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DEPARTMENT OF AGRICULTURE



QUEENSLAND AGRICULTURAL JOURNAL

*Linseed Variety Trial, Ayr Regional
Experiment Station.*

LEADING FEATURES

Hybrid Maize
Cabbages and Cauliflowers
Codling Moth Control
Automatic Feed Hopper

Infectious Pneumonia of Pigs
Yellow-wood Poisoning
Bacon Pig
Butter and Cheese Production

QUEENSLAND AGRICULTURAL JOURNAL

Edited by
C. W. WINDERS, B.Sc.Agr



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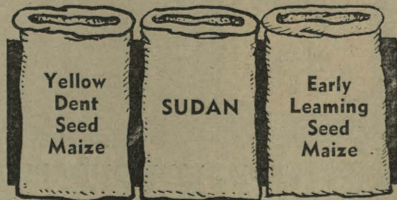
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Queensland Certified Hybrid Maize.

Part 3. Summary of Rules.

F. B. COLEMAN, Standards Officer and Registrar, Seed Certification.

THE *Seeds Acts*, 1937 to 1941, provide machinery for the certification of seeds for sowing; a summary of the legislation, including regulations and rules, relating to the production of certified hybrid maize seed, follows.

General.

The purpose of certification of hybrid maize seed is to make provision for the production of seed for sowing of known purity of hybrid and freedom from specified diseases. To further this purpose, the Acts provide for the formation of a Committee which may regulate and control the planting, growing and harvesting of crops for the purpose of producing certified seed. The Committee is assisted by a Hybrid Maize Seed Certification Sub-committee.

The Committee has power to register an area of land for the growing of seed for certification and to approve or disapprove of the resultant crop. It may determine the procedure to be carried out in its production and, if satisfied as to the quality of the seed, authorise its certification.

As mentioned in Part 1, before being included in the seed certification scheme a hybrid must show, in official tests conducted by seed certification officers over a period of at least 3 years, an increase of not less than 15 per cent. in yield of grain over the better open-pollinated varieties, except where a hybrid merits its inclusion for a special purpose such as early maturity. The hybrid must also at least equal the average of the better open-pollinated varieties in resistance to lodging and disease. The Committee examines all performance records.

At present the following hybrids are eligible for certification:—Q23, Q431, Q462, Q467, Q499, Q629, Q658, Q692 (all of which are late maturing), and Q440, Q716, Q717, Q724, Q739, Q789, Q793, which are mid-season hybrids.

Probationary Grower.

Before a grower engages in the production of hybrid maize seed, he has to serve a probationary period of one season. He is required to sow, cultivate, detassel and harvest efficiently a crossing plot of approximately one-quarter of an acre and provide, without cost, not less than twelve ear samples from each parent.

In the next season, if he plants seed from his probationary plot, he uses only seed produced on the ear parent. Where a firm, partnership, company, association or other organisation desires to produce hybrid maize seed, it has to nominate a person to serve the period of probation; this person is then personally responsible for the production of hybrid maize seed by the organisation, and must be present as an active supervisor at all operations. Hybrid maize seed produced by a probationary grower will not be certified, and may not be sold or given away.

Any person who, under the supervision of a commercial grower, has been engaged in the duties necessary for the production of two crops of hybrid maize may with the approval of the Committee serve his probationary period on a portion of an area registered for the production of commercial hybrid maize and the product of such area may be sold.

More than one person associated with a producer may be nominated as a probationary grower, but each person must serve his probationary period separately.

The number of probationary growers accepted for training may have at times to be limited to the number that can be handled effectively by the available Departmental staff.

Home Producer.

Any person who has served a satisfactory probationary period and desires to produce hybrid maize seed for his own sowing only is termed a home producer. He will normally be supplied with only enough seed to sow a half-acre crossing plot, but, in special circumstances, he may be granted a larger allocation. Hybrid maize produced by a home producer will not be certified and may neither be sold nor given away.

Commercial Producer.

Any person who has satisfactorily passed his period of probation and who produces certified hybrid maize seed for sale is termed a commercial producer.

Application for Registration of an Area.

An application form for the registration of an area for the growing of certified hybrid maize should, when completed, be forwarded to the nearest seed certification officer. However, an area of land will not be registered unless Departmental supervision can be adequately carried out and the crop satisfactorily grown. The closing date for the receipt of an application for the registration of an area under this scheme is 1st October.

Eligibility of Land.

Registration of land will be refused if it is infested with prohibited plants and/or diseases. It will be rejected also if it carried any maize during the previous season.

Isolation.

A crop will be rejected for purposes of certification if it is grown within 20 chains of any maize, other than the pollen parent, that is producing pollen while receptive silks are still present on the ear parent plants of the crossing plot. This includes the elimination of all volunteer maize plants within the area of isolation and consequently may involve some co-operation with neighbours.

Seed Origin and Treatment.

The seed used for sowing registered areas for the production of hybrid maize seed for certification will be supplied by the Committee through its agent, the Plant Breeder at the Agricultural College, Lawes.

The Committee has power to refuse to supply any grower with parent seed for the production of hybrid maize seed, in the event of a grower doing any of those things which he has contracted not to do. These include the sale of ear parent seed by a grower on probation or a home producer; the sale of seed from pollen rows as seed for sowing except as directed by the Committee; the harvesting for certification of ears from the pollen rows above a certain limit; continuing to detassel plants or process maize seed from a field that has been rejected; removal of seed from a grower's premises before it has been certified; and sale or distribution for sowing of any seed from a crossing field that has been rejected for certification.

Notice Required from Growers.

A grower is required to give to the seed certification officer supervising his crop not less than four days notice before flowering is anticipated and before he intends to harvest, shell, thresh, clean, machine-dress or pack.

Inspections.

Inspections are made by seed certification officers before registration, approximately six weeks after the planting of the crossing plot, and at least twice during the flowering period.

An inspector or seed certification officer has power to enter and inspect any area for which an application for registration has been made; he may make a plan of the area to be sown and the surrounding land, and inspect any area which has been registered for the purpose of producing certified seed. He may also inspect the crop and all operations connected with the production of certified seed, remove for examination or analysis any samples of any plants or parts thereof, and have removed and destroyed all plants which may render the crop ineligible for certification.

Crop Rejection.

A crop will be rejected for certification if it does not satisfy all the requirements laid down, or if all plants showing undesirable varietal characteristics have not been rogued out. If weed growth prevents the inspecting officer from making a thorough inspection of the crop, or is likely to impair the quality and/or purity of the seed, the crop will also be rejected.

Where the incidence of disease exceeds the tolerance laid down for any specified disease, or would adversely affect the yield or quality of the seed, the crop is rejected for certification.

Where cultural and fertilizer practices and pest and disease control have not been carried out in accordance with instructions, and plants removed for reasons of disease incidence are not treated as directed, the crop will also be rejected.

Where severe lodging and tangling, due to storm, straying stock or any other cause, render it impossible to identify different parents in any portion of the area, the seed certification officer may order the

grower to cut and remove all plants in such portion, so that the remainder of the crop may be certified if all other matters are in order. In all other cases rejection will apply to all of the area registered.

A crop is rejected for purposes of certification if all tassels on the ear plants have not been removed daily. This is done preferably during the morning, before they have begun to shed pollen. If more than one per cent. of tassels on the ear plants are shedding pollen at any one inspection, or more than two per cent. for all inspections, the crop is rejected. Each sucker tassel on the ear plants shedding pollen counts as one tassel and each incomplete tassel on the ear plants, part of which has been removed, if shedding pollen counts as one-half of one tassel.

The number of ear plants that have pollinated is ascertained by counting 20 stalks per row in five seed rows, moving in a diagonal direction from row to row until 100 plants have been counted. Five separate counts of 100 plants are made, each covering approximately one-fifth of the field.

Pollen parent plants must be sown in separate rows from the ear parent plants in crossing fields, and at least two border rows of the pollen parent are to be grown on each side of the crossing plot, otherwise the crop will be rejected. Pollen rows, including border rows, must be distinctly marked at both ends of the field.

Rejection will also result when any off-type or doubtful plants have not been rogued before they shed pollen, or if the number of ears missing from the pollen rows exceeds $\frac{1}{2}$ per cent. at the time of the field inspection immediately prior to shelling, but this does not apply when pollen rows and stray ears are harvested first.

Harvesting.

The harvesting, threshing, cleaning, treating, machine dressing and packing of the seed, wherever applicable, is carried out under the supervision of and to the satisfaction of an inspector or seed certification officer. Machines suitable for the purpose are those which can be effectively and rapidly cleaned.

All ears from the ear rows are harvested first, and all ears from the pollen rows and dropped ears left in the field until all bags containing seed from the ear rows have been sealed. Alternatively, all pollen rows and stray ears may be harvested first and isolated in accordance with the directions of the seed certification officer so that all possibility of mixing is eliminated.

All ears from the ear rows are culled, so as to ensure that any off-types and all kernels affected by disease and/or insect attack are rejected. Removal of butts and tips is not imperative.

Where shelling takes place, all other maize is either removed or sealed up. The sheller must be thoroughly cleaned, particular attention being paid to ensure the absence of other seeds. The bags are sewn and sealed as they come from the sheller. Temporary labels are used for identification purposes pending purity and germination tests.

Where it is necessary for the seed to be cleaned or machine dressed at a place other than on the property on which it was produced, the packages containing such seed are sealed by a seed certification officer prior to despatch. After arrival at their destination, the packages are opened and the seed cleaned or machine dressed, packed, sealed and

labelled under the supervision of an inspector or seed certification officer. The seed is not available for sale until the final labels are affixed by a seed certification officer.

All seed for certification has to be stored under approved conditions, and certified seed is packed only in clean, sound packages.

At all stages between harvesting and packaging, precautions are taken to avoid contamination likely to impair the purity of the seeds.

Where required, the grower sells seed maize from the pollen rows of crossing plots for use by the Committee at an agreed rate.

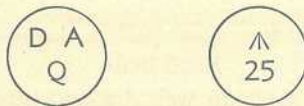
General Standard.

Before any seed is certified it must conform in all respects to the standards prescribed by *The Seeds Acts, 1937 to 1941* (Queensland). The prescribed minimum germination is 80 per cent. However, notwithstanding the fact that the seed conforms to the standards prescribed by the Seeds Acts, such seed must be free from impurities which can be reasonably removed.

Identity of Certified Seed.

Every package of certified hybrid maize seed can be easily identified by the following:—

All packages are sealed with a lead seal impressed as follows*



All packages have attached to them a printed certification label which is supplied by the Department. The label shows:—

- The hybrid;
- Districts for which it is recommended;
- Season grown;
- Registered area number;
- Sample number;
- Date;
- Signature of the seed certification officer.

Irrespective of origin, seed contained in open packages must not be sold or offered for sale as certified seed.

Sale of Certified Seed.

The Department of Agriculture and Stock does not undertake to arrange for the sale of certified seed.

The names and addresses of growers of certified hybrid maize are available on application to the Department of Agriculture and Stock or the Plant Breeder, Queensland Agricultural College, Lawes.

Costs.

The cost of field inspections required in hybrid maize seed certification is borne by the Department of Agriculture and Stock.

*The number identifies the seed certification officer.



Cabbage, Cauliflower, and Related Crops.

R. L. PREST, Senior Adviser in Horticulture.

THE cruciferous crops are of considerable importance economically. Some of the cultivated species grown as vegetables in Queensland are cabbage, cauliflower, broccoli, kale, Brussels sprouts, Chinese cabbage and kohlrabi. All require the same general treatment in the field. With the exception of kohlrabi, which is sown direct in the field, the seedlings are usually raised in seed boxes or beds and later transplanted.

Seed-beds.

The seed should be sown in well-drained seed-beds with a deep and thoroughly worked soil. Seed-beds should only be moderately fertile, otherwise the young plants do not develop a good root system and are soft and difficult to transplant. If on the other hand the soil is very poor, a small quantity of fertilizer may be added to it about a week before sowing the seed.

After smoothing the surface with a rake, the bed should be firmed with a flat board, and the seed then sown thinly in shallow drills, not more than half an inch in depth and about four inches apart. After sowing the seed, the surface of the bed should be mulched with well-rotted leaf mould or old manure, or covered with bags, in order to retain the moisture in the soil and germinate the seed quickly and evenly. If bags are used, they should be removed immediately the young plants show above the ground.

The young seedlings germinate in three or four days in warm weather but take from two to three weeks during colder months. Approximately five to seven ounces of cabbage seed and four to six ounces of cauliflower seed provide enough plants for one acre.

Seed-beds should be watered regularly, otherwise the growth of the young seedlings will be checked. When large enough to handle, the seedlings may be thinned to about half an inch apart; if allowed to grow thickly they develop into long, spindly, weak plants.

If it is very hot during the middle of the day, shading may be necessary, but the covers should be removed as soon as the plants are strong enough to withstand the heat. Over-shading produces plants which are soft and difficult to transplant.

TRANSPLANTING.

In from three to six weeks, according to the time of the year, the young plants should be large enough for transplanting. About a day or two before transplanting, they should be hardened off by withholding water. Immediately before transplanting, however, the plants may be given a good watering as this will facilitate their removal from the seed-bed without excessive injury to the young rootlets. For preference, transplanting should be done during cloudy or showery weather. If weather conditions are unfavourable, the young seedlings should be watered in. As a further precaution, particularly if the plants are large, the top half of the leaves may be cut off to lessen transpiration until the new root system is firmly established. During transplanting, the roots of the young plants should be kept damp by standing them in a bucket containing a puddle of soil and water, or alternatively by keeping them in shallow trays which can be covered with wet bags.

In planting, a hole is first made in the ground with a small hoe or by hand, and this should be deep enough to allow the roots of the seedling to reach the bottom. A little earth is turned in and the plant then drawn slightly upwards before pressing the soil firmly around it. This ensures that the main root is not doubled up.

FERTILIZING.

The application of fertilizers ensures quick growth of cruciferous crops. There are a number of complete fertilizers on the market which have proved satisfactory.

A 5-12-5 or similar mixture containing a fair proportion of organic matter such as blood and bone is recommended as a basal dressing. The rate of application varies in different districts, and actually on different farms—each experienced grower has his own views on the matter—but 10 to 15 cwt. to the acre is a suitable dressing on most soils. The fertilizer is broadcast along the rows where seedlings will be planted later and scuffed in a week or more before transplanting.

About four to six weeks after field planting, a side dressing of from 8 to 10 cwt. to the acre of a quick-acting complete fertilizer with a formula somewhat similar to that used for the basal dressing may be given. At hearting, a dressing of 2 to 3 cwt. per acre of sulphate of ammonia or nitrate of soda is desirable.

Cruciferous crops should be grown quickly without any check in the field, and this demands regular cultivation, frequent watering in dry weather, and correct fertilizer usage.

The following table of approximately equivalent quantities of manures may be used by the small grower:—

Per Acre.	Per Sq. Perch.	Per Sq. Yard.
	lb.	oz.
1 ton	14	8
$\frac{1}{2}$ ton	7	4
5 cwt.	$3\frac{1}{2}$	2
4 cwt.	$2\frac{3}{4}$	$1\frac{1}{2}$
3 cwt.	2	1
2 cwt.	$1\frac{1}{2}$	$\frac{3}{4}$

CABBAGE.

Climatic and Soil Requirements.

The cabbage is a cool climate crop and makes its best development in those localities where it can grow to maturity under temperate conditions. In coastal Queensland, it is mainly a winter crop, but the season of production has been considerably extended by the introduction of suitable varieties.

In the cooler climate of the Granite Belt, cabbage is grown as a summer crop; in south-eastern and metropolitan areas near the coast (Plate 206) the crop is grown all the year with the exception of the hot summer months; in central and north Queensland the cropping period extends from late autumn to spring.

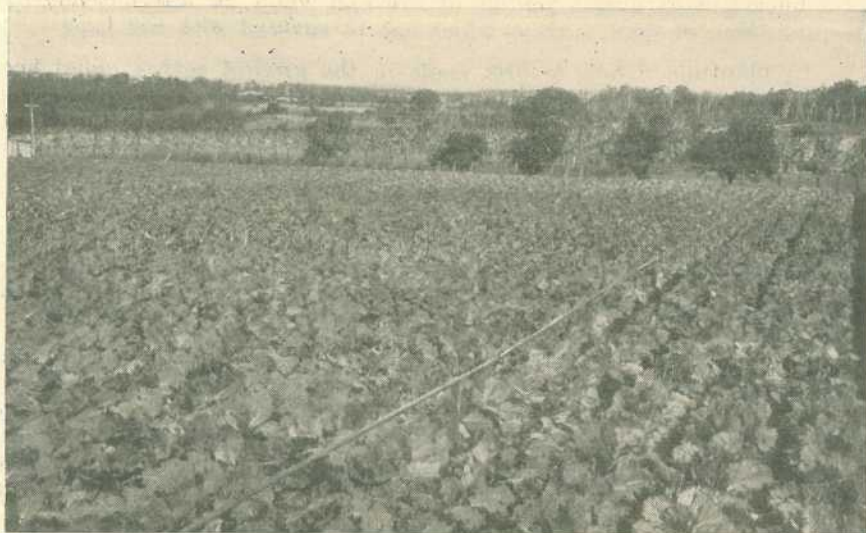


Plate 206.

A Field of Well-grown Cabbage at Redland Bay, near Brisbane. Note the overhead irrigation line.

Spacing.

Cabbages are transplanted to the field in rows not less than two feet six inches apart, the plants being one foot six inches or more apart in the row, depending on the variety used. In non-irrigated field crops, a wider spacing is sometimes desirable.

Varieties.

In coastal districts, early, quick maturing varieties are sown between January and April and the main crop varieties from May to June. In the cool temperate Stanthorpe area, seed may be sown from early spring to December. In central and north Queensland, seed planting may be done from February to July.

Recommended varieties are:—

Early.—Early All Head, Early Drumhead, Henderson's Succession, Mid Season Market, and Copenhagen Market.

Main Crop.—All Seasons, Select Succession, and Succession. For North Queensland: Henderson's Succession and Enkhuisen Glory.

Marketing.

Cabbage should be marketed as soon as practicable after heading, and only good firm-headed heads should leave the farm. Care in handling is essential. When placed in bags for railing at least some of the outside leaves should be left on the heads to protect the hearts from injury. The heads should be packed in the bags as firmly as possible.

CAULIFLOWERS.

Climatic and Soil Requirements.

The cauliflower is more exacting than the cabbage in its climatic requirements, and thrives best in areas where the later part of the growing period is cool and moist. Low temperatures during the early stages of growth may cause the plant to button or head prematurely, more particularly when varieties are grown out of season. Low humidity and wind are injurious. High temperatures during the heading period may make the curd yellow, "ricey," "fuzzy" or "leafy."

Spacing.

Cauliflowers require a good deal of room to develop. Formerly large varieties were grown extensively, but the market now prefers the small, high quality types. The large, late-maturing varieties such as Phenomenal should be spaced not less than three feet apart in the row with the rows four feet apart. Smaller varieties such as Early Snowball should not be less than three feet apart in the rows with the rows three feet six inches apart.



Plate 207.

An Irrigated Cauliflower Crop in Which Harvesting Has Begun.

Blanching.

From the button stage onwards, the plants should be examined every few days in order to determine when the crop is ready for cutting. During such inspections any curds which are exposed to the sun should be protected by breaking one or two central leaves and drawing them over the developing curd; otherwise some discolouration occurs. This precaution may not be needed in self-covering varieties.

Harvesting.

The curds do not develop uniformly in all plants, hence the crop must be examined daily during the cutting period, as over-mature heads do not sell well. The heads are cut, trimmed and carted to a central shed, where they are packed and loaded on to motor lorries for market. Jacket leaves are trimmed sufficiently long at the harvesting to give good protection en route to market.

Defects.

The longer the curds are left after they are ready for cutting, the sooner they wilt after harvesting. Open, spread or broken curds are frequently the result of late cutting.

"Riciness" is a curd characteristic when the crop matures during exceptionally dry weather. The curd has a granular appearance, and is less compact than it should be.

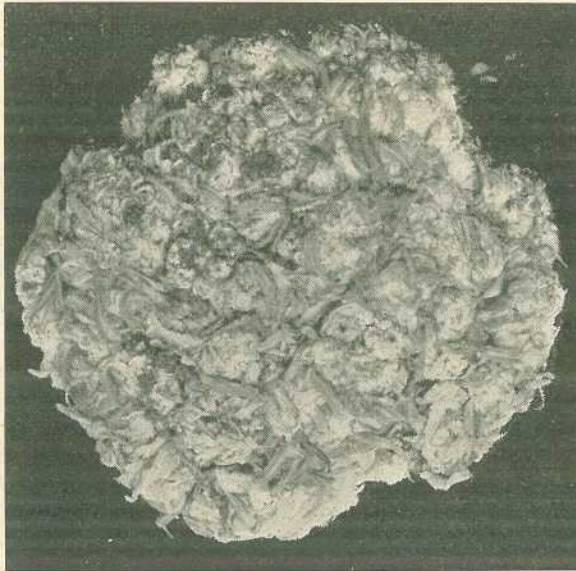


Plate 208.

An Off-type Cauliflower with Small Leaves in the Curd. This type often appears in crops grown from old seed, in out-of-season crops, and on soils deficient in molybdenum.

Some varieties are subject to "fuzziness"; the curd appears velvety or fuzzy. This defect is most prevalent when the crop is grown under unfavourable conditions. "Leafy curd" (Plate 208), a defect in which small, green leaves appear between the segments of the curd, is generally

attributed to poor seed, but the best strains may develop leafy curd if grown out of season when conditions have not been favourable. Leafy curd has also been described as one of the symptoms of whiptail, which is due to a molybdenum deficiency.

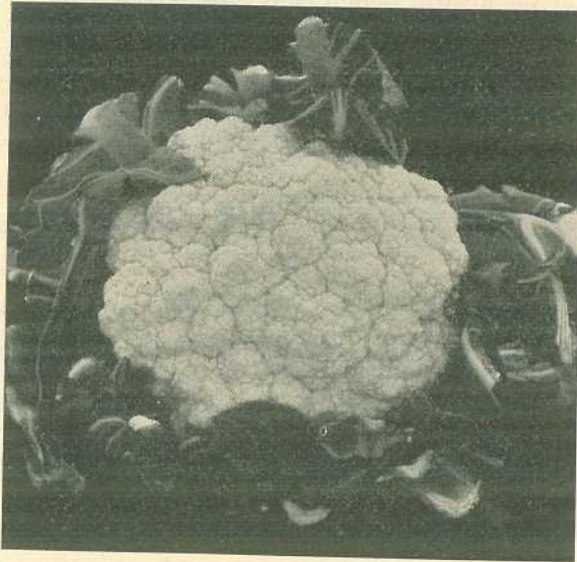
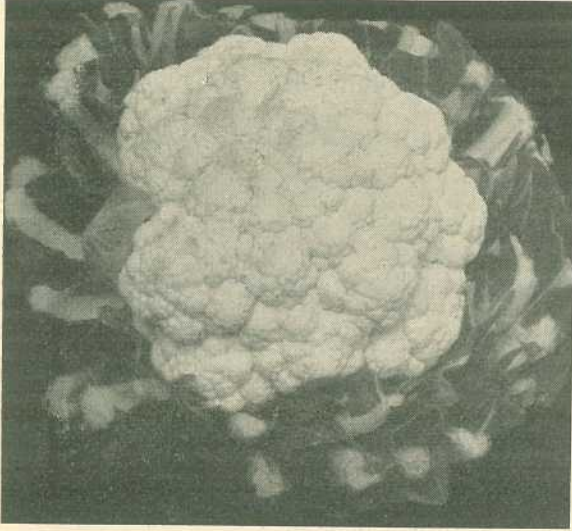


Plate 209.

Cauliflower Varieties. Top—A Snowball Type of Good Quality; Bottom—Early November, a Large Coarse Flowered Variety not Suitable for Queensland.

Varieties.

In the coastal districts, the seed of the early varieties is sown in the January-February period, and main crop varieties between March and May. In the Stanthorpe area, seed may be sown from October to December. Recommended varieties are:—

Early.—Early Snowball (Plate 209), White Queen, and Phenomenal Twelve Weeks.

Midseason.—Phenomenal Four Months and Hawkesbury Solid White.

Late.—Phenomenal Main Crop and Phenomenal Five Months.

BRUSSELS SPROUTS.

Brussels sprouts are somewhat exacting in their climatic requirements. They make their best development in a cool and equable climate. In Queensland, they are grown as an autumn crop, the seed being sown from November to January. The young sprouts reach perfection when hardened off by a sharp frost. The plants stand well with sprouts and under favourable conditions will carry through to September. They are a long season crop and hold the ground for five to six months.

Spacing.

Where irrigation is practised, the rows should not be less than three feet apart with two feet between plants in the row. Without irrigation, planting a little wider is recommended. Field planting after March is not recommended, as, if planted too late, very few sprouts are formed and the plants tend to run to seed.

Harvesting.

As the plants mature, the lower side leaves fade, and should be removed. The top growth should not be interfered with. It is necessary to keep the plants growing the side sprouts.

Sprouts are ready to harvest 12 to 14 weeks after planting out. Picking should be commenced from the bottom of the plant, before the sprouts begin to open, when they are in a hard, firm condition. They should be graded for size and quality and packed in half-bushel cases for the market.

Varieties.

The variety Champion has done well in southern Queensland.

BROCCOLI.

There are two types of broccoli—the sprouting and the heading type. The latter is similar to, though quite distinct from, the cauliflower and it is only grown in Queensland on a small scale.

The sprouting or non-heading type of broccoli is grown for the tender sprouts which arise from the axils of the upper leaves and from the terminal end of the main axis. These sprouts consist of immature green flower buds on a thick fleshy stalk.

Spacing.

The seed may be sown from January to March. When large enough to handle, the seedlings are planted out in rows two feet six inches apart with the plants one foot six inches apart in the rows.

Harvesting.

The growing period extends over a period of five months or more. The first pickings are usually made about four months after transplanting. The heads should be harvested before the curd commences to break, and cut with only one or two of the youngest leaves. Secondary heads develop and successive cuttings may be made over a period of six weeks or more.

Varieties.

Green Sprout is a favoured variety in southern Queensland.

CHINESE CABBAGE OR PE-TSAI.

Chinese cabbage is an annual of which there are two more or less distinct species, the Pe-tsai and the Pak-choi. The former resembles cos lettuce and forms an elongated compact head. The Pak-choi varieties resemble silver beet in their habit of growth; the leaves are long, shining dark green, oblong or oval. This type does not form a compact head.

The Pe-tsai varieties are favoured for small market gardens, and Pe-king and Pao-ting are considered the best varieties for the home garden.

Spacing.

Seed may be sown during July and August for the spring crop, and again during January and February for the autumn crop. The general practice is to sow the seed in shallow drills two feet apart, and later thin out the plants to about one foot apart in the row.

KALE OR BORECOLE.

The kale or borecole is distinguished mainly by its open habit of growth and does not form a heart. It is exceedingly variable in habit; plants may be tall to dwarf and the leaves are variously curled and dissected. Kale is chiefly an autumn, winter and early spring crop. While very hardy and able to withstand cold weather conditions, it does not tolerate hot weather.

Spacing.

Seed may be sown between January and March direct in shallow drills with rows two feet to two feet six inches apart. When established, the plants are thinned to one foot or one foot six inches apart in the rows.

Harvesting.

The first cuttings are made about four to five months after planting out. The loose leaves are used for cooking in the same way as cabbage; as soon as they are large enough they should be pulled from the bottom of the plants. Eventually the heads are taken. Plants from which the lower leaves were taken in the early winter will produce a crop of tender shoots in the spring.

Varieties.

A variety in favour with growers is Dwarf Green Curled. It is hardy and very tender when cooked.

KOHL-RABI.

The kohlrabi, or as it is often termed, the turnip-rooted cabbage, is a vegetable combining the characteristics of the cabbage and turnip. The plant is a low growing biennial with small thin leaves. The stem is short and fleshy and the enlarged edible portion is entirely above ground.

Planting.

Kohl-rabi does not transplant readily. The seed may be sown at a depth of about half an inch during the late summer and early autumn in rows two feet apart. The plants are thinned out to eight inches apart in the rows later on.

Harvesting.

The bulbs should be ready for market in four to five months. They should be harvested when not more than four inches in diameter, as they become coarse and inferior when allowed to grow too large.

Varieties.

The large purple variety is most favoured by the home gardener because of its sweet flavour. The large green variety is, however, becoming popular; its flavour is much stronger than that of the large purple.

HAVE YOUR SEEDS TESTED FREE

The Department of Agriculture and Stock examines **FREE OF CHARGE** samples representing seed purchased by farmers for their own sowing.

The sample submitted should be representative of the bulk and a covering letter should be sent advising despatch of the sample.

MARK YOUR SAMPLE

Sample of seed
 Drawn from bags
 Representing a total of
 Purchased from.....
 Name and Address of Sender
 Date.....

SIZE OF SAMPLE

Barley - 8 oz.	Oats - 8 oz.
Beans - 8 oz.	Peas - 8 oz.
Grasses 2 oz.	Sorghum 4 oz.
Lucerne 4 oz.	Sudan - 4 oz.
Millet 4 oz.	Wheat - 8 oz.
Vegetable Seeds - $\frac{1}{2}$ oz.	

SEND YOUR SAMPLE TO—**STANDARDS OFFICER,**
DEPARTMENT OF AGRICULTURE AND STOCK, BRISBANE.

PLANT PROTECTION

The Importance of the Calyx Spray in the Codling Moth Control Programme.

A. W. S. MAY, Entomologist.

PRIOR to the use of DDT for the control of codling moth* in apples in the Stanthorpe District, mainly arsenate of lead and white oil were used in spray schedules. These materials were applied either separately or mixed, or the white oil was combined with nicotine sulphate. Normally, an arsenate of lead or an arsenate of lead-white oil spray was applied after petal fall but before the greater number of calyx cups had closed. This calyx spray has been regarded at Stanthorpe and in some other apple growing regions as an essential feature of codling moth control.

Since the advent of DDT the status of codling moth as a pest of apples in the Stanthorpe district has changed considerably. In recent years spring moth populations have been low (see Table 1) and where DDT cover sprays have been applied at approximately three-weekly intervals crop losses have been negligible. Extensive crop damage early in the season has decreased considerably in comparison with the seasons prior to 1947-48, when lead arsenate was in general use. The use of DDT, however, has raised other problems. In addition to the general increase of population of woolly aphis† and mites,‡ the costs of spraying necessary to control pests have risen steeply.

TABLE 1.

Season.	Calyx and Cover Sprays Used.	Number of Moths Trapped (10 Traps).					Spray Applications.	
		Oct. 17-23.	Oct. 24-30.	Nov. 1-6.	Nov. 7-13.	Nov. 14-20.	Calyx.	First Cover.
Orchard 2 1945-46	Arsenate of lead ..	15	72	69	29	34	Oct. 19-23	Nov. 2-9
	1946-47	Arsenate of lead ..	7	44	65	43		11	Oct. 12-19
	1949-50	DDT	5	1	14	1	0	Oct. 20	Nov. 2 Nov. 7-11
Orchard 3 1949-50	DDT .. ..	..	1	..	..	..	Oct. 19	Nov. 7-11

* *Cydia pomonella* L.

† *Eriosoma lanigorum* Hausm.

‡ *Tetranychus urticae* Koch and *Bryobia praetiosa* Koch.

Experiments carried out in the Stanthorpe district during the past two seasons have been concerned with determining the most effective usage of DDT cover sprays for codling moth control, and with the relationship between the amount of DDT applied in a season and the prevalence of other pests. While the possibility of reducing the number of DDT cover sprays without prejudicing codling moth control has been a feature of these investigations, the importance of the calyx spray when a suitable DDT cover spray schedule is adopted has been given attention. Trials covering this latter phase of the work during 1949-50 are reviewed here.

1949-50 CALYX SPRAY EXPERIMENTS.

Three similar experiments were commenced on Delicious apples in October. On two of the orchards DDT had been used during the previous season, thus reducing the likelihood of high spring moth populations. On the third orchard the 1948-49 crop was almost entirely destroyed by a severe last frost; only a few fruit matured on the trees and no sprays were applied.

Each orchardist applied routine DDT cover spray schedule to all experimental trees after the following calyx treatments:—

A. 0.1 per cent. DDT spray.

B. Combination spray containing 3 lb. arsenate of lead and $2\frac{1}{2}$ pints of white oil in 100 gal. of water.

C. No spray.

Results.

At harvest, a sample of 100 fruit was picked from each tree and examined for codling moth infestation. The total crop per plot was also recorded. Table 2 summarises the results. (On orchards Nos. 1 and 3, five trees in each treatment were harvested, but on No. 2 only four were harvested.)

TABLE 2.

Calyx Treatment.	Orchard.	Total Crop (Loose Bushels).	Number of Fruit Examined.	Codling Moth Damage.		Percentage of Fruit Damaged.
				Blind Stings.	Wormy.	
DDT	1	18	500	7	..	
	2	21	400	6	1	
	3	16	500	..	..
Totals ..		55	1,400	13	1	1.0
Arsenate of lead-white oil	1	$13\frac{1}{2}$	500	2	..	
	2	19	400	6	1	
	3	19	500	..	..
Totals..		$51\frac{1}{2}$	1,400	8	1	0.6
No spray ..	1	$12\frac{1}{2}$	500	1	..	
	2	17	400	8	2	
	3	22	500	..	..
Totals ..		$51\frac{1}{2}$	1,400	9	2	0.8

Discussion and Conclusions.

These results are a typical example of the excellent control obtained when a DDT cover spray schedule is used. The absence of large differences between treatments indicates that calyx sprays had no influence on codling moth control in these experiments. From observations, similar conditions exist on most orchards in the Stanthorpe district, but it should be remembered that the deletion of the calyx spray depends on spring moth populations remaining at a low level.

The presence of the pest during the previous autumn and the prevalence of overwintering larvae in trees should be used by the orchardist as a guide in deciding to apply a calyx spray. It is further suggested that lure traps be placed in the orchard in early October. This will provide a more definite indication of pest populations actually present, and will also help in determining the correct timing of the first codling moth cover spray, which should be applied within three weeks of petal fall.

Acknowledgements.

Sites for these experiments were readily provided by Messrs. Ellwood Bros., The Summit; J. Stringer, Applethorpe, and W. Townsend, Severnlea. Their assistance in this regard is appreciated.

TUBERCULOSIS-FREE CATTLE HERDS (AS AT 14th NOVEMBER, 1950).

Breed.	Owner's Name and Address of Stud.
Aberdeen Angus ..	The Scottish Australian Company Ltd., Texas Station, Texas
A.I.S.	F. B. Sullivan, "Fermagh," Pittsworth D. Sullivan, Rossvale, <i>via</i> Pittsworth W. Henschell, Yarranlea Con. O'Sullivan, "Navillus Stud," Greenmount H. V. Littleton, "Wongalee Stud," Hillview, Crow's Nest J. Phillips and Sons, "Sunny View," Kingaroy
Ayrshire	L. Holmes, "Bencecula," Yarranlea
Friesian	C. H. Naumann, "Yarrabine Stud," Yarraman J. F. Dudley, Yarraman
Jersey	W. E. O. Meier, "Kingsford Stud," Rosevale, <i>via</i> Rosewood J. S. McCarthy, "Glen Erin Jersey Stud," Greenmount J. F. Lau, "Rosallen Jersey Stud," Goombungee G. Harley, Hopewell, Childers Toowoomba Mental Hospital, Willowburn Farm Home for Boys, Westbrook F. J. Cox and Sons, Crawford, Kingaroy Line R. J. Browne, Hill 60, Yangan



An Automatic Feed Hopper.

R. W. HEWETSON (Cattle Husbandry Branch) and R. P. RUDDLE.*

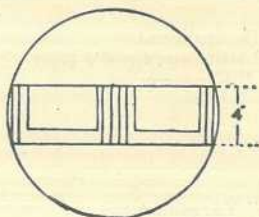
LIMITED concentrate feeding of dairy cows in the bail has often been criticised by farmers because of the labour involved. Time lost in feeding is most important on farms where only one man is available to bail up, milk and feed upward of thirty cows on his own.

One of the authors was in this position about two years ago, faced with the prospect of milking and feeding up to sixty cows.

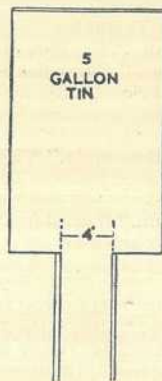
The automatic feed hopper described here and illustrated in Plates 210-213 was designed as an answer to the labour problem, and now sixty cows can be milked and fed in just over an hour.

Construction.

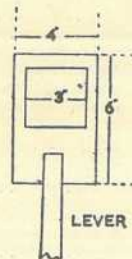
For most efficient working, a reservoir for feed that only need be filled, at the most, once a day should be provided. In the case of this hopper, the reservoir was made from a five gallon tin which had previously contained rolled oats. However, any suitable container, preferably made of metal, could be used.



PLAN
LOOKING DOWN INTO TIN



SIDE VIEW OF TIN & CHUTE
ON SECTION
Plate 210.



SLIDING METAL SHUTTER
ENLARGED TO SHOW
CUT-OUT

Details of Reservoir and Cut-out.

* Mr. Ruddle is a Maleny dairy farmer who has devised or adopted many improved husbandry practices.

Four inches below the exit from the tin is a sliding metal plate. This can be opened or shut to allow or block the passage of feed down the chute, and this is remotely controlled by a 1 in. x 1 in. wooden lever (A in Plate 211), which can be manipulated from the end of the dummy bail. There is a second sliding plate ten inches below the first, which is manipulated by another lever (B in Plate 211). The space enclosed by the two plates was constructed to hold two pounds of meal. However, the quantity of feed to be delivered can be altered



Plate 212.

Position of Feed Hoppers in the Dairy Building.

by raising or lowering the position of the two plates so that the volume of the space between the two plates is increased or decreased. Of course, this is only a volumetric measure and the weight delivered would alter with the texture of the feed.

To measure out the given quantity of feed, lever A is pulled out to allow entrance of feed. When sufficient has entered the space, lever A is replaced in the closed position and lever B is pulled. This allows the measured quantity of feed to drop into the feed box. A double quantity can be delivered by repeating the procedure.

With this hopper, cows can be fed on a production basis rather than at a flat rate. If milk weighings were done, cows could be divided into high, medium and low producer groups and fed accordingly. There is no trouble with the flow of grain, even bran running smoothly down the chute.

The hopper described has been made to fit over the partition between two bails by leaving a slot between the two chutes. This allows for the removal of the whole structure for cleaning as often as is necessary, or for repair.

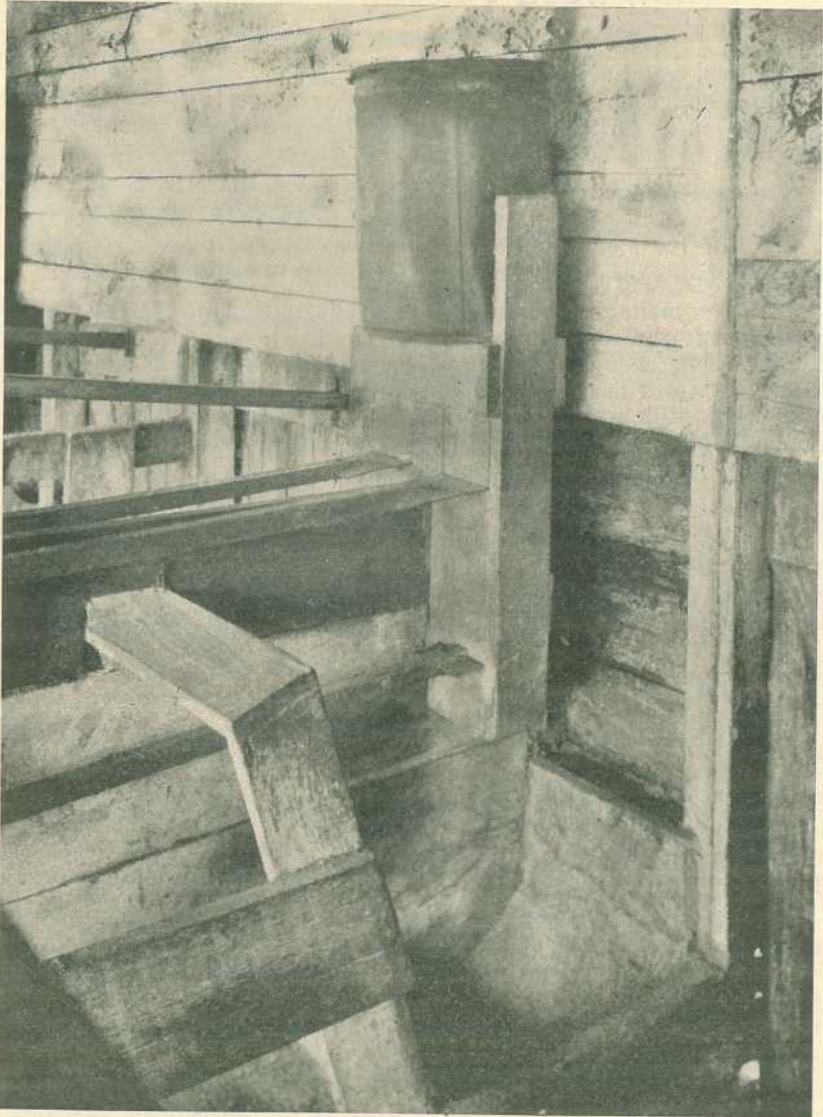


Plate 213.

Hopper Showing Reservoir Chutes and Feed Box.

ANIMAL HEALTH

Yellow-wood Poisoning of Livestock.

Prepared in the Division of Animal Industry.

FOR many years a condition of cattle, characterised by rapid wasting associated with blinking of the eyelids and a yellowish discharge from the inner corner of the eye, has occurred amongst herds depastured in the basin of the Fitzroy River.

The seriousness of the condition varies from district to district and from year to year. In dry years, losses may be as high as 10 per cent. of the stock on some properties, and in these circumstances the maintenance of herd numbers constitutes a serious problem.

Surveys made by botanists and veterinarians a few years ago revealed that the distribution of the condition was closely associated with the occurrence of a small tree, commonly known as yellow-wood, which constitutes heavy scrubs in some areas. It had previously been shown that yellow-wood was poisonous to sheep and that affected animals suffered severe fits when given a sudden fright.

It was decided, therefore, to conduct feeding trials with yellow-wood to determine if it was poisonous to cattle. It was found that young cattle which consumed yellow-wood leaves for two or three weeks exhibited symptoms identical with those which were apparent in animals affected under natural conditions.

The purpose of this article is to acquaint pastoralists with the appearance and distribution of yellow-wood and with the nature of the conditions it produces in stock.

APPEARANCE AND DISTRIBUTION OF YELLOW-WOOD.

Yellow-wood is a large shrub or small tree of rather dense growth (Plate 214). The leaves are from one to two inches long, of a light green colour, and commonly borne in clusters along the stems. The flowers are insignificant and are carried on small spikes. The seed capsule is dry and its sides are extended into broad wings (Plate 215).

The plant sends up suckers freely, and these tend to appear in groups around the base of the trunk. During the autumn and early winter, the leaves become distinctly red in colour and subsequently yellowish, when they fall. In dense yellow-wood thickets, the fallen leaves may provide quite a heavy ground cover.

Yellow-wood occurs only in Queensland, where its distribution is restricted to the central and northern coastal and sub-coastal areas. It occurs at Rockhampton, and in the basins of the Sutton, Mackenzie, Burdekin and Belyando Rivers, as well as on the Central Highlands at Springsure.

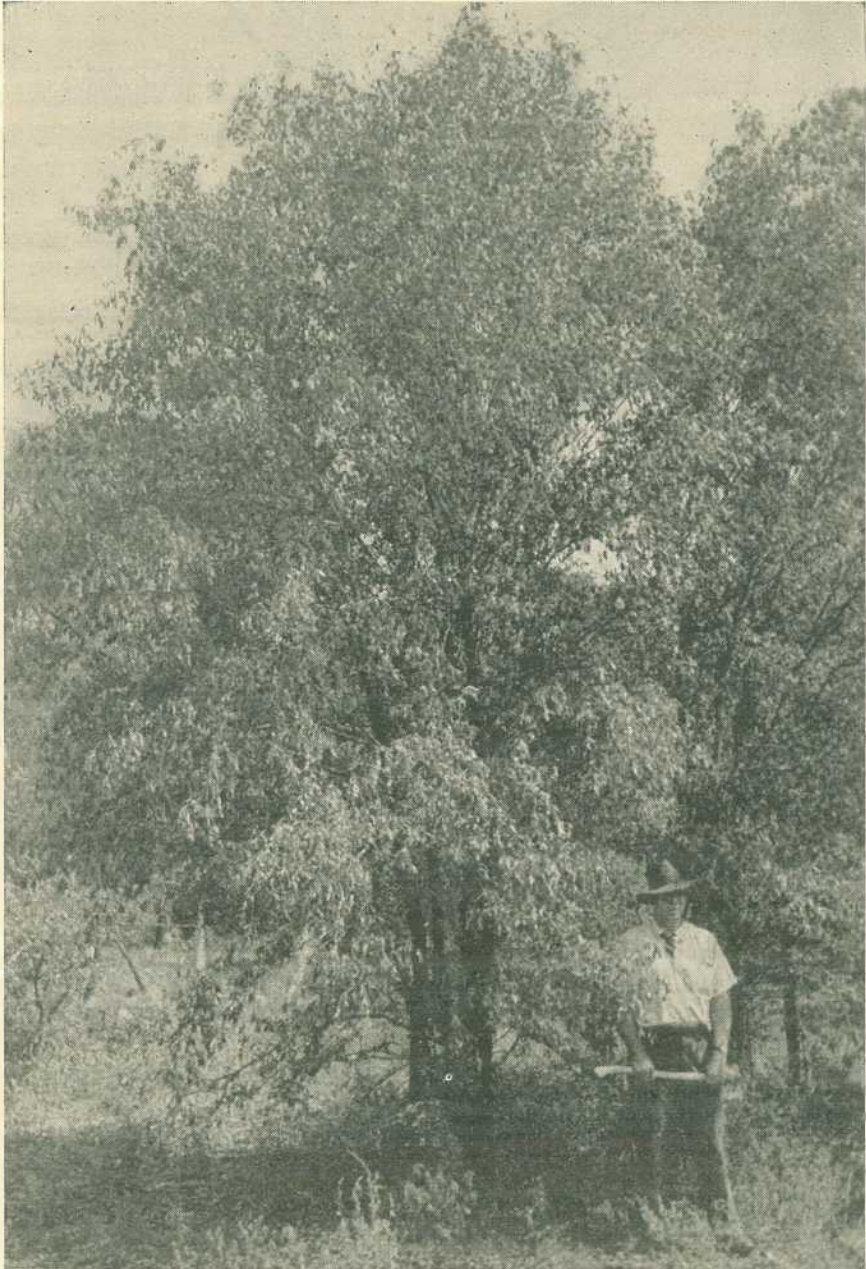


Plate 214.

A Yellow-wood Tree.

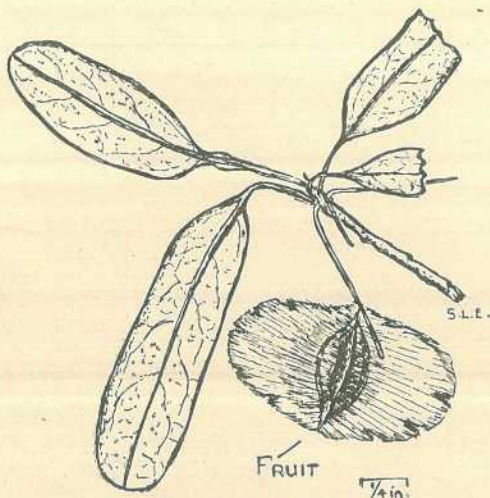


Plate 215.

Twig of Yellow-wood, showing the Winged Seed Capsule.

POISONING OF CATTLE.

Symptoms.

Symptoms of yellow-wood poisoning of cattle are most commonly seen during dry weather; that is, between June and December.

Cattle of both sexes and of all ages may be affected, but if animals exhibit symptoms at an early age, and do not succumb to their initial attack, they may become "chronic wasters."

The first indication that animals are affected is a disinclination to move out of the shade. If forced to do so, they turn away from the sun and stand with eyelids only half open and blinking continuously. There is a fairly copious flow of tears, which run down the side of the face and mat the hair.

As the condition progresses, the animals hold their heads higher than usual, which gives the impression that they are "on the alert" (Plate 216). Animals affected to this extent are inclined to lift their forefeet higher than usual, as though there were some impairment of the vision.

Sometimes the eyes become inflamed and ulcerated, and affected calves may go blind. The skin of the muzzle becomes dry and cracks, and affected beasts lick their nostrils repeatedly. If they refrain from doing this, a yellowish discharge is likely to encrust the nose.

Feeding and cud chewing are usually depressed, but the animal does not lose its appetite completely. By this time, soft, doughy swellings may appear under the lower jaw, or in the brisket or fore-legs. These swellings are sometimes brief and their presence may pass undetected.

Urination is more frequent than usual and sometimes there is continuous dribbling, which causes affected females to hold their tails in an arched position, while the skin about the escutcheon becomes

urine stained and scalded. Affected beasts may be constipated, particularly in the early stages. When swellings develop under the jaw or brisket, the faeces may be very soft.

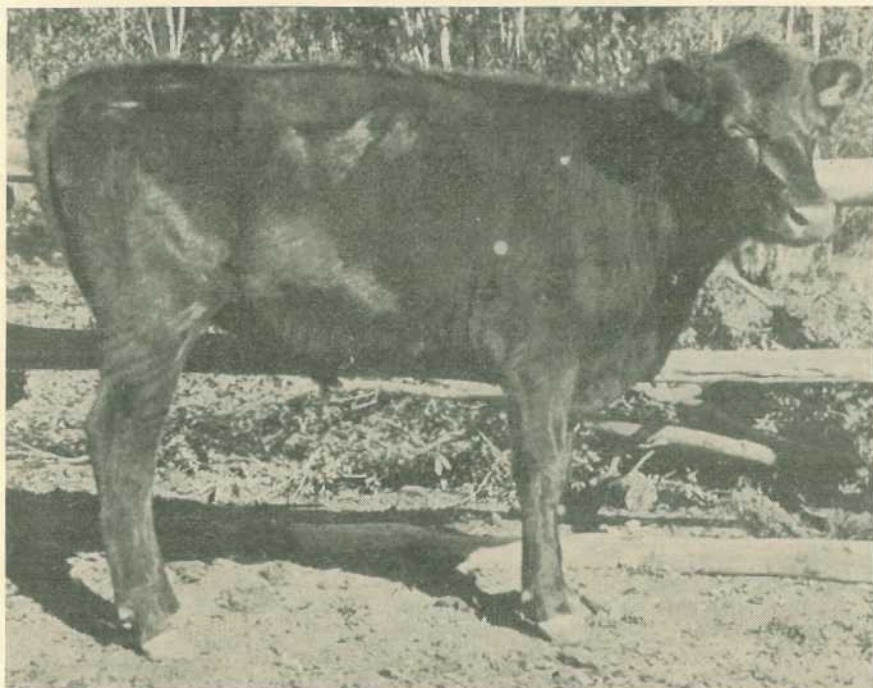


Plate 216.

A Steer Affected by Yellow-wood Poisoning. Note the typical stance—head elevated, ears at the alert and back arched; also the half-closed eyes and the eye discharge.

Some animals have been observed to suffer from a form of founder. They walk on their heels and their toes turn up as the horn grows long.

Many cattleraisers differentiate the condition into a wet and a dry form. In the former, there is an accumulation of fluid under the skin of the lower jaw, brisket or forelegs. In the latter type, there is marked aggravation of the eye symptoms, rapid wasting and early death.

Sometimes relatively mild attacks appear to clear up temporarily, particularly if late winter or early spring rains occur which produce a reasonable flush of grass and herbage. Recovery is seldom complete and it is unusual for cattle which have been affected to fatten beyond "forward" store condition.

In particularly severe outbreaks, yellow-wood poisoning usually has a fatal ending, death occurring in from one to two months after symptoms are first noted. Plate 217 shows an advanced case of yellow-wood poisoning.

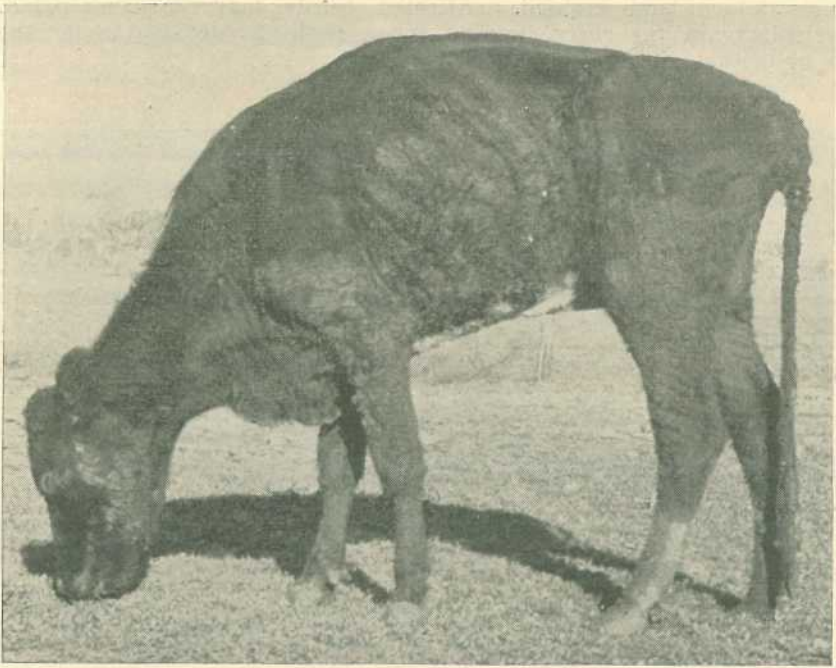


Plate 217.

An Advanced Case of Yellow-wood Poisoning. Note the emaciation, the half-closed eyes, and evidence of scouring.

Post-Mortem Findings.

Identical post-mortem findings have been made in cattle suffering from yellow-wood poisoning under both paddock and experimental conditions. The carcass is usually emaciated, but in "wet" cases there may be considerable swelling of tissues just under the skin of the lower jaw, the brisket and the forelegs. These swellings might also involve the wall of the fourth stomach. A yellowish-white fluid exudes from its cut surface, which presents a marbled, jelly-like appearance.

There may be some patchy areas of inflammation along the intestines, but these are rather variable.

The kidneys show the most marked changes, and it is here that the greatest damage is done. Although their shape and size remain unaltered, they show a peculiar discolouration, which ranges from greenish-blue to slate grey. The kidneys consist essentially of a series of filters through which waste products in the blood are passed, ready for excretion through the normal channels. The poison in yellow-wood damages these filters, and as a result they allow some of the nutrients essential for the growth and maintenance of the animal to escape. This is why animals affected by yellow-wood poisoning either lose condition or tend to remain stunted. Unfortunately, the damage to the kidney is irreparable, and although these organs have tremendous reserves, it is difficult for them to adjust themselves to extensive damage.

In some chronic cases the urinary bladder is markedly enlarged and the walls are damaged.

Factors Influencing Poisoning.

Many variations have been noted in the conditions under which yellow-wood poisoning occurs in grazing cattle. These have been related to the following factors:—

(1) *Differences in the density of yellow-wood trees*:—It is well known that the density of yellow-wood varies from paddock to paddock and from property to property. There may be as many as 4,000 trees per acre in thick scrubs, and as few as 20 trees to the acre in paddocks where the plant occurs sparsely. Yellow-wood gives the appearance of being a "leafy" tree, but it was surprising to find during the feeding trials that a well-grown specimen produces only a few pounds of green leaves. A kerosene tinsful of leaves seldom weighs as much as 3 lb. unless they are packed very tightly. Only four or five tinsful of leaves could be collected from quite a large tree. This means that the trees must be fairly dense before cattle can get sufficient yellow-wood to affect them adversely.

(2) *Stocking rates*:—If paddocks containing dense yellow-wood scrubs are stocked heavily, the cattle soon eat out the more palatable, nutritious grasses, and they are then forced onto the yellow-wood. Because of this, paddock management is particularly important in preventing the condition.

(3.) *Seasonal conditions*:—There are two aspects of the seasonal conditions which are important. These may be classified as—

(a) The long range climatic influences.

(b) The weather during the year.

The climate year-in-year-out influences the type of plant community which occurs in any district. Quite noticeable differences occur in the average annual rainfall and in its distribution in the areas where yellow-wood occurs. The country just west of Rockhampton enjoys a better rainfall distribution than that near Clermont or Springsure. In addition, it is appreciably warmer during the winter near the sea than it is on the central highlands. As a result, the pastures in the Rockhampton area respond better to winter rains and the cattle enjoy a more even plane of nutrition than those further west. These differences also influence the amount of yellow-wood the cattle may eat during the drier part of each year, and are probably part of the explanation why yellow-wood poisoning is seen less frequently amongst herds nearer the coast.

The weather during each year exerts a similar but more specific and localised influence, and property owners should not overlook the relationships between rainfall and temperature in determining plant growth and the plane of nutrition enjoyed by grazing cattle.

It is not easy to forecast the circumstances in which yellow-wood poisoning will occur under field conditions. It is well known that cattle are more likely to be affected during dry years or towards the end of winter or during the spring of each year. The stocking rate, the density of the yellow-wood trees, the prevalence of nutritious grasses, and the weather from week to week, all exert their influence

POISONING OF SHEEP.

Yellow-wood poisoning of sheep is not characterised by the wasting that is so typical of its manifestation in cattle. Affected sheep appear quite normal until they are disturbed, when they exhibit unusual fit-like seizures which may last for up to a minute. The affected animals fall to the ground, with their legs protruding stiffly (Plate 218) and with their heads drawn back. The breathing is irregular and there is a tendency to grunt and gasp for breath.

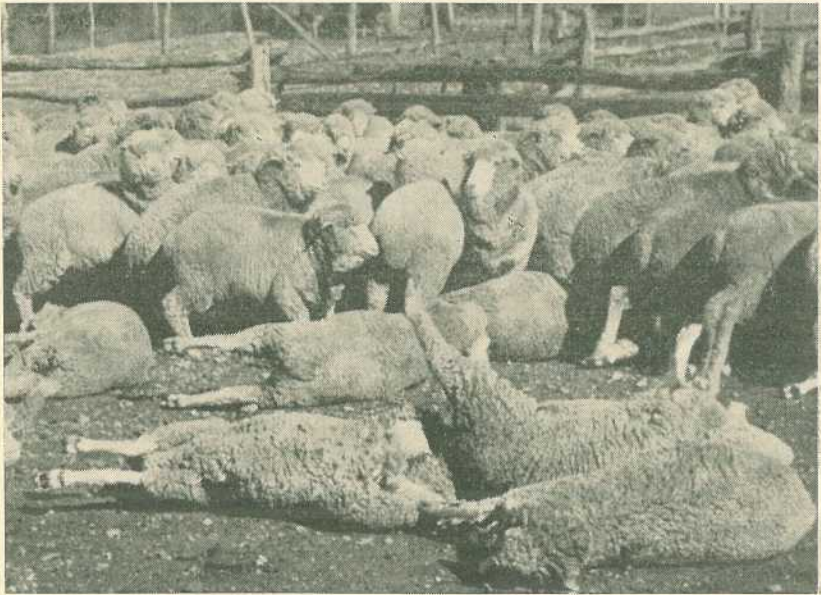


Plate 218.

Sheep in Fit-like Seizures Caused by Yellow-wood Poisoning.

As the fits pass off, the sheep regain the standing position, although they are unsteady on their legs for half a minute or so. They then walk away quite normally.

There is practically no abnormality characteristic of the yellow-wood poisoning of sheep which can be found on post-mortem examination. A bluish-grey colour has been noted in the kidneys of some animals, but this is variable. However, the poisonous principle appears to affect the nervous system, but sheep will recover if they are fed a diet free of yellow-wood.

Yellow-wood poisoning of sheep is important because animals may take fits as they approach water or get cast in some other awkward position and subsequently succumb from misadventure.

FEEDING TRIALS WITH YELLOW-WOOD.

Feeding trials with sheep were conducted in the Emerald district in 1934, and with cattle in the Clermont district in 1944. In both cases, symptoms identical with those observed under field conditions

were observed. A microscopic study of the kidneys of cattle used in the experiments revealed changes identical with those seen under field conditions.

In the feeding tests at Clermont, the disease was reproduced in all eleven cattle which ate varying amounts of yellow-wood, whereas animals in adjacent pens, which were fed lucerne and cereal hay or chaff, were unaffected.

In the majority of the animals fed yellow-wood, the appetite was depressed after about two weeks, when the daily intake of leaves decreased from 7 lb. to 4 lb. per day. Rapid blinking was noticeable by this time. After about one month's feeding there was obvious loss of condition and urination was frequent. After six weeks' feeding, the animals were so emaciated that they found it difficult to stand, and by this time the skin of the nose was cracked and yellow. From these trials, it became apparent that as little as from 4 to 5 lb. of yellow-wood leaves eaten daily was sufficient to produce severe symptoms in from four to six weeks. Sheep were affected within three to four weeks.

PREVENTION OF YELLOW-WOOD POISONING.

Because of the severity of the damage caused to the kidneys by yellow-wood poisoning, it is difficult to treat affected animals. Property management should aim at keeping cattle and sheep off yellow-wood country during the drier periods of the year. This means that they should be moved to yellow-wood free areas by June or July in the majority of seasons.

If it is not possible to unstock the paddocks in which yellow-wood occurs, the minimum number of animals should be grazed in them, and where possible, rotational grazing should be practised.

Owing to its density, the control or eradication of yellow-wood would be expensive on a number of properties, and can only be recommended where local conditions would make it practicable.

A SPECIAL RADIO SERVICE FOR FARMERS

★ ★

The COUNTRY HOUR, a special service for farmers, is broadcast DAILY through the National and Regional Stations from 12 to 1.

Infectious Pneumonia of Swine.

A. K. SUTHERLAND, Senior Veterinary Pathologist,
Animal Health Station, Yeerongpilly.

THE financial success of pig raising depends to a great extent on preventing losses from deaths and sickness. Many pig raisers would be surprised if they kept records of the number of pigs born, the number weaned and the number marketed from their herds. The heaviest mortality occurs in the first week of life, but from the financial aspect infectious pneumonia is the more serious problem because it is prevalent among older, and therefore more valuable animals, namely weaners from 10 to 16 weeks of age.

Infectious pneumonia is prevalent in most parts of Queensland; there are few herds that have not been affected at some time or another. Pneumonia kills many pigs, but even greater loss results from waste of feed and labour on pigs that remain unthrifty or worthless for months after an attack of the disease.

Causes.

A number of micro-organisms (or germs) can cause infectious pneumonia in pigs. The bacterium known as *Salmonella cholerae-suis* (also called *Salmonella suispestifer*) is the one most often found in the lungs of pigs in the acute fatal type of pneumonia. In some cases other bacteria, especially *Pasteurella suisseptica*, are present, either alone or with *S. cholerae-suis*. In yet other cases, none of these bacteria are present, and it is thought that these cases are caused by another infectious agent, probably a virus, although there is no clear proof of this.

The bacterium, *Salmonella cholerae-suis*, which is so often associated with infectious pneumonia, can cause another type of disease in the pig—paratyphoid or salmonellosis. This is a disease in which the bacteria invade the blood stream and kill the pig after a short illness. Some cases of infectious pneumonia end in this way when the salmonella bacteria invade the blood stream from the lungs. Furthermore, *S. cholerae-suis* can infect the bowel, producing the disease called necrotic enteritis in which severe diarrhoea is a feature. Thus, in outbreaks of infectious pneumonia some pigs may die after a brief illness—paratyphoid—and others may exhibit diarrhoea due to necrotic enteritis.

Symptoms.

The symptoms are those of fever and pneumonia. The affected pigs are dull and disinclined to move about. They are usually thirsty but they have poor appetites. Severely affected pigs cough frequently and breathe rapidly, but in milder cases these symptoms may be shown only after exercise. There is often a discharge of pus or mucus from the eyes and nostrils.

The pigs quickly lose weight and become weak. Death may occur one to two weeks after the disease commences.

Some pigs make a good recovery if they are well fed and cared for, but the majority remain unthrifty and stunted for weeks after the acute stage of the disease has passed. The chances of complete recovery are enhanced if correct sulphonamide treatment is commenced in the early stages of the disease.

Post-Mortem Findings.

Healthy lung has a salmon pink colour and a soft spongy texture, and floats in water. In pneumonia, the lung tissue is firm or even solid, and sinks in water. The colour is dark red in the early stages of the disease, and later it becomes greyish, then creamy or white. Sometimes there is fluid in the chest cavity, and occasionally the lungs adhere to the chest wall. The sac around the heart may also contain fluid. Within the lung tissue there are usually many small abscesses containing yellowish pus.

The lymph nodes at the base of the windpipe are usually swollen and juicy. The liver is dark red or purple and there are often many small haemorrhages in the kidneys.

Diagnosis.

The symptoms of pneumonia are usually easy to recognise, but it is sometimes necessary to exercise the pig to detect the coughing and panting. The diagnosis can be confirmed by post-mortem examination. The firm, discoloured lung tissue affected with pneumonia is easily seen and felt.

Although infectious pneumonia is a prevalent disease in pigs after weaning, it is uncommon in suckers. The harsh dry cough often seen in suckers is usually caused by larvae of the large roundworm (*Ascaris lumbricoides*) migrating through the lungs.

Swine influenza is another disease that causes pneumonia in Queensland, but it affects suckers rather than weaners. It spreads rather rapidly through all the youngsters in a herd and produces a cough, discharge from the eyes and nose, and sneezing.

It is sometimes said that even healthy pigs cough when they are fed dry feeds, such as crushed grain, but this is incorrect.

If there is any doubt about the diagnosis or the action to be taken to control an outbreak of disease, then a private veterinarian or an officer of the Department of Agriculture and Stock should be consulted without delay.

Sources of Infection.

Pigs that recover from pneumonia may harbour the disease for a long time, even though they appear healthy. Such animals are called carriers. They discharge infective material in the sputum brought up from the lungs, and perhaps also in their dung and urine. The germs are killed in a few hours by sunlight, dryness, heat or disinfectants, so they do not survive long in dry exposed situations. They will survive, however, for many weeks in moist or wet shaded places.

The chief source of infectious material is an infected pig—either a visibly sick pig or a carrier. Infectious pneumonia is therefore usually brought into healthy herds by purchased pigs. Stores purchased from saleyards are especially dangerous and breeding boars and sows can also infect a clean herd.

Pigs contract the disease by inhaling minute droplets of infected sputum or by eating or drinking material contaminated with the sputum, dung or urine of sick or carrier pigs.

Uncooked pork scraps or butcher's offal may also introduce infectious pneumonia into a piggery, and for this reason as well as others it is required under the Diseases in Stock Acts that all offal and garbage fed to pigs shall be thoroughly boiled.

Conditions That Predispose Pigs To Infection.

Outbreaks of infectious pneumonia occur occasionally in herds kept under good conditions, but the disease is certainly more prevalent and more troublesome in herds kept in insanitary quarters. When the disease is brought into an insanitary piggery, the yards, troughs and sties soon become loaded with disease germs. The micro-organisms that cause infectious pneumonia are destroyed by sunlight and dryness, but they can live in moist shaded places. Thus, herds exposed to low lying, muddy or "pig sick" yards, dirty wallows, or old wooden sties, are predisposed to attacks of infectious pneumonia.

On the other hand, it has sometimes been noted that pneumonia is prevalent in areas which have experienced a long dry spell as a result of which yards and houses have become very dusty. In these instances it is felt that the predisposing factor is the irritation of the lungs caused by inhaled dust particles.

Overcrowding also predisposes a herd to infectious pneumonia because it facilitates the spread of infection from one animal to another.

Pigs that are fed a ration deficient in protein or minerals or vitamins have a low resistance to disease. Green feed is particularly important to ensure a supply of vitamins. If good young green pasture is not available, then high quality leafy lucerne chaff should be fed; this is especially important for pregnant or lactating sows and for weaners up to about 70 lb. liveweight.

The pig does not adjust itself to extremes of heat and cold as well as other domestic animals, and it is the opinion of some authorities that wide variations in environmental temperature increase the susceptibility of the pig to pneumonia. Day to day temperatures sometimes vary tremendously in the autumn and spring of the year, this being especially so in elevated areas some distance from the coast. It is therefore probable that, even in Queensland's generally warm climate, many herds would be benefited by a better type of housing which would assist pigs to withstand marked changes in temperature.

Ill health, however mild, due to internal and external parasites, other infectious diseases or malnutrition may have a bearing on whether a pig withstands or succumbs to exposure to infectious pneumonia.

Herds maintained by buying store pigs for fattening are in constant danger of becoming infected with pneumonia through the introduction of carrier or diseased pigs. High standards of feeding and sanitation are needed to minimize losses in such herds.

Treatment.

Certain sulphonamide drugs are effective for treating infectious pneumonia provided treatment is commenced in the early stages of the disease. Further, the proper dose, according to the weight of the pig, must be given regularly each day for the prescribed period.

Sulphamezathine is the preferred drug. Sulphamerazine is almost, if not equally, as good, while sulphapyridine has also given satisfactory results. The recommended treatments are:—

- (a) Sulphamezathine or sulphamerazine in the form of powder or 0.5 gram tablets administered once daily by mouth as follows: 1st day—1 gram for each 10 lb. liveweight; 2nd to 4th days—1 gram per 15 lb. liveweight.

- (b) Sodium sulphamezathine in the form of 33 $\frac{1}{3}$ per cent. solution to be injected subcutaneously once daily at the rate of 3 c.c. per 15 lb. liveweight for 3 to 4 days.
- (c) Sulphapyridine in the form of powder or 0.5 gram tablets administered by mouth at the rate of 1 gram per 20 lb. liveweight per day divided into two doses (morning and evening) each day. The initial dose on the first day should be a double dose. Treatment is given for 3 to 4 days.

The sodium sulphamezathine solution is injected with a sterile hypodermic syringe. There are several ways to give the treatments that are administered by mouth. The best method is to mix the powder or crushed tablets with milk or water and give it as a drench. In the case of small pigs, the mouth can be held open with a metal gag while the tablets are placed on the back of the tongue with long forceps. Large or intractable pigs can be treated by mixing the drug with a small amount of milk that the pig will drink quickly when hungry—provided, of course, that sickness has not abolished the animal's appetite.

How to Deal with an Outbreak.

When the disease breaks out in one or more groups of pigs, leaving other groups unaffected, then the sick group should be held in isolation, preferably by moving the healthy groups to new quarters. It is sometimes possible to quarantine an affected group by vacating the adjoining pens or yards.

Early treatment with one of the sulphonamides described above is recommended, because it reduces the death rate and it saves many pigs from becoming unthrifty culls. Depending on the severity of the outbreak, one can either treat the whole of an affected group, or one can remove the sick pigs each day to a hospital pen for individual treatment.

Seriously affected pigs rarely make a satisfactory recovery and they are a prolific source of infection, so they should be destroyed. The carcasses should be burned or buried.

All the wet or muddy patches in the yards should be either drained or filled in. Concrete wallows can be drained and cleaned, but any other type of wallow should be drained and then allowed to dry out.

The disinfectant action of sunlight should also be utilised. This can be done by removing rubbish and lopping trees and perhaps by lifting the roofs of sheds. Clean metal or concrete surfaces can be disinfected with chemicals, such as 5 per cent. lysol or 5 per cent. caustic soda, but disinfectant solutions cannot be relied upon to kill germs in wood, soil or organic matter. Metal or concrete troughs should therefore be cleaned and disinfected, but wooden troughs should be burned. All litter and rubbish should be removed from the yards, then burned or disposed of where it will not be accessible to pigs.

The sick pigs and *all* pigs that have had contact with them should be held in quarantine and then sold for slaughter as soon as they are marketable. There are likely to be carriers of infection among the recovered pigs even though they may have received sulphonamide treatment.

The most important point of all, however, is that an attempt should be made to rear the succeeding generation of pigs free of pneumonia. The desired breeders are healthy sows that have not previously had an

attack of pneumonia. These sows should be isolated from the rest of the herd, particularly when they are pregnant and when they are rearing litters. This breaks the cycle of infection from the carriers among the older stock back to the susceptible young pigs. When these young pigs are weaned they should run with others of their own age, and again they should have no contact with the older infected stock. There is an odd carrier sow that will transmit infection to her litter and so cause a breakdown in the eradication plan, but it is usually possible within a few generations to eliminate pneumonia from a herd by this procedure.

To carry through this plan, appropriate pen and pasture accommodation is essential for keeping the different age groups segregated. When the older infected stock are sold for slaughter, the yards they have occupied should be cleaned and disinfected as described above. If the yards are dry, and if they are left vacant for about a month to allow infection to die out, they can be used for the young replacement stock.

Prevention.

In view of the grave risk of introducing infection with pigs bought from saleyards or from herds that are not unquestionably free of pneumonia, every pig raiser should aim to breed his own pigs. The owner of a disease-free herd should take particular care to avoid introducing infection by either direct or indirect contact with other herds. If it is necessary to introduce new breeding stock, then they should be carefully selected from a disease-free herd, and they should be held in quarantine for at least a month before being allowed to mingle with the home-bred stock.

Herds maintained by purchasing stores from many sources can hardly escape infection. The chances of infection are reduced to some extent by avoiding introduction of all pigs that have had contact with animals showing a cough, discharge from the eyes or nose, diarrhoea or unthriftiness. In any case, high standards of sanitation and feeding are needed to minimize losses in herds of this type.

Large roundworm infestation should be controlled by sanitation and sodium fluoride treatment, because the larvae of this worm migrate through the lungs, and the damage they do probably facilitates the establishment of infectious pneumonia in the devitalised lung tissue.

It will be apparent also, from the discussion of predisposing factors, that, to prevent infectious pneumonia, feeding and sanitation should be good, and the housing should protect the pigs from exposure to wide variations in temperature.

The most important point, however, and one that cannot be over-emphasized, is that each new generation should be reared as a disease-free unit by segregating breeding sows, suckers and weaners from the older potentially infected stock.

Although vaccines for infectious swine pneumonia are marketed under a variety of names, such as swine plague vaccine, suipestifer vaccine, and contagious pneumonia vaccine, they are not effective in preventing the disease.



The Bacon Pig.

F. BOSTOCK, Officer in Charge, Pig Branch.

THE pig industry to-day is beginning to receive the close attention of farmers which it should have been given years ago, instead of being looked upon as a side-line to dairying. However, it must be realised that the day of "hit and miss" methods in building up a successful local and export trade has gone forever. In these times of keen competition success can only be attained by farmers who are prepared to study the demands of the consumer and realise that a first class product cannot be produced from a second class pig, no matter how efficient factory management or cure may be.

Much depends on the careful selection of boars and sows; therefore when choosing breeding stock, very careful consideration should be given to their selection. It is very true that far too many pigs of wrong type are brought on to farms where brood stock selection has not received proper attention.

To assist in this selection of breeding stock the conformation of a bacon pig should be better understood and the following features, starting at the head and working back through the body, should be considered:—

Head with Jowl and Neck, which consists largely of bone and is of low value, should be light, with no coarse fat at the jowl or neck.

Shoulders and Fore End should be light, free from wrinkles and coarseness. The collar consist largely of overlapping muscles and gristle and is a cheap cut.

Back should be long and level; it demands a high price per lb. and length means quantity, while level denotes weight and depth of loin. The fat should not exceed $1\frac{1}{2}$ inches at any point.

Sides should be level and moderately deep. Distention of the lower part is accompanied by thin belly cuts, while a moderately deep side affords good depth of prime back cuts and undercuts.

Underline should be straight. The thin streak and flank cuts are not unduly distended or thin.

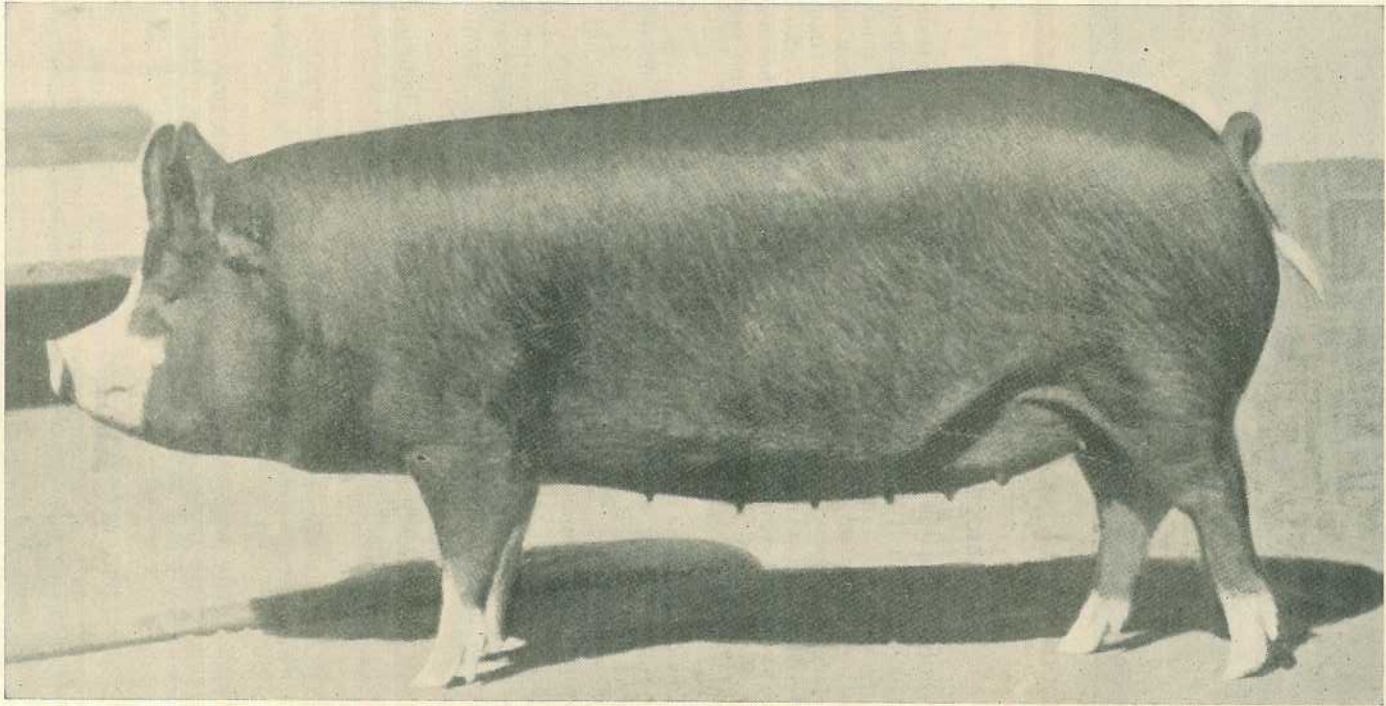


Plate 219.
Correct-type Baconer.

Belly should be thick in flesh, because the value is increased by thickness.

Flank should be thick and handle firm and should be in line with the sides.

Ham should be broad, wide, and deep to the hock. These characteristics denote plenty of flesh. No depression should be visible at the tail, as it indicates excessive fat.

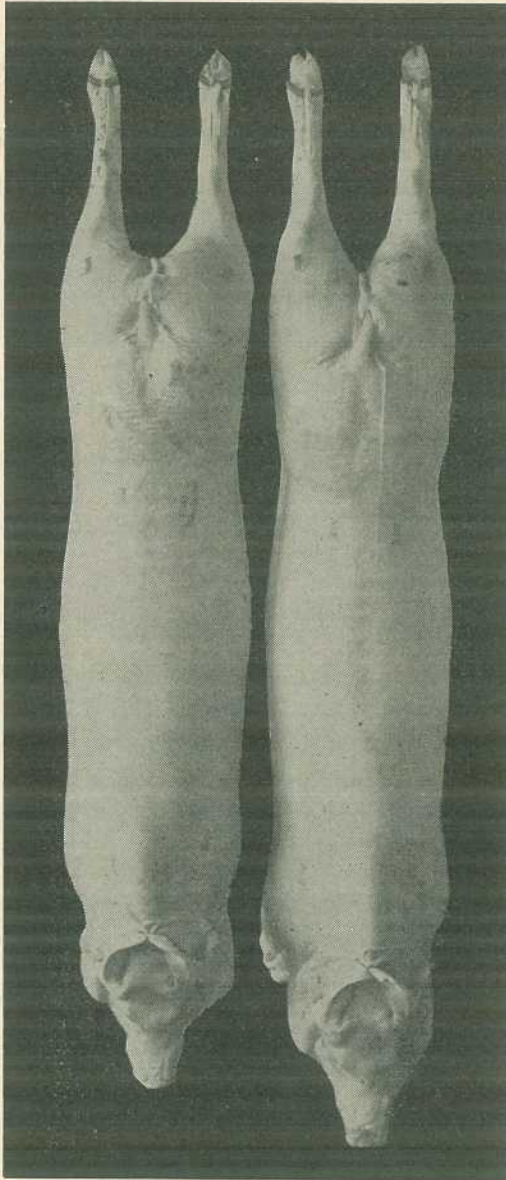


Plate 220.

Comparison in Carcass Length.

Tail should be set high, which denotes a higher proportion of flesh than when set low. However, a tail set too high indicates excessive backfat.



Plate 221.
Comparison of Fat Development.

Legs should be set wide apart and the pig stand well up on its toes.

Bone should be fine, which indicates quality and does not detract from weight.

Skin must be free from coarseness and wrinkle.

Hair should be fine, indicating breeding.

Now, consider briefly the pig after slaughter, by a description of the main carcass points, which may be divided into three sections. 1. Marketing points—colour, skin and dressing; 2. Breeders' points by inspection; and 3. Breeders' points by measurement. (Hammond System.)

Marketing Points.

Colour should be a clean fresh white; dark colouration due to pigmented skin, sunburn before slaughter or excessive drying in storage should be avoided.

Skin should be smooth and not too thick or coarse.

Dressing.—Bruises and weals due to fighting before slaughter, hits from sticks, kicks when loading, or bruises from fighting in truck or lorry should be absent. There should be a complete absence of hair or scraper cuts.

Breeders' points by inspection.

Hams.—The bone should be fine and ham well filled out with lean meat; the space between the legs U rather than V shaped.

Shoulders.—These should be light in proportion to the rest of the carcass, because it is a low priced cut.

Streak.—Not only should the belly be thick, but it should contain a high proportion of lean meat.

Breeders' points by measurement.

Body Length.—This is measured from the edge of the pubis bone to the junction of the sternum with the first rib. It gives a measure of the length of the valuable loin joint which can be cut from the carcass. A high proportion of this to the weight of carcass as a whole increases the value for cutting purposes.

Leg Length.—This is measured in a straight line from the edge of the pubis bone to the tip of the toe. When taken in relation to weight of carcass, it gives a measure of the amount of bone in the carcass.

The side is now cut through at the level of the last rib. This position was selected, because not only does it expose the most valuable part, but also the latest developing part of the carcass, thus affording the best index of the state of the development of the carcass as a whole.

Eye Muscle of Loin.—Maximum depth of eye muscle, the measurement of which is taken at right angles to the long axis, and as near to the centre as is practicable. This gives the best measure of lean meat throughout the carcass.

Backfat.—This is measured $1\frac{1}{2}$ inches from the middle line, with one point of the calipers at the edge of the eye muscle and the other just on the inner layer of the skin. This gives a better measure of the amount of fat in the carcass than does the measurement of the fat at the shoulder, because it is the last part of the back to develop.

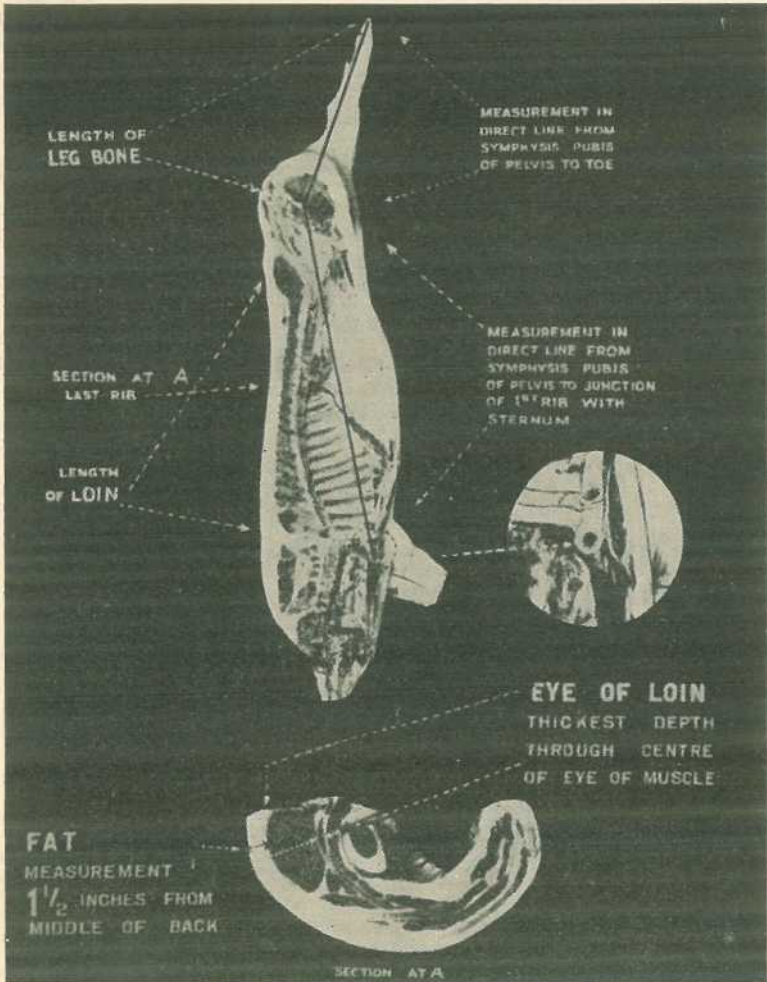
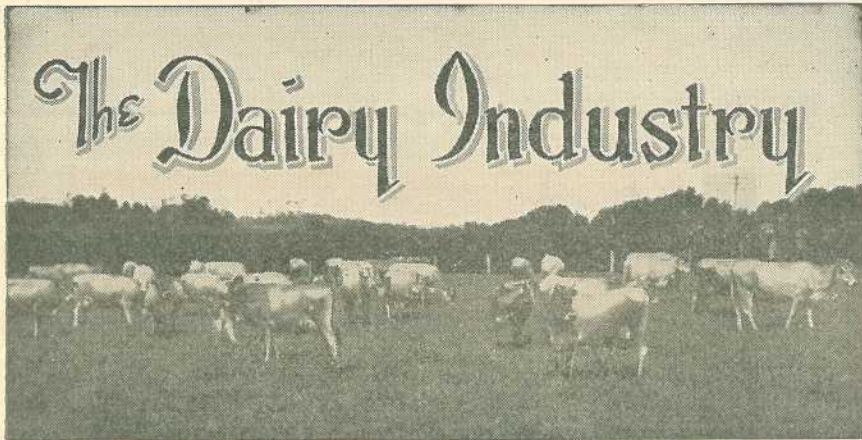


Plate 222.

Hammond System of Carcass Judging.

Having considered the conformation of the different parts of the bacon pig, sight should not be lost of the fact that good conformation does not altogether denote good quality meat, which so largely depends on feeding.

Breeding exerts the greatest influence on the general conformation, but feeding influences the quality of the flesh, also colour and texture of the meat and, to some extent, the quality of the bone.



Queensland Butter Production, 1949-1950.

PREPARED BY THE DIVISION OF DAIRYING.

THE output of Queensland butter factories for the year ended 30th June, 1950, was 107,958,527 lb. Seasonal conditions were good throughout the year and the third successive increase in production since the serious drought of 1946-1947 was recorded. The graph in Plate 223 shows the fluctuations in annual production since the record year of 1938-1939.

The system whereby the price received by dairymen is based upon the estimated cost of production is still in operation, and consequent upon a further survey by the Joint Dairy Industry Advisory Committee the Commonwealth Government agreed to a further increase of $2\frac{1}{2}$ d. per pound of commercial butter to the producer, making his return 2s. 4 $\frac{1}{2}$ d. per pound for choice grade butter. This system of a guaranteed price has provided a measure of stability for the industry which should place producers in a sound financial position and permit them to effect improvements to their properties and equipment.

One feature of the price structure is that notwithstanding the substantial increase in price which has taken place over the past six years the differential between the various grades has remained constant at $\frac{1}{2}$ d. per pound between choice and first grades and 1d. per pound between first and second grades. The result of this is that whereas in 1942-1943, when the average price was 1s. 4d. per pound, suppliers of lower grade cream received $3\frac{1}{8}$ per cent less for first grade and $9\frac{3}{8}$ per cent less for second grade, the margins are now down to $1\frac{3}{4}$ per cent. and $5\frac{1}{4}$ per cent. The result is that the monetary incentive to produce choice cream is now so slight that it is doubtful if it has any effect at all.

During the year two events of importance to the industry were the lifting in May of the order restricting the sale of cream and the abolition of butter rationing in June. The effect of the former is already noticeable in the increased sales of cream by factories in the larger centres of population and these sales appear likely to become a profitable adjunct to factory operations. They will, of course, result in some

reduction in the quantity of butter manufactured, and this combined with the abolition of rationing will lessen the quantity of butter available for export.

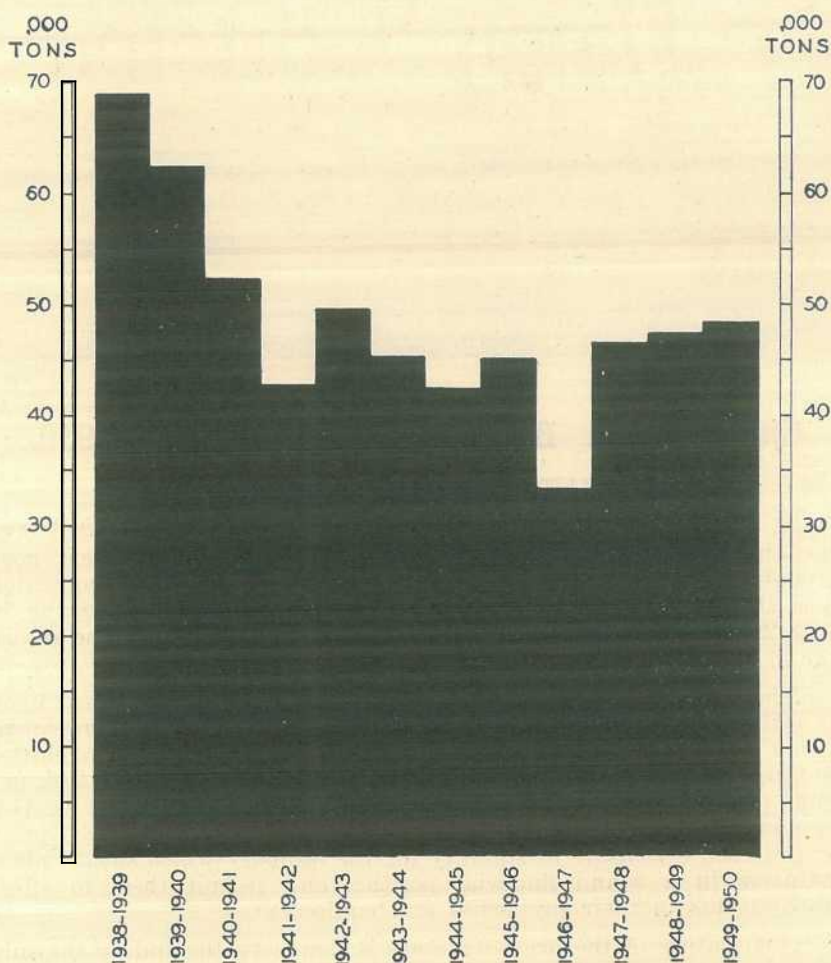


Plate 223.

Diagram Showing Butter Production Since 1938-39.

Gradings.

The factory gradings of all butter manufactured were as follows:—

	Boxes.	Percentage.
Choice		
First	1,207,228	62.6
Second	652,283	33.8
Pastry	68,224	3.5
	95	..
	<hr/> 1,927,830	

Of this quantity, 1,648,146 boxes, or 85.5 per cent., were submitted for official grading. The butter submitted was made up as follows (factory gradings):—

	Boxes	Percentage
Choice	976,865	59.3
First	605,094	36.7
Second	66,138	4.0
Pastry	49	..

The results of the official gradings are set out in the following summary:—

Submitted as—		Graded as—				
Grade.	Total.	Choice.	First.	Second.	Pastry.	Prohibited from Export.
	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.	Boxes.
Choice	976,865	818,363	157,752	602	67	79
First	605,094	..	583,853	20,632	308	301
Second	66,138	..	..	59,412	6,662	64
Pastry	49	..	..	..	49	..
Totals	1,648,146	818,363 49.65%	741,605 45.0%	80,648 4.89%	7,086 0.43%	444 0.03%

The percentage of butter graded as choice (49.65) shows a substantial improvement over the previous year, when the figure was 42.27, but is slightly below the figure of 50.99 achieved in 1947-1948.

Following is a summary of the manufacture and pays in grades for the whole State. It is followed by the figures for manufacture, pay and gradings of each individual factory.

Production in Grades (lb.).

Total.	Choice.	First.	Second.	Pastry.
107,958,527	67,604,786	36,527,855	3,820,566	5,320

Pay in Grades (lb.).

Total.	Choice.	First.	Second.	Pastry.
108,055,302	67,118,459	37,623,073	3,312,575	1,195

Over-run.

Actual	3.03 per cent.
Paid	3.08 per cent.

PRODUCTION, PAYMENTS AND GRADINGS OF BUTTER IN QUEENSLAND, 1949-50.

PRODUCTION AND PAYMENTS.

Factory.	Total.	Manufacture and Payments in Lb.				Over-run.		Make Graded.	
		Choice.	First.	Second.	Pastry.	Actual.	Paid.	Per Cent.	
Atherton Tableland Association, Malanda	Make	2,328,094	2,328,094	..	..	..	73,700	73,690	..
	Pay	2,328,084	3,203,435	..	24,649	..	3.27%	3.27%	31.4
Caboolture Association, Caboolture	Make	2,489,144	2,200,615	288,529	..	..	103,906	103,203	..
	Pay	2,488,441	2,275,449	204,033	8,959	..	4.36%	4.33%	75.25
Caboolture Association, Pomona	Make	1,667,745	1,572,290	93,943	1,512	..	49,840	49,588	..
	Pay	1,667,493	1,619,969	46,994	530	..	3.08%	3.06%	100.0
Caboolture Association, Eumundi	Make	2,073,461	1,866,765	206,696	..	..	69,743	70,231	..
	Pay	2,073,949	1,912,943	160,462	544	..	3.48%	3.51%	76.46
Chinchilla	Make	1,896,130	708,482	893,760	292,768	1,120	13,483	12,871	..
	Pay	1,895,518	722,812	946,493	225,400	813	0.72%	0.68%	93.25
Daintree Association, Mossman	Make	83,602	25,472	58,130	..	..	2,982	2,892	..
	Pay	83,602	25,472	58,130	..	..	3.7%	3.7%	..
Dayboro'	Make	383,824	..	383,824	..	..	*3,535	Nil	..
	Pay	428,718	401,704	26,983	31	..	0.83%	..	81.67
Downs Association, Too-woomba	Make	2,691,291	1,590,555	898,856	201,880	..	73,459	73,715	..
	Pay	2,691,547	1,568,839	924,289	198,419	..	2.81%	2.82%	61.55
Downs Association, Clifton	Make	1,119,440	804,720	314,272	448	..	36,665	36,660	..
	Pay	1,119,435	802,066	316,570	799	..	3.39%	3.39%	93.36
Downs Association, Dalby	Make	2,702,726	713,046	1,904,224	82,768	2,688	84,158	84,086	..
	Pay	2,702,654	688,444	1,951,570	62,640	..	3.21%	3.21%	92.15
Downs Association, Miles	Make	940,052	105,840	674,744	159,468	..	26.166	26,168	..
	Pay	940,054	106,268	674,974	158,812	..	2.86%	2.86%	91.78
Downs Association, Crow's Nest	Make	1,647,520	724,360	891,520	31,640	..	49,607	49,567	..
	Pay	1,647,480	725,063	891,237	31,180	..	3.10%	3.10%	97.76

* Includes C. B. Content of Cream Sold.

OFFICIAL GRADINGS IN BOXES.

Factory.	Boxes Submitted As Choice.	Result of Official Grading.				Boxes Submitted As First.	Result of Official Grading.			Boxes Submitted As Second.	Result of Official Grading.		Boxes Submitted As Pastry.
		Choice.	First.	Second.	Pastry.		First.	Second.	Pastry.		Second.	Pastry.	
Atherton Tableland Association, Malanda	12,563	12,481 99.35%	82 0.65%	..	..	197	..	197 100.0%	..	295	186 63.05%	109 36.95%	..
Caboolture Association, Caboolture	28,340	24,235 85.52%	4,103 14.48%	1	1	5,106	4,624 90.56%	482 9.44%	..	..	..	..	..
Caboolture Association, Pomona	26,604	16,619 62.47%	9,985 37.53%	..	..	1,680	1,025 61.01%	655 38.99%	..	..	..	..	..
Caboolture Association, Eumundi	29,663	10,594 35.71%	19,069 64.29%	..	..	3,591	2,014 56.08%	1,577 43.92%	..	38	..	38 100.0%	..
Chinchilla	10,541	7,935 75.28%	2,571 24.39%	35 0.33%	..	15,903	15,368 96.64%	535 3.36%	..	5,130	3,433 66.92%	1,697 33.08%	..
Daintree Association	No	Gradings											
Dayboro' .. ..	..	..	..	..	..	5,598	5,565 99.41%	33 0.59%	..	..	..	..	..
Downs Association, Toowoomba	10,380	10,019 96.52%	361 3.48%	..	..	15,962	15,790 98.92%	172 1.08%	..	2,730	2,578 94.43%	152 5.57%	..
Downs Association, Clifton	13,051	12,920 99.0%	131 1.0%	..	..	5,604	5,457 97.38%	76 1.36%	71 1.26%	8	8 100.0%	..	..
Downs Association, Dalby	8,715	8,441 96.86%	274 3.14%	..	..	34,221	34,026 99.43%	195 0.57%	..	1,488	1,247 83.8%	241 16.2%	24
Downs Association, Miles	459	312 67.97%	147 32.03%	..	..	11,904	10,725 90.1%	1,179 9.9%	..	2,828	2,345 82.92%	483 17.08%	..
Downs Association, Crow's Nest	12,130	9,956 82.08%	2,174 17.92%	..	..	16,050	15,931 99.26%	119 0.74%	..	581	552 95.01%	29 4.99%	..

PRODUCTION, PAYMENTS AND GRADINGS OF BUTTER IN QUEENSLAND 1949-50—continued.

Factory.	Total.	Manufacture and Payments in Lb.				Over-run.		Make Graded.	
		Choice.	First.	Second.	Pastry.	Actual.	Paid.	Per Cent.	
Downs Association, Goombungee	Make	1,664,992	704,816	960,176	..	..	45,513	45,524	..
	Pay	1,665,003	706,299	958,704	..	..	2·81%	2·81%	98·72
Downs Association, Jandowae	Make	2,208,246	837,020	1,204,616	166,600	..	60,649	60,731	..
	Pay	2,208,328	837,163	1,205,389	165,776	..	2·82%	2·83%	98·97
Esk	Make	2,470,138	1,450,266	1,015,448	4,424	..	66,982	66,937	..
	Pay	2,470,093	1,476,543	988,637	4,913	..	2·79%	2·79%	96·63
Evelyn Tableland Associa- tion, Ravenshoe	Make	497,438	238,756	258,682	..	..	19,925	19,849	..
	Pay	497,362	491,257	5,701	404	..	4·17%	4·16%	47·96
Gayndah	Make	1,541,928	950,176	537,544	54,208	..	51,840	52,075	..
	Pay	1,542,163	958,983	534,939	48,241	..	3·48%	3·49%	95·88
Killarney	Make	1,588,170	799,522	647,752	140,896	..	38,411	37,955	..
	Pay	1,587,714	824,679	649,982	113,053	..	2·48%	2·45%	77·33
Logan and Albert Associa- tion, Beaudesert	Make	3,452,023	1,674,283	1,694,064	83,676	..	105,728	106,389	..
	Pay	3,452,684	1,779,564	1,594,777	78,343	..	3·16%	3·18%	97·61
Maleny	Make	2,701,209	2,523,185	178,024	..	..	79,724	80,023	..
	Pay	2,701,508	2,568,827	129,946	2,735	..	3·04%	3·05%	19·64
Maryborough Association, Maryborough	Make	843,674	548,232	275,842	19,600	..	26,126	26,739	..
	Pay	844,287	575,983	259,182	9,122	..	3·2%	3·27%	31·42
Maryborough Association, Biggenden	Make	1,825,026	869,106	955,920	..	..	69,613	69,346	..
	Pay	1,824,759	938,320	886,374	65	..	3·97%	3·95%	91·99
Maryborough Associa- tion, Kingaroy	Make	4,141,635	3,738,250	263,200	140,185	..	195,726	195,354	..
	Pay	4,141,263	3,789,356	237,994	113,913	..	4·96%	4·95%	61·21
Maryborough Association, Mundubbera	Make	2,756,238	2,308,742	357,392	90,104	..	81,468	81,397	..
	Pay	2,756,167	2,343,255	337,684	75,228	..	3·05%	3·04%	97·47
Maryborough Association, Wondai	Make	2,865,808	1,964,192	846,832	54,784	..	88,200	88,874	..
	Pay	2,866,482	2,070,415	753,450	42,617	..	3·18%	3·2%	96·95

OFFICIAL GRADINGS IN BOXES—*continued.*

Factory.	Boxes Submitted As Choice.	Result of Official Grading.				Boxes Submitted As First.	Result of Official Grading.			Boxes Submitted As Second.	Result of Official Grading.		Boxes Submitted As Pastry.
		Choice.	First.	Second.	Pastry.		First.	Second.	Pastry.		Second.	Pastry.	
Downs Association, Goombungee	12,180	9,771 80.22%	2,409 19.78%	..	..	17,172	16,871 98.25%	301 1.75%	..	..	..	..	..
Downs Association, Jandowae	14,210	12,190 85.78%	2,020 14.22%	..	..	21,707	21,376 98.48%	331 1.52%	..	3,110	2,786 89.58%	324 10.42%	..
Esk	24,541	19,114 77.89%	5,427 22.11%	..	..	18,001	17,951 99.72%	50 0.28%	..	79	39 49.37%	40 50.63%	..
Evelyn Tableland Association, Raven-shoe	2,965	2,965 100.0%	..	..	..	1,295	1,295 100.0%	..	..	..	..	..	..
Gayndah	15,935	10,759 67.52%	5,145 32.29%	31 0.19%	..	9,542	8,693 91.1%	849 8.9%	..	923	671 72.7%	252 27.3%	..
Killarney	7,913	6,549 82.76%	1,364 17.24%	..	..	11,625	11,515 99.05%	110 0.95%	..	2,393	2,348 98.12%	45 1.8%	..
Logan and Albert Association, Beau-desert	28,395	19,944 70.24%	8,451 29.76%	..	..	30,241	29,106 96.25%	1,135 3.75%	..	1,534	1,522 99.22%	12 0.78%	..
Maleny	41,023	35,950 87.63%	4,917 11.99%	156 0.38%	..	3,179	2,871 90.31%	308 9.69%	..	..	..	..	..
Maryborough Association, Maryborough	1,798	23 1.28%	1,775 98.72%	..	..	2,618	2,241 85.6%	377 14.4%	..	317	137 43.22%	180 56.78%	..
Maryborough Association, Biggenden	13,219	8,120 61.43%	5,027 38.03%	72 0.54%	..	16,761	16,245 96.92%	516 3.08%	..	..	..	..	..
Maryborough Association, Kingaroy	39,189	37,323 95.24%	1,866 4.76%	..	..	3,766	3,750 99.58%	16 0.42%	..	2,311	2,208 95.54%	103 4.46%	..
Maryborough Association, Mundubbera	40,002	23,702 59.25%	16,300 40.75%	..	..	6,375	3,883 60.91%	2,492 39.09%	..	1,596	728 45.61%	868 54.39%	..
Maryborough Association, Wondai	33,548	29,751 88.68%	3,797 11.32%	..	..	15,112	14,875 98.43%	237 1.57%	..	952	840 88.24%	112 11.76%	..

PRODUCTION, PAYMENTS AND GRADINGS OF BUTTER IN QUEENSLAND, 1949-50—continued.

Factory.	Total.	Manufacture and Payments in Lb.				Over-run.		Make Graded.	
		Choice.	First.	Second.	Pastry.	Actual.	Paid.	Per Cent.	
Millaa Millaa	Make	901,220	901,220	..	..	25,627	26,804	..	
	Pay	902,397	902,351	..	46	2.93%	3.06%	52.57	
Millmerran	Make	1,130,363	271,323	691,712	165,918	1,400	25,834	25,965	..
	Pay	1,130,494	300,298	700,637	129,559	..	2.34%	2.35%	92.03
Nanango	Make	2,935,155	1,072,979	861,448	728	..	98,640	98,622	..
	Pay	2,935,137	2,309,825	620,836	4,476	..	3.48%	3.48%	97.56
Oakey	Make	4,085,006	2,324,310	1,349,656	411,040	..	126,937	126,773	..
	Pay	4,084,842	2,322,142	1,410,754	351,946	..	3.21%	3.20%	94.98
Port Curtis Association, Gladstone	Make	1,352,763	832,002	506,730	14,031	..	23,438	27,927	..
	Pay	1,357,252	351,692	989,767	15,684	109	1.76%	2.1%	85.2
Port Curtis Association, Bundaberg	Make	1,791,054	466,257	1,321,157	3,640	..	50,226	50,747	..
	Pay	1,791,575	437,461	1,350,371	3,711	32	2.89%	2.92%	66.16
Port Curtis Association, Wowan	Make	2,319,991	1,722,140	580,891	16,960	..	18,430	47,896	..
	Pay	2,348,457	1,366,384	965,095	16,978	..	0.8%	2.04%	88.75
Port Curtis Association, Rockhampton	Make	1,447,087	179,178	1,204,405	63,504	..	30,312	35,725	..
	Pay	1,452,500	185,491	1,205,393	61,616	..	2.14%	2.52%	23.44
Port Curtis Association, Monto	Make	3,726,917	3,141,493	545,944	39,480	..	84,220	84,251	..
	Pay	3,726,948	2,088,782	1,605,801	32,365	..	2.31%	2.31%	97.37
Port Curtis Association, Mackay	Make	599,111	199,496	396,149	3,466	..	8,200	12,380	..
	Pay	603,291	199,733	399,970	3,588	..	1.39%	2.1%	..
Port Curtis Association, Biloela	Make	3,760,193	2,289,489	1,456,852	13,852	..	82,060	82,074	..
	Pay	3,760,207	1,346,870	2,402,990	10,347	..	2.23%	2.23%	75.16
Q.A.H.S. and College, Lawes	Make	67,868	57,228	6,832	3,808	..	1,094	1,110	..
	Pay	67,884	57,600	8,098	2,186	..	1.64%	1.66%	19.4
Queensland Farmers', Booval	Make	3,545,287	1,282,981	1,817,704	444,490	112	96,208	97,173	..
	Pay	3,546,252	1,289,577	1,887,706	368,969	..	2.79%	2.82%	75.48

OFFICIAL GRADINGS IN BOXES—continued.

Factory.	Boxes Submitted As Choice.	Result of Official Grading.				Boxes Submitted As First.	Result of Official Grading.			Boxes Submitted As Second.	Result of Official Grading.		Boxes Submitted As Pastry.
		Choice.	First.	Second.	Pastry.		First.	Second.	Pastry.		Second.	Pastry.	
Millaa Millaa	2,707	2,707 100·0%	..	..	..	5,753	5,753 100·0%	..	..	..	..	..	..
Millmerran	3,272	2,237 68·37%	1,035 31·63%	..	..	12,321	11,091 90·02%	1,230 9·98%	..	2,958	2,440 82·49%	518 17·51%	25
Nanango	35,795	29,803 83·26%	5,946 16·61%	46 0·13%	..	15,328	14,389 93·87%	770 5·02%	169 1·1%	13	13 100·0%	..	..
Oakey	38,179	34,052 89·19%	4,127 10·81%	..	..	24,226	23,916 98·72%	310 1·28%	..	6,878	6,864 99·8%	14 0·2%	..
Port Curtis Association, Gladstone	12,118	12,043 99·38%	75 0·62%	..	..	8,333	8,025 96·3%	308 3·7%	..	131	131 100·0%	..	..
Port Curtis Association, Bundaberg	2,460	2,346 95·37%	114 4·63%	..	..	18,635	18,635 100·0%	..	..	65	..	65 100·0%	..
Port Curtis Association, Wowan	26,915	24,929 92·62%	1,986 7·38%	..	..	9,538	8,843 92·71%	695 7·29%	..	260	214 82·31%	46 17·69%	..
Port Curtis Association, Rockhampton	..	..	..	..	..	5,034	4,907 97·48%	127 2·52%	..	1,024	812 79·3%	212 20·7%	..
Port Curtis Association, Monto	54,433	50,091 92·02%	4,342 7·98%	..	..	9,661	9,621 99·59%	40 0·41%	..	705	531 75·32%	174 24·68%	..
Port Curtis Association, Mackay	No	gradings											
Port Curtis Association, Biloela	29,778	28,231 94·8%	1,547 5·2%	..	..	20,477	20,312 99·19%	165 0·81%	..	209	209 100·0%	..	..
Q.A.H.S. and College, Lawes	..	..	..	..	..	148	135 91·22%	13 8·78%	..	75	75 100·0%	..	..
Queensland Farmers', Booval	7,473	5,215 69·78%	2,258 30·22%	..	..	32,750	32,622 99·61%	128 0·39%	..	7,565	7,522 99·43%	43 0·57%	..

PRODUCTION, PAYMENTS AND GRADINGS OF BUTTER IN QUEENSLAND, 1949-50—continued.

Factory.		Total.	Manufacture and Payments in Lb.				Over-run.		Make Graded.	
			Choice.	First.	Second.	Pastry.	Actual.	Paid.	Per Cent.	
Queensland Boonah	Farmers'	Make	4,167,198	2,013,439	1,928,880	224,879	..	147,921	147,819	..
		Pay	4,167,096	2,097,166	1,907,705	162,225	..	3.68%	3.68%	97.78
Queensland Laidley	Farmers'	Make	1,958,806	1,014,052	887,061	57,693	..	71,935	71,878	..
		Pay	1,958,749	1,063,463	846,191	49,095	..	3.81%	3.81%	95.62
Queensland Grantham	Farmers'	Make	2,309,103	562,071	1,737,680	9,352	..	75,822	75,818	..
		Pay	2,309,099	579,999	1,721,231	7,869	..	3.4%	3.39%	95.8
Queensland Lowood	Farmers'	Make	911,837	240,648	652,332	18,857	..	22,070	22,824	..
		Pay	912,591	235,854	661,351	15,386	..	2.48%	2.55%	95.62
Roma .. ..	.. ..	Make	890,048	..	543,968	346,080	..	27,490	27,490	..
		Pay	890,048	164,257	389,470	336,080	241	3.19%	3.19%	53.18
South Burnett Association, Murgon	Associa- tion, Murgon	Make	2,761,250	1,521,578	1,236,144	3,528	..	87,320	87,932	..
		Pay	2,761,862	1,872,310	887,537	2,015	..	3.27%	3.29%	96.12
South Burnett Association, Proston	Associa- tion, Proston	Make	1,548,000	1,030,280	483,224	34,496	..	48,643	48,714	..
		Pay	1,548,071	1,093,340	427,005	27,726	..	3.24%	3.25%	96.53
Kingston .. ..	.. ..	Make	4,097,296	2,629,984	1,329,888	137,424	..	157,304	157,269	..
		Pay	4,097,261	2,637,142	1,343,742	116,377	..	3.99%	3.99%	98.9
Woodford .. ..	.. ..	Make	1,167,571	995,819	171,752	..	..	32,886	34,090	..
		Pay	1,168,775	1,027,585	141,152	38	..	2.9%	3.00%	98.61
Warwick .. ..	.. ..	Make	1,387,283	1,313,643	54,712	18,928	..	38,555	44,025	..
		Pay	1,392,753	1,170,010	209,783	12,960	..	2.86%	3.26%	61.32
Allora .. ..	.. ..	Make	1,387,091	1,336,891	28,120	22,080	..	40,304	40,274	..
		Pay	1,387,061	1,331,387	34,699	20,975	..	2.99%	2.99%	88.63
Inglewood .. ..	.. ..	Make	326,312	156,128	153,216	16,968	..	8,554	9,283	..
		Pay	327,041	110,023	200,101	16,917	..	2.69	2.92%	54.97
Texas .. ..	.. ..	Make	90,736	..	90,736	..	..	3,235	3,249	..
		Pay	90,750	3,502	78,170	9,078	..	3.7%	3.71%	..

OFFICIAL GRADINGS IN BOXES—continued.

Factory.	Boxes Submitted As Choice.	Result of Official Grading.				Boxes Submitted As First.	Result of Official Grading.			Boxes Submitted As Second.	Result of Official Grading.		Boxes Submitted As Pastry.
		Choice.	First.	Second.	Pastry.		First.	Second.	Pastry.		Second.	Pastry.	
Queensland Farmers', Boonah	33,934	27,243 80.28%	6,608 19.47%	83 0.24%	..	34,709	34,604 99.7%	105 0.3%	..	4,121	4,002 97.11%	119 2.89%	..
Queensland Farmers', Laidley	16,584	14,361 86.6%	2,223 13.4%	..	..	15,847	15,422 97.44%	405 2.56%	..	1,037	874 84.28%	163 15.72%	..
Queensland Farmers', Grantham	8,274	5,608 67.78%	2,666 32.22%	..	..	31,062	30,675 98.75%	387 1.25%	..	167	150 89.82%	17 10.18%	..
Queensland Farmers', Lowood	3,509	2,904 82.76%	605 17.24%	..	..	11,720	11,471 97.88%	249 2.12%	..	341	256 75.07%	85 24.93%	..
Roma .. .. .	..	..	..	..	..	2,311	2,299 99.48%	12 0.52%	..	6,142	6,142 100.0%	..	..
South Burnett Associa- tion, Murgon	25,261	19,926 78.88%	5,281 20.9%	54 0.21%	..	22,069	21,870 99.1%	131 0.59%	68 0.3%	63	63 100.0%	..	..
South Burnett Associa- tion, Proston	17,793	10,902 61.27%	6,891 38.73%	..	..	8,451	7,969 94.3%	482 5.7%	..	619	489 79.0%	130 21.0%	..
Kingston	46,245	45,801 99.04%	444 0.96%	..	..	23,650	23,605 99.81%	45 0.19%	..	2,443	2,296 93.98%	147 6.02%	..
Woodford	17,493	14,300 81.75%	3,178 18.17%	15 0.08%	..	3,052	2,926 95.87%	126 4.13%	..	14	14 100.0%	..	..
Warwick	13,868	12,578 90.7%	1,290 9.3%	..	..	977	956 97.85%	21 2.15%	..	346	274 79.19%	72 20.81%	..
Allora	21,010	20,515 97.64%	495 2.36%	..	..	563	465 82.59%	98 17.41%	..	381	381 100.0%	..	..
Inglewood	216	54 25.0%	162 75.0%	..	..	2,735	2,451 89.62%	284 10.38%	..	303	270 89.11%	33 10.89%	..
Texas	No	gradings											

PRODUCTION, PAYMENTS AND GRADINGS OF BUTTER IN QUEENSLAND, 1949-50—*continued.*

Factory.	Total.	Manufacture and Payments in Lb.				Over-run.		Make Graded.	
		Choice.	First.	Second.	Pastry.	Actual.	Paid.	Per Cent.	
Wide Bay Association, Gympie	Make	7,286,913	6,680,936	403,032	202,945	..	193,246	191,174	..
	Pay	7,284,841	6,800,465	320,333	164,043	..	2.72%	2.69%	95.23
Wide Bay Association, Cooroy	Make	1,427,514	1,122,426	283,640	21,448	..	36,754	36,520	..
	Pay	1,427,280	1,260,642	162,691	3,947	..	2.64%	2.63%	96.11

OFFICIAL GRADINGS IN BOXES—*continued.*

Factory.	Boxes Submitted As Choice.	Result of Official Grading.				Boxes Submitted As First.	Result of Official Grading.			Boxes Submitted As Second.	Result of Official Grading.		Boxes Submitted As Pastry.
		Choice.	First.	Second.	Pastry.		First.	Second.	Pastry.		Second.	Pastry.	
Wide Bay Association, Gympie	113,072	108,678 96.11%	4,394 3.89%	..	..	7,207	5,339 74.08%	1,868 25.92%	..	3,520	3,381 96.05%	139 3.95%	..
Wide Bay Association, Cooroy	19,033	14,166 74.43%	4,690 24.64%	111 0.58%	66 0.35%	5,046	4,355 86.31%	691 13.69%	..	354	354 100.0%	..	..
Totals ..	976,786	818,363	157,752	604	67	604,793	583,853	20,632	308	66,074	59,412	6,662	49

Queensland Cheese Production, 1949-1950.

PREPARED BY THE DIVISION OF DAIRYING.

THE production of cheese in Queensland for the year which ended on 30th June, 1950, showed a further drop, the quantity manufactured being 20,240,690 lb., compared with 21,033,063 lb. in the previous year.

This lower production is in keeping with the trend which has manifested itself since the cessation of the big wartime diversion of milk to cheese production and can probably be attributed to the less exacting requirements of cream production on the one hand and the increasing needs of the market milk trade on the other.

The graph in Plate 224 shows the movement in production over the past ten years.

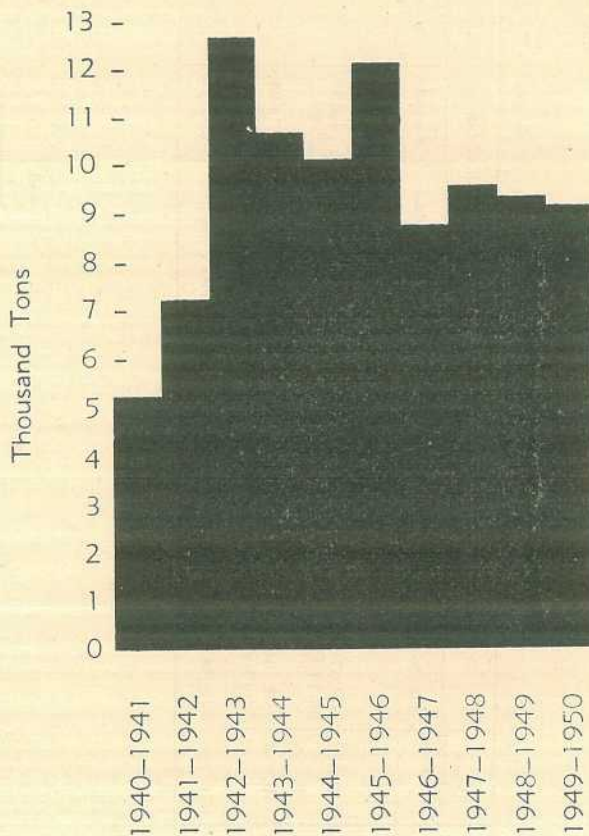


Plate 224.

Diagram Showing Cheese Production for Ten Years.

Gradings.

A total of 10,866,078 lb. cheese was graded during the year, representing about 54 per cent. of the quantity manufactured. This was a considerably smaller proportion than was graded in the previous year, but it is sufficient to give a useful indication of the trend in quality.

The most significant feature of the grading figures is the marked improvement in quality, the proportion graded as choice and first quality having moved up to the record level of 79.89 per cent.

The grading figures for the past five years are shown hereunder for purposes of comparison:—

Year.				Choice and First.	Second.	Third.
				Per Cent.	Per Cent.	Per Cent.
1945-46	..	..	..	70.27	25.28	1.45
1946-47	..	..	..	72.19	25.88	1.93
1947-48	..	..	..	63.00	34.40	2.44
1948-49	..	..	..	71.47	27.61	0.92
1949-50	..	..	..	79.89	19.45	0.66

In addition to the quantity of cheese referred to above, approximately 40,000 lb. of cheese which was submitted for grading was either prohibited from export, or in the case of cheese for local consumption, allotted no points because of its low standard of quality. The bulk of the prohibitions from export were due to cracked rinds or damage to the cheese during transit from the factory, but nearly 5,000 lb. of cheese, some of which was submitted for export and some for local consumption, was below standard.

A summary of the output and gradings is given below, and is followed by figures for individual factories. In noting grading figures, however, readers are asked to observe the proportion of the factory's output which was graded, as it may be too small to be representative.

SUMMARY OF PRODUCTION.

Milk Used	198,964,282 lb.	Yield of Cheese per 100 lb. Milk ..	10.19
Cheese Made	20,272,558 lb.	Yield per Pound Butterfat ..	2.67
Butterfat Paid For ..	7,575,746 lb.	Average Butterfat Test of Milk ..	3.81

SUMMARY OF GRADINGS.

Total Graded.	Choice.	First.	Second.	Third.
Lb.	Lb.	Lb.	Lb.	Lb.
40,866,078	64,300	8,616,569	2,113,734	71,475
	(0.59%)	(79.3%)	(19.45%)	(0.66%)

MANUFACTURE AND GRADINGS OF QUEENSLAND CHEESE FACTORIES

For the Year Ended 30th June, 1950.

Factory.	Milk Received.	Production and Yield.					Official Gradings.				
		Cheese Green Weight.	Butterfat.	Cheese Yield.		Average Test.	Total Lb. Submitted and Per Cent. of Manufacture	Choice.	First.	Second.	Third.
				Per 100 Lb. Milk.	Per Lb. Butterfat.						
	Lb.	Lb.	Lb.	Lb.	Lb.	Per Cent.					
Biddeston	6,447,189	688,620	245,952	10.68	2.8	3.81	{ 357,854 51.97%	..	325,849	32,005	..
								..	91.06%	8.94%	..
Coalstoun Lakes	1,999,523	207,426	75,826	10.37	2.74	3.79	{ 32,078 15.9%	..	..	32,184	794
								..	..	97.59%	2.41%
Dare Bros. Pty., Daredale ..	1,870,554	192,980	72,969	10.32	2.64	3.9	{ 175,439 90.91%	..	105,578	68,899	962
								..	60.18%	39.27%	0.55%
Dare Bros. Pty., Woodleigh ..	1,638,622	158,218	62,795	9.66	2.52	3.83	{ 130,414 82.43%	..	87,072	43,342	..
								..	66.77%	33.23%	..
Downs Association, Boodua ..	2,798,345	282,843	114,349	10.11	2.47	4.09	{ 225,972 79.89%	..	216,300	9,514	158
								..	95.72%	4.21%	0.07%
Downs Association, Toowoomba ..	25,486,920	2,587,781	978,250	10.15	2.65	3.84	{ 2,287,906 100.0%	..	1,865,269	420,090	2,547
								..	81.53%	18.36%	0.11%
Dundarra	1,299,627	127,234	48,876	9.79	2.60	3.76	{ 16,206 12.74%	..	..	13,197	3,009
								..	..	81.43%	18.57%
Felton	4,429,156	467,044	170,935	10.54	2.73	3.86	{ 315,330 67.52%	..	188,118	127,212	..
								..	59.66%	40.34%	..
Greenmount	2,872,769	299,202	108,435	10.42	2.76	3.77	{ 48,390 16.17%	..	3,900	43,140	1,350
								..	8.06%	89.15%	2.79%
Highgrove	196,350	20,491	7,237	10.44	2.83	3.69	{ 26,391 100.0%	..	5,280	17,264	3,847
								..	20.01%	65.42%	14.57%
Irongate	3,516,097	347,822	120,295	9.89	2.69	3.68	{ 245,207 70.5%	8,051	219,766	17,390	..
								3.28%	89.62%	7.09%	..
Kooroongarra	4,103,408	408,774	148,007	9.96	2.76	3.61	{ 460,953 100.0%	..	322,681	138,272	..
								..	70.0%	30.0%	..
Kraft Walker Cheese Co. Pty. Ltd., Quinalow	8,854,484	925,106	329,702	10.45	2.81	3.72	{ 208,718 22.56%	..	192,603	14,180	1,935
								..	92.28%	6.79%	0.93%

Malling	6,091,788	585,436	233,232	9.61	2.51	3.83	{ 80,785 5.26%	..	482 1.57%	80,303 98.43%	..
Maclagan Association, Maclagan..	8,113,152	808,334	300,807	9.96	2.69	3.71	{ 270,259 33.43%	..	69,301 25.64%	178,554 66.07%	22,404 8.29%
Maclagan Association, Kulpi ..	7,934,670	792,973	293,515	9.99	2.7	3.7	{ 484,399 61.09%	..	367,600 75.89%	116,639 24.08%	160 0.03%
Maryborough Association, Tansey	5,882,441	600,123	248,435	10.2	2.42	4.22	{ 118,626 19.77%	35,163 29.64%	83,463 70.36%	..	..
Maxam Cheese Products, Cooranga North	7,948,416	849,257	330,094	10.68	2.57	4.15	{ 715,596 84.26%	..	532,247 74.38%	177,503 24.8%	5,846 0.82%
Maxam Cheese Products, Lilyvale	2,535,864	271,477	101,518	10.71	2.67	4.0	{ 251,373 92.59%	..	250,404 99.6%	969 0.4%	..
Moola	4,470,206	447,602	164,954	9.99	2.71	3.68	{ 240,768 53.79%	..	196,891 81.78%	43,877 18.22%	..
Mount Sibley	2,741,039	291,092	105,772	10.62	2.75	3.86	{ 240,526 82.63%	..	240,526 100.0%	..	..
Mount Tyson	6,471,957	669,169	243,753	10.34	2.75	3.77	{ 58,986 8.81%	..	44,855 76.04%	14,131 23.96%	..
Pittsworth Association, Pittsworth	8,512,538	898,749	340,163	10.56	2.64	4.0	{ 283,694 31.57%	..	235,941 83.17%	47,753 16.83%	..
Pittsworth Association, Linthorpe	2,174,297	231,087	83,604	10.63	2.76	3.85	{ 130,708 56.56%	..	109,962 84.13%	19,995 15.3%	751 .57%
Pittsworth Association, Scrubby Mount	Closed	Down.					{ 9,782	..	8,142	1,640	..
							{ ..	..	83.23%	16.77%	..
Pittsworth Association, Springside	211,918	23,612	8,328	11.14	2.84	3.93	{ 28,329 100.0%	..	28,329 100.0%	..	..
Pittsworth Association, Yarranlea	4,979,968	493,762	187,752	9.91	2.63	3.77	{ 254,785 51.6%	..	185,592 72.84%	68,623 26.93%	570 .22%
Port Curtis Association, Bracewell	4,729,135	480,494	175,773	10.16	2.73	3.72	{ 278,474 57.96%	..	269,914 96.67%	9,280 3.33%	..
Port Curtis Association, Theodore	2,835,911	293,373	108,872	10.34	2.69	3.84	{ 73,565	..	67,788	5,777	..
Q.A.H.S. and College, Lawes ..	36,300	3,724	1,465	10.26	2.54	4.04	{ 25.08%	..	92.15%	7.85%	..
							No gradings				
Queensland Farmers', Booval ..	317,800	31,868	..	10.03	..	..	Nil	Nil	Nil	Nil	Nil

MANUFACTURE AND GRADINGS OF QUEENSLAND CHEESE FACTORIES FOR THE YEAR ENDED 30TH JUNE, 1950—continued.

Factory.	Milk Received.	Production and Yield.					Official Gradings.				
		Cheese Green Weight.	Butterfat.	Cheese Yield.		Average Test.	Total Lb. Submitted and Per Cent. of Manufacture	Choice.	First.	Second.	Third.
				Per 100 Lb. Milk.	Per Lb. Butterfat.						
Ramsay	1,779,037	179,530	67,874	10.09	2.65	3.82	{ 157,350 87.65%	..	69,900 44.42%	87,450 55.58%	..
Rockview	2,337,302	242,840	91,108	10.39	2.67	3.9	{ 158,214 65.15%	..	153,435 76.25%	4,779 23.75%	..
Rocky Creek	3,555,320	361,499	131,084	10.17	2.76	3.69	{ 342,182 94.66%	..	171,611 50.15%	155,553 45.46%	15,018 4.39%
Southbrook	6,516,410	668,109	240,660	10.25	2.78	3.69	{ 379,197 56.76%	..	334,562 88.23%	43,863 11.57%	772 0.2%
South Burnett Association, Goomeri	5,035,544	502,562	200,945	9.98	2.5	3.99	{ 349,026 69.45%	11,680 3.35%	329,662 94.45%	7,684 2.2%	..
South Burnett Association, Murgon	4,901,152	461,487	189,616	9.42	2.43	3.87	{ 191,487 41.49%	1,276 0.67%	190,201 99.33%	..	..
Sugarloaf	1,953,405	197,129	80,188	10.09	2.46	4.11	{ 108,593 55.09%	..	86,202 79.38%	22,391 20.62%	..
Sunnyvale	2,193,743	233,174	89,086	10.63	2.62	4.06	{ 60,161 25.8%	..	48,715 80.97%	11,138 18.51%	308 0.51%
Warwick Association, Greymare	2,109,247	211,178	74,490	10.01	2.83	3.53	{ 83,769 39.67%	..	45,972 54.88%	31,899 38.08%	5,898 7.04%
Warwick Association, Talgai ..	1,029,834	103,329	39,672	10.03	2.6	3.85	{ 22,097 21.39%	..	..	19,735 89.31%	2,362 10.69%
Warwick Association, Victoria Hill	690,980	71,037	24,988	10.28	2.84	3.62	{ 5,707 8.03%	..	..	2,923 51.22%	2,784 48.75%
Warwick Association, Mill Hill ..	20,181,816	2,023,254	732,415	10.03	2.76	3.63	{ 809,878 40.03%	8,120 1.0%	779,883 96.3%	21,875 2.7%	..
Yamson	1,754,788	179,575	64,046	10.23	2.80	3.65	{ 71,653 39.9%	..	58,942 82.26%	12,711 17.74%	..
Yargullen	3,416,350	352,182	128,909	10.31	2.73	3.77	{ 124,351 35.31%	..	124,351 100.0%	..	..
Totals	198,964,282	20,272,558	7,575,746	..	..	..	{ 10,866,078 54.0%	64,300 0.59%	8,616,569 79.3%	2,113,734 19.45%	71,475 0.66%



Diarrhoea in Infancy.

DIARRHOEA is an indication that the bowel is being irritated by some agent or other. The immediate results are that the intestinal contents are hurried along and excreted too rapidly, not allowing sufficient time for digestion and absorption of food and fluids to take place.

The bowel irritation may be caused by gastro-intestinal infection which is usually of serious import if not treated promptly and efficiently, or by improper feeding, especially overfeeding, which causes a digestive upset. Spoiled foods, foods which are not readily digested, or an infection elsewhere in the body, might decrease the infant's ability to digest the amount of food eaten and lead to increased bacterial action, an overstimulated intestine and hence, diarrhoea.

Before we discuss the abnormal bowel further let us say a few words about the normal. The stools which baby passes in the first few days of life are dark green in colour, but by the fifth day they will usually have assumed the characteristics they will show during infancy.

Usually a breast fed baby has from two to four bowel movements every day; the stools are yellow in colour and of soft, smooth texture. Occasionally they are less frequent, especially if the infant is underfed. Fewer motions—only one or two a day—are characteristic of the bottle-fed child. They are usually firmer and lighter in colour than those of the breast fed baby.

The colour of the motions is not important except as an indication of how rapidly food passes through the baby's body. The slower the digestive processes, the lighter the motions. If the baby develops diarrhoea, his motions may be dark green and foamy, because they have passed through his body rapidly. If he is constipated they may become much lighter in colour. A small amount of curds in the stool may be normal—the curds are merely "soaps" which have been derived from fats in the baby's food.

There is another variety of stool which may be described as lumpy or cheesy, where you can see white particles, varying in size, more or less oval or rounded in shape, scattered all through the motion. These round or oval particles are in some cases the remains of undigested milk and indicate that the child is getting more milk than he can digest. In other cases they consist simply of little balls of mucus, showing a catarrh of the bowel. Then there is a kind of stool in children which is extremely irritating, and which scalds the skin over the buttock and napkin area. These motions are usually caused by too much fat in the diet. Excess of sugar in the diet produces frothy acid motions of natural colour which also may cause scalding and irritation. Then there is a stool which may be described as "slimy"; that means a stool which contains mucus in excessive quantity and indicates that some factor is causing irritation of the bowel.

Signs of Diarrhoea.

The symptoms of acute infantile diarrhoea or gastro-enteritis may begin either gradually or with great suddenness. It may come like a bolt from the blue, affecting a child which was, or appeared to be, in perfect health. The motions are noticed to be more frequent and often there is more or less vomiting. At first the stools are natural in colour—that is to say, more or less yellow—but before the diarrhoea has lasted long they become greenish, and finally they may come to contain mucus, or even blood. If the diarrhoea still persists, the motions become extremely offensive and of a watery consistence.

Treatment.

What should you do in the event of your baby getting diarrhoea? In any case of established diarrhoea a doctor's advice should be sought whenever possible; if you suspect that the feeding is at fault your Clinic Sister may be able to help you.

You should not attempt to treat the diarrhoea yourself but you can adopt temporary precautionary methods. When the bowel is in a state of irritation its main requirement is rest and time to overcome the source of irritation. Therefore, all foods, including milk, should be stopped for 24 or even 48 hours if necessary and nothing but boiled water, barley water or glucose water given. One of the main dangers of diarrhoea is the rapid loss of fluid from the body and this must be replenished at frequent intervals. If the diarrhoea is mild and clears up rapidly baby can then be gradually graded back on to his normal diet, commencing with well diluted milk mixtures—for example a mixture containing half milk and half water.

If improper feeding is the cause of the diarrhoea this should be corrected.

It should be remembered that gastro-enteritis is exceptionally rare in breast fed babies, for breast milk is the perfect natural food for infants and the danger of infection is practically non-existent provided that the mother is scrupulously clean in her personal hygiene.

Many babies are unnecessarily taken off the breast on account of diarrhoea and in almost all cases this is a very great mistake for breast milk is practically never at fault. Diarrhoea is quite often due to the mother taking certain purgatives which affect the breast milk, e.g., senna, aloes, cascara or rhubarb; so you should be aware of this and guard against it.

Prevention.

Prevention is always better than cure so take special note of these preventive measures:

1. Breast feed your baby for the full nine months if at all possible.
2. Always be scrupulously clean in your personal habits especially before and after handling or feeding baby.
3. If baby is artificially fed, see that his milk and other foods are kept in a cool airy place and well protected against dust and flies.
4. Always boil baby's milk and water before use.
5. Baby's feeding utensils should be kept scrupulously clean.
6. Always feed baby yourself. Don't allow baby to feed himself from a propped bottle in his cot.
7. All used napkins should be transferred immediately to a covered bucket. Soiled napkins should be boiled before washing.
8. Don't allow dangerous dummies in the house.
9. If in doubt consult your doctor or Clinic Sister.

Any further information on this and other matters connected with children may be obtained by communicating personally with the Maternal and Child Welfare Information Bureau 184 St. Paul's Terrace, Brisbane, or by addressing letters "Baby Clinic," Brisbane.

ASTRONOMICAL DATA FOR QUEENSLAND.

JANUARY.

Supplied by W. J. NEWELL, Hon. Secretary of The Astronomical Society of Queensland.

TIMES OF SUNRISE AND SUNSET.

At Brisbane.			MINUTES LATER THAN BRISBANE AT OTHER PLACES.					
Day.	Rise.	Set.	Place.	Rise.	Set.	Place.	Rise.	Set.
	a.m.	p.m.						
1	4-56	6-46	Cairns ..	48	9	Longreach ..	43	27
6	5-00	6-47	Charleville ..	29	25	Quilpie ..	33	37
11	5-04	6-47	Cloncurry ..	63	36	Rockhampton ..	18	2
16	5-08	6-47	Cunnamulla ..	28	31	Roma ..	19	15
21	5-12	6-46	Dirranbandi ..	16	22	Townsville ..	40	9
26	5-16	6-45	Emerald ..	27	12	Winton ..	51	30
31	5-20	6-43	Hughenden ..	48	22	Warwick ..	2	6

TIMES OF MOONRISE AND MOONSET.

At Brisbane.			MINUTES LATER THAN BRISBANE (SOUTHERN DISTRICTS).								
			Charleville 27; Cunnamulla 29; Dirranbandi 19; Quilpie 35; Roma 17; Warwick 4.								
At Brisbane.			MINUTES LATER THAN BRISBANE (CENTRAL DISTRICTS).								
Day.	Rise.	Set.	Emerald.		Longreach.		Rockhampton.		Winton.		
			Rise.	Set.	Rise.	Set.	Rise.	Set.	Rise.	Set.	
1	p.m. 11-42	a.m. 11-45	6	22	17	38	33	13	8	44	37
2	..	p.m. 12-46	1	30	9	46	23	21	0	54	26
3	a.m. 12-17	1-51	11	24	15	40	31	15	7	46	35
4	12-57	3-00	16	16	27	31	42	7	18	36	50
5	1-43	4-12	21	9	30	25	45	0	21	26	54
6	2-38	5-23	26	16	23	32	39	8	14	36	33
7	3-42	6-28	31	28	12	44	27	19	2	52	30
8	4-52	7-26									
9	6-04	8-14									
10	7-13	8-54									
11	8-19	9-29									
12	9-29	10-00									
13	10-17	10-30									
14	11-13	10-59									
15	p.m. 12-08	11-29									
16	1-93	..									
17	1-58	a.m. 12-01									
18	2-54	12-37									
19	3-50	1-17									
20	4-44	2-02									
21	5-35	2-53									
22	6-21	3-49									
23	7-02	4-47									
24	7-39	5-43									
25	8-13	6-45									
26	8-44	7-43									
27	9-14	8-41									
28	9-45	9-39									
29	10-17	10-39									
30	10-53	11-42									
31	11-36	p.m. 12-47									

At Brisbane.			MINUTES LATER THAN BRISBANE (NORTHERN DISTRICTS).								
Day.	Rise.	Set.	Cairns.		Cloncurry.		Hughenden.		Townsville.		
			Rise.	Set.	Rise.	Set.	Rise.	Set.	Rise.	Set.	
1	1-58	12-01	3	36	24	55	46	40	32	30	21
3	2-54	12-37	5	42	13	58	39	43	24	35	13
7	4-44	2-02	9	52	4	66	33	59	19	43	5
9	5-35	2-53	11	56	2	68	32	52	17	46	3
11	6-21	3-49	13	52	9	66	36	50	22	43	9
13	7-02	4-47	15	41	21	57	44	42	29	34	18
15	7-39	5-43	17	29	33	50	54	35	38	25	29
17	8-13	6-45	19	19	42	42	59	27	44	17	36
19	8-44	7-43	21	9	47	37	62	21	47	8	39
21	9-14	8-41	23	2	53	33	66	17	51	3	44
23	9-45	9-39	25	2	56	33	67	17	53	3	46
25	10-17	10-39	27	8	52	36	65	21	50	8	44
27	10-53	11-42	29	18	42	42	59	27	45	16	36
29	11-36	p.m. 12-47	31	28	32	50	53	34	38	24	28
				29	40	21	57	44	42	29	33
				31	51	9	65	49	22	42	9

Phases of the Moon.—Last Quarter, 1st January, 3.11 p.m.; New Moon, 8th January, 6.10 a.m.; First Quarter, 15th January, 10.23 a.m.; Full Moon, 23rd January, 2.47 p.m.; Last Quarter, 31st January, 1.13 a.m.

On 15th January the Sun will rise and set about 24 degrees south of true east and true west respectively and on the 13th and 28th the Moon will rise and set approximately at true east and true west respectively.

On 2nd January the Earth will reach that part of its orbit at which it is nearest the Sun—91,400,000 miles will then separate the Sun and Earth.

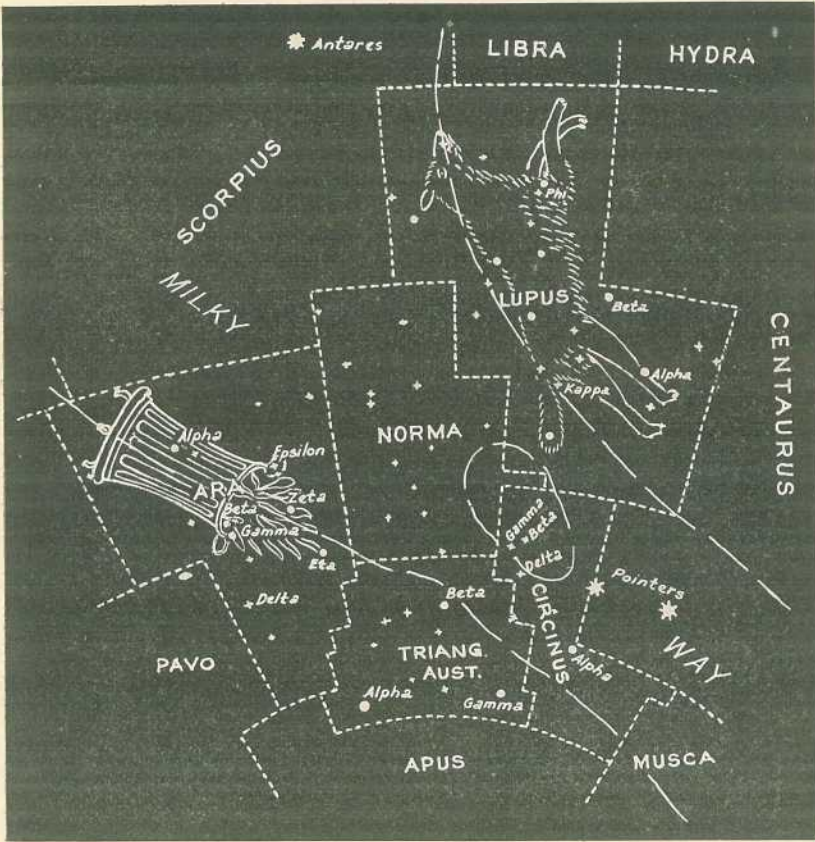
Mercury.—A morning object all this month, on the 1st, in the constellation of Sagittarius, will rise about sunrise, reaching greatest angle west of the Sun on the 23rd, when it will rise about 1 hour 50 minutes before sunrise. By the end of the month still in the constellation of Sagittarius, it will rise about 1½ hours before the Sun.

Venus.—May now be seen low in the west during evening twilight. At the beginning of the month, in the constellation of Sagittarius, it will set about ¾ hour after sunset, and by the end of the month, in the constellation of Aquarius, will set about 1 hour after the Sun.

Mars.—At the beginning of the month, in the constellation of Capricornus, will set between 8.50 p.m. and 10.15 p.m., and at the end of the month, in the constellation of Aquarius, will set between 8 p.m. and 9.15 p.m.

Jupiter.—In the constellation of Aquarius, will set between 10 p.m. and 11.15 p.m. at the beginning of January, and by the end of the month will set between 8.15 p.m. and 9.30 p.m.

Saturn.—Rises between 10.15 p.m. and 11.30 p.m. at the beginning of the month and between 9.15 p.m. and 10.30 p.m. at the end of the month.



THE CONSTELLATIONS.

In the South Pole regions, between Scorpio or Scorpius and Centaurus and adjoining the constellation of Apus, are the constellations shown in the sketch. Triangulum Australis is very true to its name—a distinct triangle which follows the pointers round the pole. Alpha is reddish in colour, and close to Gamma is the red star 3 Trianguli. This star varies in magnitude, sometimes being visible to the naked eye and sometimes requiring the use of field glasses.

Circinus (The Compasses) is a small modern constellation which lies between Alpha Centaurus and Triangulum Australis. Alpha Circini is a double star which lies due south of Alpha Centauri. It is a yellowish star with a bright brick-red companion of 8.8 magnitude. A line from Alpha Centauri through Alpha Circini brings the eye to an object which with binoculars looks like a faint comet with a tail. It is actually Gould's 6th magnitude star 22 Circini, with a "tail" of faint stars arranged in a line and in apparent contact. This constellation lies right in the Milky Way and is an excellent ground for doubles and clusters, &c.

Norma (The Square and Level) is a small constellation without any bright stars. It separates Lupus from Ara.

Ara (The Altar), another small, modern constellation, is situated close to the southern end of Scorpius. Beta and Gamma make a wide pair visible to the naked eye. A line from Zeta through Beta brings the eye to an object which in opera glasses appears like a luminous ball, a miniature of Omega Centauri; it is the cluster 70 Ara.

Lupus (The Wolf) adjoins Scorpius, Libra, and Centaurus and represents the wild beast made as an offering to the gods by the Centaur. It is a bright constellation but is rather overshadowed by the brilliance of its neighbour, Centaurus. Lying just on the edge of the Milky Way this area is also excellent for sweeping with a telescope.

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