kilkivan ...	Kilkivan Pastoral, Agricultural, and Industrial Association	F. E. Hopkins ...	2 July	9 and 10 June
Killarney ...	Killarney Agricultural Society ...	L. W. Wilkinson ...	...	24 and 25 Feb.
Kingaroy ...	Agricultural, Pastoral, and Industrial Society	R. A. Pearce ...	20 and 21 May	24 and 25 March
Kin Kin, *viâ* Cooran	Kin Kin and District Farmers' Progressive Association	A. C. Stewart ...		
Kooroongarra, *viâ* Inglewood	Kooroongarra Farmers' Progress Association	J. French		
Laidley ...	Farmers' Progress Association ...	G. A. Moulday ...		
Laidley ...	Lockyer Agricultural and Industrial Society	F. Roberts	...	21 and 22 July
Lake Clarendon (*viâ* Gatton)	Lake Clarendon Branch of the Queensland Farmers' Union	W. J. Walton ...		
Lockrose ...	Lockrose and District Farmers' Progress Association	R. W. L. Raymont		
Longreach ...	Longreach Pastoral and Agricultural Society	A. Petersen ...	4 and 5 May	
Lowood ...	Lowood and Tarampa Pastoral and Agricultural Association	W. E. Michel ...	13 and 14 May	11 and 12 May
Mackay ...	Pioneer River Farmers and Graziers' Association	T. J. Leonard ...	23 and 24 June	
Mackay ..	The Pioneer River Farmers and Graziers' Show Association	T. J. Leonard ...	...	22 and 23 June
Macnade, *viâ* Lucinda	Macnade Farmers' Association	E. S. Waller ...		
Malanda ...	Millaa Millaa Settlers' Progress Association	S. S. Buckley ...		
Mapleton ...	Mapleton Fruitgrowers and Farmers' Progress Association	J. G. Smith ...		
Marburg ...	Marburg and District Agricultural and Industrial Association	A. H. Bielefeld ...	2 and 3 June	2 and 3 June
Mareeba ...	Mareeba District Mining, Pastoral, Agricultural, and Industrial Association	W. A. Ferguson ...	25 and 26 May	

AGRICULTURAL AND HORTICULTURAL SOCIETIES—*continued.*

Postal Address.	Name of Society.	Name of Secretary.	Show Dates.	
			1914.	1915.
Maryborough	Wide Bay and Burnett Pastoral and Agricultural Society	H. A. Jones ...	2, 3, and 4 June	1, 2, and 3 June
Miles ...	Miles District Agricultural and Pastoral Society	T. P. Goonan ...	...	21 April
Minehan's Siding, *vid* Townsville	Haughton River Farmers' Association	W. E. G. Smith ...		
Mitchell ...	Maranoa Pastoral, Agricultural, and Industrial Association	Neil Hammond ...	12 and 13 May	11 and 12 May
Mondure, *vid* Wondai	Mondure Farmers and Dairymen's Association	G. E. Compagnoni		
Montville ...	Montville Fruitgrowers and Farmers' Progress Association	F. W. Thompson ...		
Mooloolah ...	Mooloolah and Glenview Farmers' Progress Association	William Ellison ...		
Mount Larcom (Gladstone)	Wilmott Farmers' Progress Association	J. J. Kelly... ...		
Mount Larcom	Mount Larcom Farmers' and Canegrowers' Association	R. R. Nöthling ...		
Mt. Marshall, *vid* Allora	Mount Marshall Farmers' Progress Association	J. Rooney		
Mullet Creek	Mullet Creek Farmers' Association ..	G. Lee		
Mundubbera	Mundubbera Farmers and Settlers' Progress Association	W. G. Parker ...		
Mundubbera	Mundubbera Pocket Farmers' Association	E. Canty		
Murgon ...	Murgon Branch of the Queensland Farmers' Union	W. D. Davidson ...		
Murray's Creek	Murray and Baffle Creek Progress and Farmers' Association	T. J. Gee ...		
Nambour ...	Maroochy Pastoral, Agricultural, Horticultural, and Industrial Society	A. H. Bushnell ...	8 and 9 July	21 and 22 July
Nambour ...	Bli Bli Farmers and Fruitgrowers' Progress Association	F. Pashen		
Nanango ...	Nanango Agricultural, Pastoral, and Mining Society	W. Selby	27 and 28 May	23 and 24 Sept.
Nerang ...	Southern Queensland and Border Agriculturaland Pastoral Association	Edgar J. Foote ...		
North Arm, N. C. Railway	North Arm Farmers' Progress Association	J. F. Fountain ...		
North Pine ...	The Pine Rivers Agricultural, Horticultural, and Industrial Association	G. W. Armstrong...	25 and 26 June	25 and 26 June
Oakey ...	Oakey Agricultural and Pastoral Society	Alan B. Stanley ...	9 Sept.	
Okeden, *vid* Wondai	Proston, Okeden, and Wigtoun Settlers' Association	R. McNamara ...		
Oman-ama ...	Redbank Farmers' Progress Association	W. K. Ison ...		
Palmwoods ...	Queensland Farmers' Union (Palmwoods Branch)	W. Browne ...		
Palmwoods ...	Palmwoods Progress and Fruitgrowers' Association	Hugh McVair McKay		
Pickanjennie	Pickanjenme Farmers' Progress Association	J. Proud		
Pittsworth ...	Pittsworth Pastoral, Agricultural, and Horticultural Association	W. O. Hare ...	28 Jan.	27 Jan.
Pomona ...	Noosa Agricultural, Horticultural, and Industrial Society	W. B. Smith ...	4 and 5 Nov.	17 and 18 Nov.
Proserpine ...	Proserpine Farmers and Canegrowers' Association	W. B. Caswell ...	17 July	
Ravenshoe ...	Ravenshoe Farmers and Graziers' Progress Association	W. R. Soilleux ...		
Roche Creek, *vid* Miles	Roche Creek Farmers' Progress Association	G. F. Smith ...		
Rockhampton	Alton Downs Farmers' Association...	G. T. Crook ...		

AGRICULTURAL AND HORTICULTURAL SOCIETIES—*continued.*

Postal Address.	Name of Society.	Name of Secretary.	Show Dates.	
			1914.	1915.
Rockhampton	Rockhampton Agricultural Society...	H. Hill	18, 19, and 20 June	27, 28, and 29 May
Rockhampton	Jardine Farmers and Fruitgrowers' Progress Association	R. Lamain ...		
Rockhampton	Fitzroy Farmers' Progress Association	T. Ritchie		
Roma	Western Pastoral and Agricultural Association of Queensland	H. M. Campbell ...	19 and 20 May	20 and 21 July
Roma ...	Euthulla and Upper Bungil Farmers and Settlers' Association	John J. Maun ...		
Rosewood ...	Rosewood Agricultural and Horticultural Association	A. J. Loveday ...	29 and 30 July	28 and 29 July
Sexton ...	Sexton Farmers and Settlers' Progress Association	W. K. Harvey ...		
Speedwell, *viâ* Stalworth	Speedwell Farmers' Progress Association	Aubray U. Potter		
Springsure ...	Springsure Pastoral and Agricultural Society	W. Fisher	13 and 14 May	12 and 13 May
St. George ...	Balonne Pastoral and Agricultural Association	Mark Roberts ...		
Stanthorpe ...	Stanthorpe Agricultural Society ...	A. E. Bateman ...	...	3, 4, and 5 Feb.
Tabragalba ...	Tabragalba and Canungra Farmers' Progress Association	A R. Ludwig ...		
Takura, *viâ* Maryboro'	Takura Farmers' Union	S. E. Tooth ...		
Teutoberg ...	Teutoberg Farmers' Progress Association	E. H. Ochmichen ...		
The Caves, *viâ* Rockhampton	Mount Etna Farmers and Selectors' Progress Association	Geo. Smith ...		
The Gums, *viâ* Tara	The Gums and Horse Creek Pastoral and Agricultural Association	Arthur Henry ...		
Tolga ...	Tolga Forest Farmers' Union ...	H. Northey ...		
Toowoomba...	Royal Agricultural Society of Queensland	G. Noble	21 to 23 April	13, 14, and 15 April
Toowoomba...	Toowoomba White Growers' Association	A. C. Salmon ...		
Townsville ...	Townsville Pastoral, Agricultural, and Industrial Association	J. N. Parkes ...	14 and 15 July	29 and 30 June
Wallumbilla	Wallumbilla Farmers' Association ...	H. A. Watson ...		
Warwick ...	Eastern Downs Horticultural and Agricultural Association	F. H. Selke ...	10 to 12 Feb.	9, 10, 11, & 12 Feb.
Wellington Point	Wellington Point Agricultural, Horticultural, and Industrial Association	E. Ziegenfusz ...	4 July	
Wondai ...	Wondai Agricultural, Pastoral, and Industrial Society	H. J. Compagnoni	13 and 14 May	26 and 27 May
Wondalli, *viâ* Goondiwindi	Wondalli-Yelarbon Farmers' Progress Association	L. C. G. Cameron		
Woodend ...	Warren-Woodend Farmers' Club ...	W. Lehfeld ...		
Woodford ...	Woodford Agricultural, Pastoral, and Industrial Society	G. H. Osmond ...	28 and 29 May	22 and 23 April
Woombye ...	North Coast Agricultural and Horticultural Society	E. E. McNall ...	10 and 11 June	23 and 24 June
Woombye ...	Woombye Fruitgrowers' and Progress Association	J. Howe		
Woongarra ...	Woongarra Canegrowers and Farmers' Union	H. A. Cattermull...		
Woowoonga Scrub	Woowoonga Farmers and Canegrowers' Association	Thos. Wilkins ...		
Yandina ...	Maroochy River Farmers' Union and Progress Association	W. R. Braydon ...		
Yandina Creek *viâ* North Arm, N.C. Line	Yandina Creek Farmers and Settlers' Progress Association	J. D. Benfer ...		
Yingerbay ...	Yingerbay Dairymen and Farmers' Association	R. Frederick ...		
Zillmere ...	Zillmere Agricultural, Horticultural, and Industrial Society	Arthur B. Marquis	3 Oct.	18 Sept.

Departmental Announcements.

The Editor will be glad to receive any papers of special merit which may be read at meetings of Agricultural and Pastoral Associations in Queensland, reserving, however, the right to decide whether their value and importance will justify their publication.

Secretaries of Associations are requested to be good enough to forward to the Editor, as early as possible, the dates of forthcoming Shows, as it is important in the interests of the Associations that these dates should be published.

It is equally necessary that prompt notice be given to the Editor of changes in the Secretaryship of any Society or Association, a matter which is much neglected. Furthermore, information concerning dates on which shows are to be held must be forwarded to the Editor at least six weeks before the Show date. If these suggestions are not complied with, the Society whose Secretary neglects to supply the required information will be liable to be struck off the list of Societies published monthly in the Journal.

To enable recipients of the *Queensland Agricultural Journal* to have the half-yearly volume bound, Covers in Boards and Cloth will be supplied from this Office on application to the Under Secretary for Agriculture. Applications must be accompanied by a remittance to cover cost. Covers will be supplied at ONE SHILLING and ONE SHILLING AND NINEPENCE each.

In order to avoid disappointment, correspondents who wish for replies to questions in the Journal are requested to note that it is imperative that all matter for publication on the first day of any month should reach the Editor by the 15th of the previous month.

Persons desiring to communicate with the Queensland Agricultural College and State Farms are requested to address their correspondence to the Principal of the College, Gatton, and to the Managers of the State Farms. The State Farms are: Hermitage (Warwick), Gindie (*viâ* Springsure), Warren (Stanwell), Bungeworgorai (Roma), Kairi (Tolga), Kamerunga State Nursery (Cairns).

We would ask our Subscribers to note that, when their Subscription has run out, a RED CROSS is placed against the Order Form. It often happens that this intimation is disregarded, with the result that the JOURNAL is NOT POSTED to the Subscriber. The Department cannot guarantee to supply back numbers in such cases.

It is notified, for the information of intending Visitors to the Queensland Agricultural College, that the Second Wednesday in each month has been set apart for the reception of Parties of Farmers and others desirous of inspecting the Institution. Supplies of hot water and milk can be obtained at the College, if desired.

The Department has now prepared a booklet on "Flower Gardening for Amateurs," which may be obtained on application to the Under Secretary for Agriculture and Stock. Price, TWO SHILLINGS.

PAMPHLETS on different subjects relating to Agriculture, Horticulture, and Stock are issued by the Department, and may be obtained gratis, on application to the Under Secretary.

NOTICE OF SHOW DATES.

We wish to draw the attention of Secretaries of Agricultural and Pastoral Societies and Associations to the importance of promptly notifying the Editor of any change in the dates on which shows are to be held.

NOTICE.

All communications in connection with the Journal, inquiries, &c., should be addressed to " The Editor " only. Letters addressed personally are liable to delay in reply.

No replies can be given to Anonymous letters. The writers are requested to sign their communications, not necessarily for publication.

QUEENSLAND AGRICULTURAL COLLEGE, GATTON.

FOR SALE.

GRASS ROOTS.—Paspalum, Rhodes, and African Wonder.

POULTRY DEPARTMENT.

The College has for sale Poultry of the following breeds:—Brown Leghorn, White Leghorn, Silver-Grey Dorking, Indian Game, Plymouth Rock, Black Orpington, Buff Orpington, Silver-Laced Wyandotte, and White Wyandotte.

PRICES.

Cockerels, 10s., 15s., and 21s., f.o.b., Gatton.

Pairs—Cockerel and Pullet—30s. and 42s., f.o.b., Gatton.

Trios—Cockerel and Two Pullets—42s. and 63s., f.o.b., Gatton.

Prices vary, as above stated, according to quality. Additional charges of 2s. for a single bird and 1s. for each additional bird will be incurred by purchasers who fail to return crates promptly.

Eggs of the above breeds are offered for sale during the season, 1st July to 30th November. Price, 10s. per setting of twelve, F.O.B., Gatton. Nine eggs in each setting are guaranteed fertile. Should less than nine prove to be fertile, the infertiles will be replaced, if returned, carriage paid, and unbroken.

(N.B.—An infertile egg is uniformly translucent when held up to a strong light. Settings should be allowed to settle 24 hours before being placed under the hen.)

In cases where eggs cannot be sent otherwise than by parcel post, sixteen eggs will be sent to a setting, and no responsibility will be taken in connection with the replacing of any eggs which fail to hatch.

Applications for birds or eggs should be accompanied by remittance and addressed to the Principal, Agricultural College, Gatton.

The following Stud Animals are available for Service at the College Farm:—

AYRSHIRE—

Netherton King George, Imported. Sire: Netherton King Arthur. Dam: Midland Young Greenfield.

SHORTHORN BULL—

Bloomer of Darbalara. Sire: Emblem of Darbalara, 100 M.S.H.B. Dam: Lucy II., 1038 M.S.H.B.

Sows may be served also by imported Berkshire, British Large Black, and Yorkshire Pigs, at a charge of 5s. for each service.

Consequent on the numerous orders on hand for Pigs for forward delivery, it will be several months before there is any likelihood of fresh orders being filled.

A charge of TWO SHILLINGS and SIXPENCE will be made if Sows are left at the College for three weeks, for second service if required, for the keep of each animal.

Orders will be accepted after the 1st January, 1915, for BERKSHIRE and YORKSHIRE BOARS. It will, however, be some months before orders for Sows of either breed can be booked.

J. BROWN, Principal.

FOR SALE.

GRASS ROOTS.—Paspalum and Rhodes Grass at 2s. 6d. per sack. F.O.B., Gatton.

Applicants will be supplied on receipt of remittance to the amount of the Order.

Japanese Millet Seed. Price, 3d. per lb., or 25s. per cwt. F.O.B., Gatton.

There are no other Farm Seeds or Produce at present for Sale at the College.

QUEENSLAND AGRICULTURAL COLLEGE.

The College, which is situated within 4 miles of Gatton and 1 mile from the College Railway Siding, comprises 1,692 acres, and the buildings can accommodate 60 Students.

TERMS.

TWENTY-SEVEN POUNDS per annum, paid half-yearly in advance. Students are also charged One Pound per annum each for medical attendance, the sports fund, and for guarantee fee.

The course of instruction includes PRACTICAL AGRICULTURE in all its branches, DAIRYING, GARDENING, STOCK-BREEDING, and MECHANICAL ARTS. Classes are also held daily for THEORETICAL INSTRUCTION in these branches, as well as in SURVEYING, CHEMISTRY, &c.

The College Calendar, giving full particulars, may be obtained on application to the Principal at the College, or to the Under Secretary for Agriculture and Stock, Brisbane.

BURSARIES.

Four bursaries are given annually. An examination for these is held in December of each year. Bursaries will be awarded upon the following conditions:—Candidates (males) to be from fifteen to eighteen years of age, of sound constitution, and in good health; they must have resided in the State for the two years immediately preceding the time of their examination for such bursary; or their parents must have resided in the State three years immediately preceding such examination. The bursar is entitled—subject to good behaviour and the pleasure of Parliament—to free board and instruction as a resident student for a period of three years. He is required to take up his residence at the College within one month of the publication of the results of the examination; otherwise he forfeits his right to a bursary.

The AGE of CANDIDATES for Admission to the College as Students is Fourteen Years.

Full particulars and conditions on application to

THE UNDER SECRETARY,
Department of Agriculture and Stock, Brisbane.

STATE FARM, KAIRI, N.Q.

FOR SALE.

ORDERS accepted for JERSEY and AYRSHIRE BULLS as at six months old; BERKSHIRE PIGS as at six weeks old; and BUFF ORPINGTON COCKERELS. Conditions: Stock to be paid for and delivery taken at the Farm.

Those desirous of obtaining Stock from this Farm should apply to the Manager, from whom all particulars can be obtained.

D. MACPHERSON,
Manager.

STATE FARM, WARREN.

STOCK FOR SALE.

Young AYRSHIRE BULLS. Prices and particulars on application.

Young BERKSHIRE BOARS AND SOWS. Prices: Boars, £2 2s.; Sows, £1 1s. F.O.B., Warren. Crates returned.

Roots of the following Grasses for sale at 2s. 6d. per sack. F.O.B., Warren:—

RHODES. PASPALUM. GIANT COUCH.

THOS. JONES, Manager.

FOR SERVICE AT WARREN STATE FARM.

The Imported CLYDESDALE STALLION, "SIR GEORGE." Fee: £2 2s. per mare; and 1s. per week agistment.

AYRSHIRE DAIRY BULL, "NAOMI'S ARTHUR." Fee: 5s. per cow; and 6d. per week agistment.

TWO IMPORTED BERKSHIRE BOARS—"Peterkin W." and "Flockmaster." Fee: 5s. per sow; and 1s. per week agistment.

THOS. JONES, Manager.

ROMA STATE FARM, BUNGEWORGORAI.

FOR SERVICE.

Imported Ayrshire Bull, ARNESS SUPREME; FEE, FIVE SHILLINGS per cow. Agistment, 6d. per week.

Pure Ayrshire Bull Calves from SIX GUINEAS each.

SEEDS AVAILABLE—

SORGHUM—Favorita. A limited quantity at 6d. per lb.
TEFF GRASS SEED, 2s. per lb.
RED KAFIR, 3d. per lb. A limited quantity.
SETARIA, 6d. per lb.
Plants of Rhodes Grass, ONE SHILLING per Sack.

CUTTINGS—

Orders for Vine Cuttings will be received until the end of June.
Price: Table Varieties, 4s. per 100, or 3)s. per 1,00).
Wine Varieties, 3s. per 100, or £1 per 1,000.

COTTON.

—:o:—

The Department of Agriculture and Stock is prepared to receive RAW COTTON, gin, and market it on owner's account. An advance of 1½d. a lb. 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.

TO FARMERS.

—:o:—

From Farmers wishing to effect Sale, Purchase, or Exchange of Live Stock, Produce, or Farm Implements, ADVERTISEMENTS will be accepted at a Minimum Charge, per issue, of THREE SHILLINGS for 25 WORDS. Extra Words will be charged for at the rate of ONE PENNY PER WORD. Remittance must be forwarded with the Advertisement.

PURCHASE OF STOCK AND PRODUCE FROM THE DEPARTMENT OF AGRICULTURE.

—:o:—

Purchasers of Stock and Produce, Plants, Seed, &c., from the State Farms and Agricultural College are reminded that Sales from these Institutions are made for Cash only. Persons desirous of making purchases should, therefore, first ascertain the cost of whatever articles they desire to obtain, and remit the full purchase-money when sending an order.

BLACKLEG VACCINE.

DOUBLE VACCINE (powder form) for the PREVENTION of BLACKLEG is now prepared by the Department of Agriculture and Stock, and may be obtained in Tubes containing not less than Ten Doses, at a cost of 3s. per Ten Double Doses.

Full Instructions for Use are sent with the Vaccine.

Applications for same must be accompanied by Remittance, and addressed to:—

THE GOVERNMENT BACTERIOLOGIST,
STOCK EXPERIMENT STATION,
YEERONGPILLY,
NEAR BRISBANE.

Department of Agriculture and Stock, Queensland.

"The Fruit Cases Act of 1912."

Attention is drawn to the Regulations under this Act which come into force on the 1st June, 1915, and it is notified that on and after that date fruit that is sold in cases or is exported to any place within the Commonwealth must be in cases of the dimensions mentioned below. Bananas are excepted from the operations of the Queensland Act.

The sizes of the fruit cases required in New South Wales are of the same dimensions as those in the Queensland Act. The New South Wales Regulations are already in force.

Any case must be of one of the following **inside** measurements, **clear of any divisions.**

	LENGTH. inches.	DEPTH. inches.	WIDTH. inches
(1) 1 bushel	18	$14\frac{1}{4}$	$8\frac{3}{3}$
(2) do.	26	$14\frac{1}{4}$	6
(3) do.	20	10	$11\frac{1}{8}$
(4) $\frac{1}{2}$ bushel	18	$7\frac{1}{8}$	$8\frac{3}{3}$
(5) do.	26	$7\frac{1}{8}$	6
(6) do.	18	$5\frac{1}{4}$	$11\frac{3}{4}$
(7) $\frac{1}{4}$ bushel	$13\frac{3}{4}$	4	$10\frac{1}{8}$
(8) Tropical Fruit Case (for Pineapples, etc.)	$24\frac{3}{4}$	12	12

New or Clean Cases.

1. All cases for the Queensland trade must be new or clean and free from insect or fungus diseases.

2. New cases only must be used for fruit exported to any of the other Australian States.

Case to show Maker's Name, Address, and Guarantee.

Every case, whether the fruit is for sale in Queensland or in another Australian State, must have legibly and durably on one end of the outside of the case:—

1. The name and address of the packer of the case.
2. The words "guaranteed by packer to contain 1 Imperial bushel" or as the size of the case may warrant.

In the case of the Tropical Fruit Case the guarantee should be—"Guaranteed by maker to contain not less than 3,564 cubic inches."

The above name, address, and guarantee should be at least 5 inches long and 2 inches wide.

Exception.

The Act will not apply to the sale of fruit sold in trays, baskets, casks, or buckets, or to crates which contain trays of fruit. Fruit so packed, however, must have marked on the package the weight or number of its contents.

Contraventions.

Penalties are provided for persons who—

1. Pack fruit for the Queensland trade in disease-affected cases.
2. Export fruit to another Australian State in second-hand cases.
3. Obstruct or refuse to give information to an Inspector who is carrying out the Act.
4. Place an incorrect guarantee on a case.
5. Export fruit in a case carrying an incorrect guarantee.
6. Alter the size of a case bearing the packer's name, address, and guarantee.
7. Interfere with the packer's name, address, or guarantee on the case.

ERNEST G. E. SCRIVEN,
Under Secretary.

19th April, 1915.

By Authority: ANTHONY JAMES CUMMING, Government Printer, Brisbane.