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Queensland

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CALF-BRANDING ON A SHEEP STATION.

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New Year Message from the Minister for Agriculture and Stock

As may be verified in detail from the annual report presented to Parliament in November, my Department carried out a great deal of valuable work during the past year on behalf of Queensland primary producers. In spite of the adversities of hard seasons, this work will go on and will expand with the needs of the State.

It might not be out of place in this new year message, to refer briefly to a number of activities with which my Department is preoccupied:

Research work on wheat produced a new variety which gave the highest yield in varietal trials carried out on the open plain country of the Darling



Downs. More work will be done this year on breeding for rust resistance and frost resistance, high yielding capacity, and flour quality. A hybrid sorghum breeding project is being developed, while the new year will

see expanded research into tobacco, as well as further development of investigations and demonstrations with pastures.

An expanded research programme is being planned on the citrus industry's problem of fruit-sucking moths. Success was achieved in 1958 with the production of a rust-resistant bean, and improved apple storage methods.

An interesting project of the newly established Economics Research Branch of the Division of Marketing is an investigation of dairy cattle feeding costs.

Progress is still being made in the long-range plan at Toorak Field Station, where sheep breeding performances are tested with the idea of selecting and developing strains capable of reproducing more satisfactorily than has been the case under Queensland conditions. The very important problems of drought feeding of cattle and sheep, and of copper and phosphate deficiencies, are being tackled.

The new pig testing station at Rocklea will enable pig breeders to improve the quality of their stock, and to achieve an appreciable saving in production costs. Random sample testing of poultry breeding flocks is being conducted, as well as investigations into nutritional and management problems.

I have mentioned but a few projects of my Department, to show producers that we are working earnestly and searchingly on their behalf. It remains for me now to extend a sincere wish to all for a happy and prosperous new year and good seasons in the future.

Otto Madsen



Plate 1: A Perennial Crop Such as Lucerne Can be the Backbone of Any Dairy Feeding Plan.

Balanced Farming Comes In Stages

By J. L. GROOM, Senior Agronomist,
and A. HEGARTY, Agrostologist.

Balanced farming implies "making the most of the least." All too often the apparent glitter of one spectacular farming practice deceives farmers into neglecting more simple farm management practices. Yet these simple practices can so often make the difference between "breaking even" and making a worthwhile profit from any farming venture.

The application of a number of simple farm management practices has enabled Mr. E. Shield of Moggill to carry 67 head of stock on 68 acres, and maintain an average yearly production of 25,000 gallons of milk.

Balanced farming comes in stages and it is interesting to survey the progress made by Mr. Shield in the last 22 years. Let's see how he went about it:



Plate 2.

Sane Mechanisation Can Prove a Blessing on Any Farm.



Plate 3.

Irrigation Increases the Productivity of Crops Grown in Fertile Soil.



Plate 4.

Green Panic and Lucerne Combine to Produce Valuable Bulk Feed.

provide a solid backbone to his farm feeding programme. From this area he gets high-quality, protein-rich roughage which enables year-long stall-feeding to be undertaken. Fifty tons of chopped hay comes from this area yearly in addition to valuable grazing in the autumn, winter and spring.

As lucerne proved its value, its usefulness was extended further by the installation of a spray irrigation plant in 1941. The farm layout is such that this irrigation plant can water approximately 40 acres of cultivation.

Naturally, on a one-man farm there is a limit to the amount of land which can be irrigated. Also it is obvious that more and more lucerne hay is needed for winter and spring months when the couch grass pastures are unproductive. So pasture areas of lucerne and Rhodes grass, and lucerne and green panic, were established to increase the volume of paddock-grazing during the summer. Fertilizers helped here as they had done with the lucerne and other crops. Grazing management made better use of all the grass feed not made into hay.

Because his was a milk farm, and so needed a continuity of supply, Mr. Shield constructed feeding stalls many years ago and fed bought concentrates together with hand-chaffed bulk feed from his cultivation.

His first move to relieve himself of the risks involved in annual crop production was through the establishment of additional paddocks of lucerne. He now has 20 acres of lucerne and lucerne-grass mixtures, which

The growing of green crops for cutting and feeding has always been of prime importance on this property, and 14 acres have been devoted to crops of maize, sweet sorghum, Sudan grass, wheat, field peas and oats. Until recently this large tonnage of green material was mown and hand-chaffed for the stock.

Probably the most significant step in the handling of forage crops on this farm has come from the purchase of a forage harvester, with attachments which allow the crops to be cut in the swathe, harvested as a row crop, or picked up from a windrow. This machine has the ability to cut green feed quickly and economically, to cut and chaff the cured hay so that it can be stored in the shed ready to be fed out, and, finally, to cut surplus bulky maize and sweet sorghum to store as silage.

In making silage, crops have been cut at the best stage of maturity for feeding, instead of having them stand over, and become fibrous and wasteful. The cultivations are cleared sooner and can be fallowed longer.

Mr. Shield is improving the fertility of his land by using two and a half to



Plate 5.

Green Feeding, Silage Making, and Hay Chopping Allow This Machine to Work Economically on This Property.

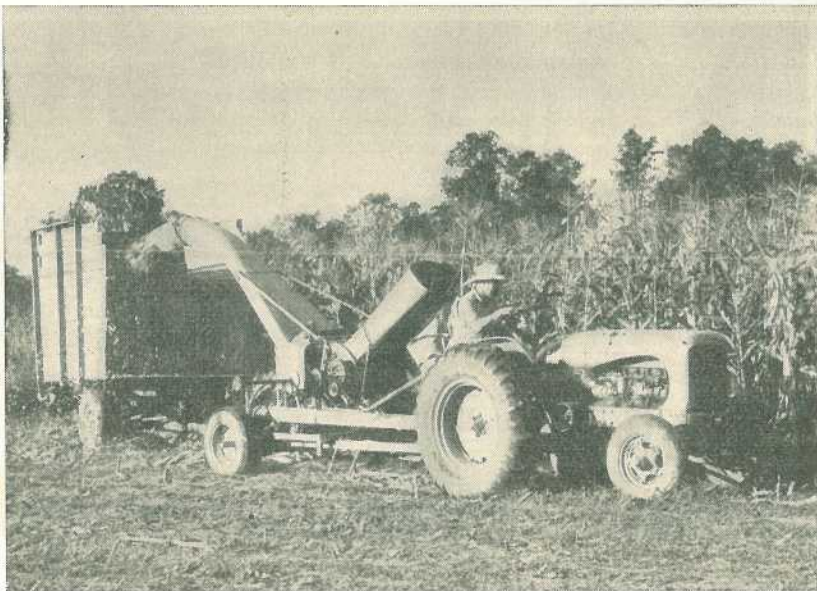


Plate 6.

Silage Making is Possible on One-Man Farms With an Outfit Such as This.

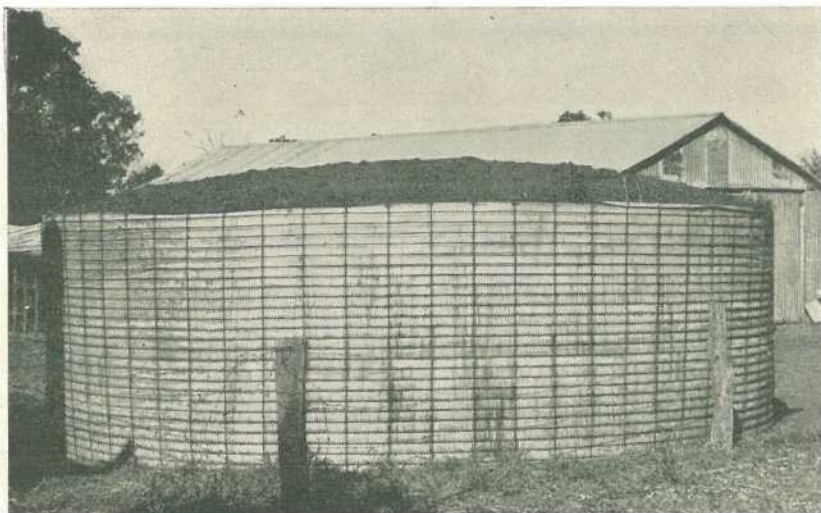


Plate 7.

Surplus Summer Fodder Can Be Effectively Stored in a Simple Silo.



Plate 8.

Maize and Sorghum Silage Showed Almost No Waste When Fed Out This Spring. Temporary wooden rails enabled the feed trolley to be taken right into the silo as feeding-out progressed.

three tons of mixed fertilizers annually, and by returning dung to the paddocks during rotational grazing. Nitrogen-phosphate fertilizers provide a valuable stimulus to his crops and pasture mixtures. Here his combination of the simple farm management practices of regulated watering, fertilizing, and rotational grazing are giving him high yields.

There is naturally still more to be done, but Mr. Shield has proved to his own satisfaction that despite the small size of his farm, he is capable of providing all the bulk feed needed for his

herd's high production. Supplementation of his high-quality, home-grown roughage with purchased dairy meals enables year-long stall-feeding to be undertaken. Stored summer surpluses have an important place in easing the feed shortage normally experienced in late winter and early spring.

As Mr. Shield's dependence on bought feeds is reduced, his faith in the obvious truth of a balanced farming system strengthens. Same mechanisation has proved a blessing on this farm.

Keeping Leather Gear in Order

"Old Timer," of Goondiwindi, writes: One thing that we have been making lately is neat's-foot oil, for oiling and preserving the saddlery. On the occasions when we killed a bullock for rations last winter we kept the leg bones below the knees and hocks.

I'm not sure whether you have the recipe or not, but if you haven't, this is it:

Boil the leg bones in water in an old copper, allowing to simmer gently for two hours. Skim off the surface oil; keep the contents of the copper simmering for a while, and you can get a second skimming. Strain the collected oil through cheesecloth and boil it again on a very slow fire, so that it will not catch fire. Then strain it again, allow to cool, and bottle it in beer bottles, clearly labelled.

When the boys have made their own neat's-foot oil it gives them an inducement to try it out on the saddlery, and so keep the gear in good order.

On the sheep station twenty and thirty years ago, wet weather gave good opportunities for make-and-mend days in the woolshed. At such times we, as jackeroos, would make hobbles, reins, sureingles, and even bridles from good side leather. Generally the stitching and quality of the leather on our own make of leather gear was twice as sound as on what we used to describe as "jail made" bought leather gear, which generally comprised the cheaper type of leather gear that many stations carried in their stores for replacements. During these wet weather "sessions" which were welcomed as a relief from the mustering camp life, we would also make fly veils from basil (tanned sheepskin), plaited and twisted branding ropes from greenhide, neck and verandah water bags from canvas. Every jackeroo and station hand learnt to handle saddler's awl, needles, and clamps. The clamps were always called "saddler's clams," and were made from two staves of a wooden barrel, held together at one end by a nut and bolt and washers. The "clams" were held between the knees, and the strap or leather being sewn was held firmly by the top end for sewing. No buckles, rings, or "D's" from obsolete saddlery or worn out leather gear were ever thrown away if still serviceable; they were treasured by the "bower-birds" of the mustering camp and used in replacements. I have a pair of swag straps that I made thirty-five years ago and the stitching is still sound.

Farm Wisdom

LONG-TERM studies at Agriculture Department Regional Experiment Stations are demonstrating to Queensland farmers the way to restore and maintain the fertility of their soils.

It has been found that, where the land is cropped, continued high production demands the use of pasture in the crop rotation. This in turn calls for some form of animal husbandry to make economic use of the pasture.

The value of this balanced farming system is being demonstrated in southern, central and northern Queensland. In all these regions, the Department is studying the effect on soil condition and crop production of different methods of land use.

A recent trial at the Hermitage Regional Experiment Station clearly indicated the benefits of balanced farming. Here it was shown that the productivity of the Darling Downs wheat lands can be restored and maintained with lucerne pastures. Given five years under lucerne, grain yields from the land have shown improvement after three years of cropping and this effect looks like continuing.

On the deep, rich soils at Hermitage, lucerne was chosen for the pasture because of its drought resistance. The pasture is used to fatten sheep, so that the land will still be returning cash, even though it is temporarily retired from grain. At the same time, the lucerne improves the soil. Being a legume, it increases the available nitrogen in the soil for the following crop, and it has been proven as a plant to improve the physical condition of the soil.

When the trial area at Hermitage has been under lucerne for three to

four years, it is ploughed during the autumn. A crop of grain sorghum is grown the following summer to take advantage of the good percolation of summer rain into the soil that takes place because of its improved physical condition.

The grain sorghum is followed by a year's fallow, and the land is then returned to three seasons of winter cereals. After that, it is again put into lucerne.

The Downs soils are used fairly intensively to grow winter and summer grains, and between crops they are usually left under fallow. This cropping system reduces the amount of organic material in the soil. As a result, the soil is likely to lose the good physical condition needed both for high yields and to protect it from erosion. A pasture rotation would greatly benefit many areas on the Downs in this respect.

—*W. J. CARTMILL, Director of
Regional Experiment Stations.*

LIGHT, flexible tyre rollers can render valuable aid in the establishment of cereal and lucerne crops and of pastures.

They gently firm the seed into close contact with the soil, ensuring even germination, maturity and harvest of the crop.

The benefits of rolling are particularly obvious when sowing has been carried out on a seed bed in which moisture conditions are not very good.

A light rolling is highly recommended when establishing pastures or lucerne. It can often mean the difference between success and failure.

Rubber tyre rollers can be made very cheaply on the farm from old baldy motor tyres. They are fitted side by side onto a braced hardwood frame of 4 ft. x 2 ft. Baldy tyres are best because they do not pick up soil as easily as a tyre with tread on it. If necessary, a piece of K wire can be loosely stretched over the top of the roller to act as a scraper.

The rollers are made as wide as the seed drill and follow behind it. If the soil is a bit damp, they can be off-set to roll the previous drill run.

Rollers are particularly beneficial on light friable soils. Farmers who have used them are very pleased with their results.

—D. R. EVANS, *Assistant Experimentalist.*

IT is almost impossible to grow tobacco without using insecticides to control leaf pests. But spray at the right time and with the right strength and rate of application of insecticide to keep costs low.

Plants should be treated with a combined spray of endrin and DDT or dieldrin and DDT in the seedbed immediately before transplanting. After transplanting, they should be sprayed weekly with the same preparation for the first three weeks. Later sprayings should be timed by observations on the presence of young stages of the leaf pests.

Either endrin or dieldrin will control the leaf miner, looper, stem borer and cluster caterpillars. DDT will control budworm and all other pests except looper. Endrin used at 10-day intervals is usually sufficient to control loopers if the spraying is thorough. When budworm is prevalent, weekly sprayings with DDT are necessary to protect the plant hearts.

—G. W. SAUNDERS, *Entomologist.*

A SOIL auger and a soil probe should be the constant companions of every irrigation farmer. Used regularly, the soil auger tells a farmer when his crop needs water and the probe when it's had enough.

The aim in irrigation farming is to maintain sufficient water in the main root zone of the pasture or crop for vigorous, unchecked growth. A series of borings with a soil auger provides a simple, but reliable check on the dryness of the soil. Make test borings a regular procedure so you can determine just when irrigation is necessary.

The probe is used during irrigation to find out when sufficient water has soaked into the root zone of the crop. It gives an approximate, but practical, measurement of the depth to which the water has penetrated.

If you're not familiar with these tools, ask your Adviser in Agriculture to show you how to use them.

—A. NAGLE, *Irrigationist.*

IT'S easier to thin out a heavy stand of cotton than to try patching up a gappy one. The later plants never seem to catch up with the original planting and yields are affected.

At the same time, replanting adds to the expense.

While germination percentages have improved with seed treatment, favourable conditions are necessary to obtain a regular stand with sowing rates of 10 lb. per acre. If a storm follows planting and a dry crust is formed above the germinating seed, a lot of pressure is needed to break through. A thick planting allows the lengthening young stems to force a crack in the crust where lighter rates may fail to push through.

Another 5 lb. per acre costs only 2s. 6d. but it may be worth pounds later on.

—W.G. STEELE,
Senior Adviser in Agriculture.

Look After Your Tractor Air Cleaner

By C. G. WRAGGE,
Agricultural
Engineer.

REGULAR attention to the air cleaner on your tractor will help to safeguard the engine and give you more working hours between overhauls. The air cleaner's job is to remove dust particles from the air so that only clean air is drawn through the carburettor.

Early tractors were not fitted with air cleaners. Under dusty conditions, the life of an engine was often only a couple of hundred hours. But today efficient air cleaners are used, and you can count on them to save engine wear. It is noteworthy that for combustion, a gallon of petrol requires about 1,400 cu. ft. of air, while a gallon of diesel fuel requires about 1,800 cu. ft.—in each case the volume of a fairly large room.

In modern air cleaners, air is drawn into a removable dome fitted to the main air tube. The underside of the dome has fixed metal louvres. The resultant swirling effect throws the heavier dust particles to the outside and fairly clean air passes down the air tube to the oil bath. This air passes first through the oil bath and then through wire screens which filter out oil sludge and any remaining dust particles.

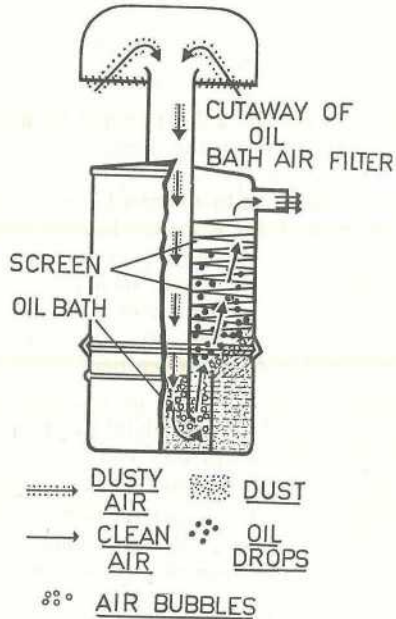


Plate 1.

KEROSENE RINSE.

These wire screens need regular cleaning to prevent choking with oil sludge or dirt. As they are usually metal-framed and are non-removable, the best method of cleaning is to rinse the whole cleaner thoroughly in kerosene.

Most air cleaner oil baths hold from one to three pints of oil. Under dusty conditions, clean the oil bath and refill it once a day before use; under very dusty conditions, clean and refill twice a day. Under fairly dust-free conditions, such as when mowing lucerne, cleaning once a week may be sufficient. Use only clean engine oil and fill to the level mark.

The benefit of the air cleaner will be largely lost if the hose connections to the carburettor are perished. Renew these short lengths of hose frequently and tighten the clips regularly.

Remember, the life of your tractor depends directly on the care and attention you give to the air cleaner.

Steps To Correct Magnesium Deficiency In Citrus

By G. W. J. AGNEW,
Senior Experimentalist.

Magnesium deficiency in citrus is a nutritional disorder which occurs fairly commonly in orchards on the acid coastal soils of Queensland. Leaf symptoms are usually conspicuous in the late autumn and winter months and are particularly acute during very wet years such as 1954-55.

Magnesium occurs in the soil mainly as magnesium carbonate and passes readily into solution. It is therefore easily leached out of well-drained and highly acid soils during periods of heavy rains.

As one of the essential elements for plant growth, magnesium is a key substance in the formation of chlorophyll, the green colouring matter of leaves, twigs, and fruit which plays a vital role in the building up of organic products within plant tissues. It is closely associated with the manufacture of the phosphorus-rich organic compounds needed for seed development.

All kinds of citrus have a high magnesium requirement but seedy varieties such as Joppa and Valencia Late oranges require more of this element than seedless varieties such as Washington Navel.

Magnesium moves, or rather is translocated, readily from one part of the plant to another. During the late autumn and winter months, the fruit is nearing maturity and the need for

magnesium is at its peak. The drain on the magnesium supply within the tissues at this time of the year coincides with a relatively low intake from the soil. Under these circumstances, magnesium is translocated from the old leaves to the developing fruits and other parts of the tree where it is in demand. The old leaves lose much of their green colour and yellow blotches become conspicuous, particularly on leaves near the hanging fruit. The appearance of these yellow blotches between the leaf veins near the midrib is the first symptom of magnesium deficiency.

These Are The Symptoms.

Nutritional disorders in citrus are sometimes difficult to diagnose and abnormalities induced by insect pests and diseases often mask normal symptoms of a deficiency of magnesium. This is particularly so in many of our coastal orchards where chlorosis or yellowing of the leaves is frequently associated with deficiencies in nitrogen and/or zinc.

In a typical case of magnesium deficiency, the irregular yellow blotches in the older leaves eventually coalesce and only the base and tip remain green until complete yellowing takes place and leaf fall occurs. A fairly consistent symptom is an arrowhead of green at the base of the leaf.

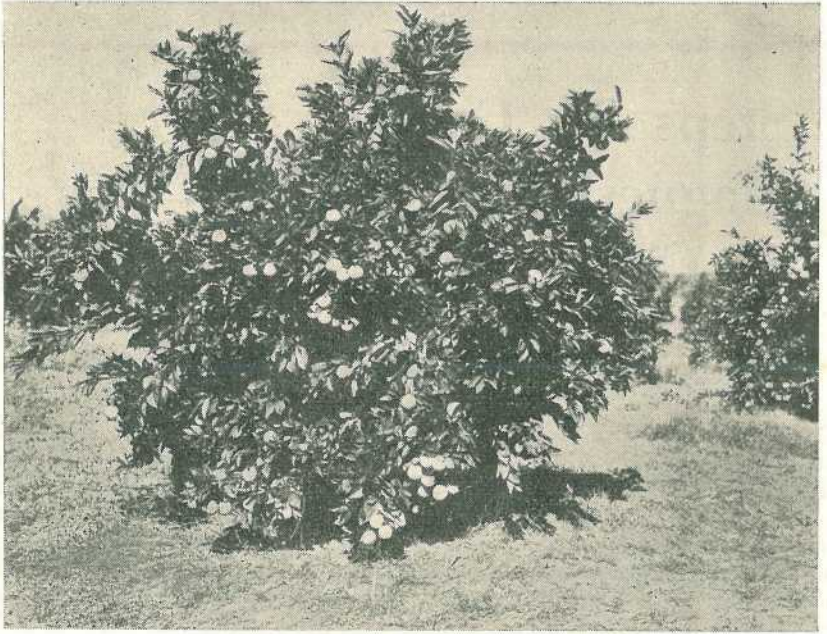


Plate 1.

Valencia Late Orange. Young tree carrying a full crop. A deficiency of magnesium at this stage may substantially reduce production in the following year in coastal districts.

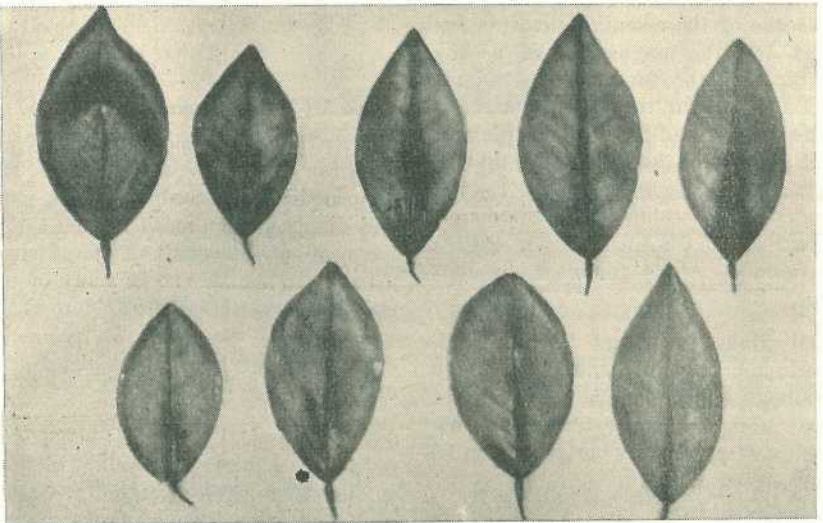


Plate 2.

Leaf Symptoms of Magnesium Deficiency in Citrus. Note bronzing of the interveinal tissues and the arrowhead of green at the base of the leaf (upper right).

The primary yellowing symptom of magnesium deficiency is often referred to as "bronzing" and occurs in patches of varying intensity over the foliage of the tree. It may be more acute in some trees than others. As a general rule, it is more common on the North Coast in Joppa orange, Valencia Late orange, grapefruit and lemon than in mandarins.

In acute cases of magnesium deficiency, leaf fall is often followed by twig dieback which necessitates a considerable amount of dead wood pruning in the following winter. In such orchards, the succeeding crop is often very light. After years of heavy rainfall such as 1954, crop yields decline considerably in orchards where symptoms of magnesium deficiency are acute.

What To Do About It.

On very acid soils, loss of magnesium by leaching is high. This does not necessarily mean that deficiencies occur only on very acid soils. Nevertheless, many of our coastal citrus orchards are strongly acid with reaction values ranging from pH 5.2 down to pH 4.1. On such soils, dolomite (a mixture of calcium and magnesium carbonates) is applied as a soil dressing to bring the soil reaction value nearer to pH 6.0, which is generally regarded as being the optimum for citrus and, at the same time, to supply additional magnesium to the soil.

An annual dressing of from 1-2 tons per acre until the symptoms of magnesium deficiency disappear has proved an effective remedy in commercial orchards. Preferably part of the dolomite should be broadcast in early summer and part in autumn, a few weeks before (or after) one of the standard fertilizer applications.

On some soil types, particularly those on which the soil reaction is close to the optimum value for citrus (pH 6.0), a better response may be obtained from soil dressings of mag-

nesium sulphate at $\frac{1}{2}$ -1 cwt. per acre or, alternatively, a mixture of both dolomite and magnesium sulphate.

The correction of magnesium deficiency in citrus orchards is a slow process and may take more than one season. In common with other nutritional disorders in citrus, magnesium deficiency symptoms indicate the need for an urgent review of soil management practices. For example, many of the lighter sands and sandy loams require additional organic matter to improve the uptake of plant foods from the soil. This can be supplied by growing green manure crops in the orchard, by growing them in adjacent land to supply material for mulching the orchard, and by the liberal use of farmyard or fowl manure.

In many coastal orchards, the placement of fertilizer is often far from satisfactory; too much is placed in the drip zone of the trees and insufficient in other areas which are also occupied by the feeding roots. Large quantities of fertilizer regularly placed in a narrow band around a citrus tree tend to create very acid conditions in the underlying soil, to accentuate leaching of magnesium and other nutrients and, in some instances, to destroy the roots.

In a series of tests conducted in the Maroochy district, the mean reaction value under the drip of mature trees was pH 4.2, as against a mean value of pH 5.3 some 8 feet away in the centre of the row. Dressings of fertilizers and soil amendments such as dolomite should obviously be so placed that the trees get the maximum benefit without inducing marked variations in soil acidity within the orchard. They should therefore be distributed over the whole area normally occupied by the roots of the trees.

In an orchard of mature trees of, say, 10 years of age, with the normal spacing, this may mean the whole of the orchard.

Green Fingers

THE long or snake bean deserves a place in the vegetable industry. This summer vegetable yields good crops and will supplement the supply of green vegetables during the hot weather. It is a good substitute for the French bean.

Long beans will grow on a wide range of soils. But well-drained loams with a large amount of decomposed organic matter are the most suitable. Before planting, fertilize the land with a liberal dressing of well-rotted manure or a 4:15:2 or similar complete fertilizer, putting on about 2 to 2½ lb. to the chain of row.

The planting season extends from September to early March in north Queensland and from September to early February in the south. Plant the seed about 1 in. deep at spacings of about 10 in. in the row. The long bean is a climber, so you'll need to provide stakes or some other support.

—K. M. WARD,
Senior Horticulturist.

SETTING the right follower at the right time is the only way to control cropping in bananas. Highest returns per acre can be expected only in plantations where crop control is practised.

The aim of the efficient grower is to harvest the bulk of his fruit between April and November. For this reason followers for the ratoon crop should be selected so that they will bunch in February or March.

The sucker selected for the follower should be deep-seated, with a well-developed corm and narrow, sword-shaped leaves. This type of sucker usually appears above ground shortly before the parent plant throws its bunch, and should be about 2 ft. tall in December. Followers set in December produce bunches in March, some 15 months later, and provide the bulk of the winter fruit from the ratoon crop.

—J. McG. WILLS,
Senior Adviser in Horticulture.

Fertilizer and Soil Acidity

The response of fruit and vegetable crops to nitrogenous fertilizers is often unsatisfactory on land that has been cultivated for many years and is strongly acid. High acidity in the wetter coastal soils must be corrected if the grower is to get best results from applied fertilizers, states Mr. L. J. Missingham, Adviser in Horticulture.

Sulphate of ammonia, for example, is used at rates up to 5 cwt. per acre per year, for year after year. The fertilizer reacts with the calcium in the soil and much of the calcium is leached out in wet weather. As a result, the soil gets more and more acid every year.

The remedy is to apply agricultural lime or dolomite at regular intervals. As a guide, you can assume that one ton of lime or dolomite will offset the acidifying effect of one ton of sulphate of ammonia. In most horticultural districts, one ton of lime or dolomite every second year, or two tons every fourth year should prove satisfactory.

Plant Sword-Leaved Banana Suckers

By F. W. BERRILL,
Horticulturist.

The sword-leaved banana sucker should be used as planting material in preference to the broad-leaved sucker.

The type of planting material which is used for the establishment of a crop is always important. In a crop such as the banana, which remains in production for a number of years, the quality of the planting material frequently determines the success or otherwise of the plantation. Where "bits" (sections of a healthy corm) are not available, the grower must necessarily use "suckers" (offshoots from a corm) as planting material. In commercial practice, only vigorous, sword-leaved suckers should be planted.

Most plants pass through a series of more or less well-defined growth stages during their life. In a crop which is propagated from seed, we refer to the initial plant as a seedling. At a certain point, the plant passes beyond the seedling stage. But what determines the point where the changeover takes place from one stage to another? This is a difficult question to answer, for many factors are involved, most of them being connected with the nutrient supply, climate, and, of course, the inherent characteristics of the species.

It is somewhat easier to answer another question: "How does one determine when the plant has passed



Plate 1.

Mons Mari Banana. The most important variety grown commercially in Queensland.

from the seedling stage?" In many instances, the transition is recognised by obvious changes in habit, leaf colour, growth rate, or leaf size and shape. An excellent example of leaf variation occurs in the carrot, the first-formed leaves of which are simple and elongated whereas those produced later have a characteristic fern-like appearance. Likewise, the two simple leaves of the young bean seedling are followed by the typical three-lobed leaves of the older plants.

A plant does not pass directly from the seedling to the adult stage. On the contrary, it goes through several intermediate stages before it flowers and produces fruit.

In plants which are normally reproduced vegetatively, the position is somewhat different. Thus, in the case of the banana, the sucker is derived from a bud on the parent corm, and passes through an early developmental period which is generally designated as the juvenile stage. Just when the sucker ceases to be juvenile is a debatable point but the change is invariably distinguished by marked alterations in leaf size and shape.

SWORD-LEAF SUCKER.

The sword-leaf sucker of the banana plant develops from a bud on the parent corm. At the outset, the bud is made up of a number of small, spirally arranged scales which overlap each other and protect the central growing point. These scales are forced outwards—somewhat like the petals in an opening flower—by pressure from the central tissue of the expanding bud. The bud enlarges rapidly at first and the bud scales open out and are shed at a corresponding rate. This stage occurs below ground level but, when the new corm has reached a diameter of perhaps an inch or more, the sucker breaks through the surface of the soil. The time of appearance will depend very largely, of course, on the depth at which the young corm is formed.

The very young sucker is conical in shape and is composed of spirally arranged layers of rudimentary leaves which carry little or no leaf blade. Usually, after the tip of the young sucker has opened, the following leaves are still little more than very narrow strips of tissue along either side of the midrib. Each successive leaf, however, is longer than its predecessor and slightly wider.

After producing some five or six of these "sword" leaves, a distinct change occurs and the young plant throws leaves with a shape approximating that found on a full grown stool except that they are smaller in size. When this point is reached, the sucker is said to have passed out of the juvenile stage.

COMPARISON.

Now let us consider why some suckers start off with narrow, sword-leaves and later pass to the adult form whereas others produce small broad-leaves immediately.

The explanation is bound up with the supply of plant foods which is available to the young plant.

At the outset, the sucker has no root system of its own and is entirely dependent on the reserve of food materials in the parent corm. As it develops from the sword-leaf to the broad-leaved form, it becomes progressively less parasitic until at length, it has its own root system and is almost completely independent. The length of time taken by the sucker to pass through the sword-leaf stage may, therefore, be regarded as an indication of the supply of nutrients made available to it from the parent.

If the sucker is broad-leaved at the outset, the supply of food materials from the parent plant has obviously been limited. This may occur in many ways. It is relatively common for broad-leaved, so-called "water suckers" to arise from old, rotting butts with little or no reserve of plant nutrients. Suckers which are wedged in between stones or tree roots, or are injured during chipping or spraying operations will often exhibit broad leaves earlier than usual. Weevil borer damage in the young corm also has a similar effect. Sometimes, mechanical obstructions between the sucker and the parent plant or other suckers may

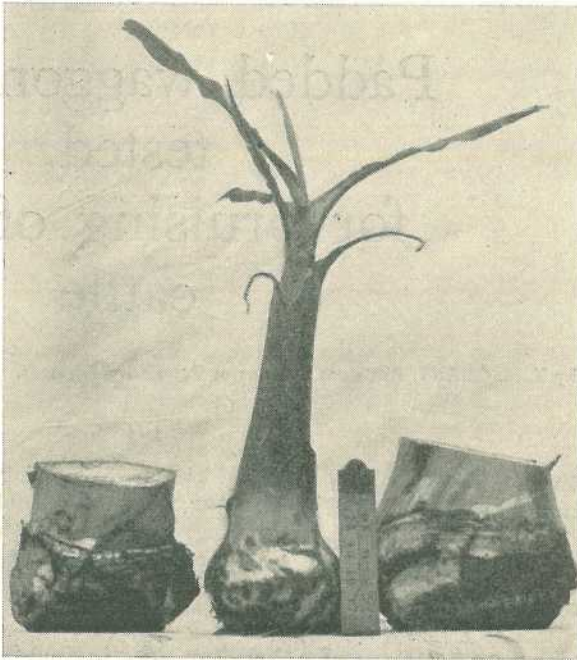


Plate 2.

Types of Planting Material—Left to Right: Corm, Sucker, Bit. Bits, 2-4 lb. in weight, are the best type of planting material. Sword-leaf suckers are, however, suitable for commercial use. Corms are seldom used; they are normally cut into bits.

prevent the free transfer of food materials from the mother corm, and a weak, broad-leaved sucker is produced.

ADVANTAGES.

From the practical point of view, there is one major point to be borne in mind. The broad-leaved sucker has a lower reserve of food material than its sword-leaved brother as is evidenced by the much smaller size of the corm. It is therefore a much weaker plant and should not be used as planting material.

It has been said that "a banana will grow irrespective of what type of material is planted, given suitable conditions." That statement is accurate enough but who can guarantee that the new planting will experience favourable climatic conditions? And, even if it does, the grower is still interested in producing the maximum size of bunch in the shortest possible time for the least expenditure in materials and labour. Merely growing the plant is not enough.

The young, vigorous sucker with a large corm and narrow sword leaves is therefore preferred to other types of sucker for establishing the new plantation.

Padded waggon tested for bruising of cattle

By K. M. GRANT, Assistant Director of Veterinary Services.

Cattle travelling in a specially padded waggon suffered one per cent. less downgrading than cattle in waggons that were not padded.

Bruising of otherwise excellent carcasses causes a heavy loss of income to the producer because such cattle are downgraded and bring a lower return. It has been estimated that the yearly loss from bruising in cattle slaughtered in Queensland is £900,000, of which £700,000 would be from cattle slaughtered for export.

It has been further estimated, in a survey carried out by the Australian Meat Board, that about 10 per cent. of carcasses are downgraded from first quality purely because of bruising and that some 4-6 per cent. of bullocks and 12-16 per cent. of cows are rejected from export for a similar reason.

Apart from downgrading there is the actual loss of meat trimmed from the carcass. Taken over the 800,000 head killed for export at ruling prices this alone would represent an estimated loss of more than £200,000 per annum.

The present trend to quick-maturing chiller carcasses will increase the fin-

ancial loss due to bruising. Such cattle are not only more liable to severe bruising, but they are intended to sell as a premium article, and any downgrading will reduce the price below an economic level.

Where does bruising of fat cattle occur? It occurs in mustering, drafting, yarding, holding, transporting, and handling operations, right up to the point of slaughter.

Yards are frequently badly designed, constructed and maintained. Gates are frequently too narrow and crushes are frequently too wide. Many cattle are bruised when the mob is hustled through gateways.

Careless shunting of rail waggons, undue delay on trucks, and hurried unloading are sources of bruises. Dehorning or tipping of cattle would avoid much bruising.

Undue use of dogs, "knocking boxes" holding more than one beast, and indiscriminate prodding with waddies can cause bruising at the works right to the point of slaughter.

Most severe bruising occurs on the loin, round and tail in the hindquarter, and on the rib and blade in the forequarter. Severe loin bruising is particularly objectionable since it is usu-

ally deep and resultant trimming affects the most valuable part of the carcass.

Although bruising due to rail waggons is only a fraction of total bruising, it was decided to ascertain how much it could be reduced by suitably padding the waggons.

An ordinary K waggon was selected and modified at the Ipswich railway workshops.

Rubber Bolster.

As observation had suggested that most bruises occurred at the doorways and by contact with the walls at hip height, both these factors were given attention. A long rubber bolster, 9 in. wide, was secured at a centre height of 3 ft. 9 in. This bolster ran right round the sides and both ends of the truck and was made of hard rubber with fabric reinforcement. The rubber curved out 3 in. from the wall and formed a hollow cushion at a height which would protect the hips, pin bones and ribs.

Cattle frequently jam their hips on the sides of the door openings when loading and unloading, so perpendicu-

lar, rubber-covered rollers were placed just inside, and parallel to, these openings.

The waggon was then put into service on the south-western line and cattle examined on arrival in Brisbane. Wherever possible the extent of downgrading for bruising of cattle carried in the padded truck and that of comparable cattle in the same trainload were compared after slaughter.

These comparisons showed an advantage in respect to the padded truck of 5 per cent. downgraded, as against 6 per cent. in unpadded trucks.

Although these figures were regarded as encouraging, it was not considered that the improvement made up for the high cost of installation (£180 per truck) and the slight reduction in carrying capacity of the truck caused by the projection of the bolster.

From these experiments it appears that major reduction in the bruising of slaughter cattle must come from careful attention to dehorning and general handling, as well as skilled design and careful maintenance of yards and crushes.

Look After Your Diesel.

Watch these points and prolong the life of your diesel tractor:—

(1) Do not allow a diesel engine to "idle" for any length of time.

(2) Do not start from cold and "race" the engine or put it straight into heavy work. The diesel engine can take a load immediately it is started, but it should be allowed a little time for the lubricating oil to circulate to all parts of the engine. The bearing pressures of the diesel are greater than petrol or kerosene engines. To prevent bearing failures allow the engine to run steadily for a short spell without load.

(3) Do not neglect to strain the fuel carefully before it gets into the tractor tank.

(4) Do not neglect regular attention to fuel and air filters.

(5) Change sump oil after the allotted time of use. Drain sump when tractor is just in from work. Hot oil drains more easily.

(6) Do not operate a diesel tractor if one or more cylinders are not working properly. It may be an injector or a pump at fault. If attended to at once it may save a costly repair.

—C. G. WRAGGE,

Agricultural Engineer.

Tuberculosis-Free Cattle Herds. (As at 23rd December, 1958.)

Aberdeen Angus.

- G. H. & H. J. Crothers, "Moorenbah," Dirranbandi
A. G. Elliott, "Ooraine," Dirranbandi
W. H. C. Mayne, "Gibraltar," Texas

A.I.S.

- M. E. & E. Scott, "Wattlebrae" A.I.S. Stud, Kingaroy
Edwards Bros., "Spring Valley" A.I.S. Stud, Kingaroy
F. B. Sullivan, "Fermanagh," Pittsworth
D. G. Neale, "Grovely," Greenmount
D. Sullivan, "Bantry" Stud, Rossvale, via Pittsworth
A. W. Wieland, "Milhaven" A.I.S. Stud, Milford, via Boonah
W. Henschell, "Yarranvale," Yarranlea
W. D. Davis, "Wamba" Stud, Chinchilla
Con. O'Sullivan, "Navillus" Stud, Greenmount
Queensland Agricultural High School and College, Lawes
H. V. Littleton, "Wongelea" Stud, Hillview, Crow's Nest
C. K. Roche, Freestone, Warwick
Mrs. K. Henry, Greenmount
J. Phillips and Sons, "Sunny View," Benair, via Kingaroy
D. B. Green, "Deloraine" Stud, Durong, Proston
Sullivan Bros., "Valera" Stud, Pittsworth
E. Evans, Wootha, Maleny
Reushle Bros., "Reubydale" Stud, Ravensbourne
T. L. and L. M. J. Cox, "Seafeld Farm," Wallumbilla
A. C. and C. R. Marquardt, "Cedar Valley," Wondai
J. Crookey, "Arola" A.I.S. Stud, Fairview, Allora
A. H. Sokoll, "Sunny Crest" Stud, Wondai
M. F. Power, "Barfield," Kapaldo
W. and A. G. Scott, "Welena" A.I.S. Stud, Blackbutt
A. H. Webster, "Millievale," Derrymore
G. Sperling, "Kooravale" Stud, Kooralgain, via Cooyar
W. H. Sanderson, "Sunlit Farm," Mulgildie
C. J. Schloss, "Shady Glen," Rocky Creek, Yarraman
R. A. and N. K. Shelton, "Vuegon" A.I.S. Stud, Hivesville, via Murgon
W. H. Thompson, "Alfa Vale," Nanango
R. Radel & Sons, "Happy Valley," Coalstoun Lakes
S. R. Moore, Sunnyside, West Wooroolin
C. A. Heading, "Wilga Plains," Maleny
H.M. State Farm, Numinbah
G. S. and E. Mears, "Morden," M.S. 755, Toogoolawah

Ayrshire.

- L. Holmes, "Benbecula," Yarranlea
C. E. R. Dudgeon, "Marionville" Ayrshire Stud, Landsborough
J. N. Scott, "Auchen Eden," Camp Mountain
G. F. H. Zerner, "Pineville," Pie Creek, Box 5, P.O., Gympie
E. Mathie and Son, "Ainslie" Ayrshire Stud, Maleny
T. F. Dunn, Alanbank, Gleneagle

Friesian.

- C. H. Naumann, "Yarrabine" Stud, Yarraman
S. E. G. Macdonald, "Freshfields," Marburg
D. J. Pender, "Camelot," Lytton road, Lidlum

Guernsey.

- C. D. Holmes, "Springview," Yarraman
R. J. Wissemann, "Robnea," Headington Hill, Clifton
A. B. Fletcher, Cossart Vale, Boonah
G. L. Johnson, "Old Cammindah," Monto
W. H. Doss, Deglibo, via Biggenden
A. Ruge & Sons, Woowoonga, via Biggenden
A. C. Swendsen, Coolabunia, Box 26, Kingaroy
G. Miller, Armagh Guernsey Stud, Armagh, M.S. 428, Grantham
C. Scott, "Coralgrae," Din Din Road, Nanango
N. H. Sanderson, "Glen Valley," Monto

Jersey.

- Queensland Agricultural High School and College, Lawes
G. H. Ralph, "Ryecombe," Ravensbourne
J. S. McCarthy, "Glen Erin" Jersey Stud, Greenmount
Mrs. I. L. M. Borchert, "Willowbank" Jersey Stud, Kingaroy
Weldon Bros., "Gleneden" Jersey Stud, Upper Yarraman
J. F. Lau, "Rosallen" Jersey Stud, Goombungee
D. R. Hutton, "Bellgarth," Cunningham, via Warwick
G. Harley, Hopewell, M.S. 139, Kingaroy
J. W. Carpenter, Flagstone Creek, Helidon
Toowoomba Mental Hospital, Willowburn
H. G. Johnson, "Windsor" Jersey Stud, Beaudesert
Farm Home for Boys, Westbrook
W. S. Kirby, Tinana, Maryborough
P. J. L. Bygrave, "The Craigan Farm," Aspley
R. J. Crawford, "Inverlaw" Jersey Stud, Inverlaw, Kingaroy
S. A. Cramb, Bridge st., Wilsonton, via Toowoomba
P. H. F. Gregory, "Carlton," Rosevale, via Rosewood
J. A. & B. E. Smith, "Heatherlea" Jersey Stud, Chinchilla
E. A. Matthews, "Yarradale," Yarraman
W. C. M. Birt, "Pine Hill" Jersey Stud, Gundiah
A. L. Semgreen, "Tecoma," Coolabunia
T. Nock, Dallarnil
L. E. Meier, "Ardath" Stud, Boonah
P. Fowler & Sons, "Northlea," Coalstoun Lakes
A. M. and L. J. Noone, "Winbirra" Stud, Mt. Esk Pocket, Esk
F. Porter, Conondale
W. S. Conochie and Sons, "Brookland" Stud, Sherwood road, Sherwood
H.M. State Farm, Palen Creek
Estate of J. A. Scott, "Kiaora," Manumbar road, Nanango
B. T. Seymour, "Upwell" Jersey Stud, Mulgildie
F. W. Verrall, "Coleburn," Walloon
C. Beckingham, Trouts road, Everton Park
W. E. O. Meir and Son, "Kingsford" Stud, Alberton, via Yatala

Poll Hereford.

- W. Maller, "Boreview," Pickanjinie
E. W. G. McCamley, Eulogie Park, Dululu
J. H. Anderson, "Inverary," Yandilla
Wilson and McDouall, Calliope Station,
D. R. and M. E. Hutton, "Bellgarth," Calliope
Cunningham, via Warwick.

Poll Shorthorn.

- W. Leonard & Sons, Welltown, Goondiwindi

Prevent Scours In Young Pigs

By G. W. OSBALDISTON,
Assistant Husbandry Officer.

Where there is a threat of scours in young pigs, prevention by good husbandry is better than cure.

A good strain of pigs should have no difficulty in reaching an average weaning weight of 40 lb. provided they receive good nutrition and husbandry. Thriving, healthy piglets at weaning usually have received no setbacks during their pre-weaning life. One of the more common setbacks encountered on pig farms in Queensland is scouring or diarrhoea and this condition is generally known as "the scours."

Both thrifty and unthrifty pigs can scour (Plate 1). However, it is the unthrifty piglet that is more severely affected. This scouring results in the already unthrifty or backward piglet falling away further. Healthy piglets may be able to withstand the condition and only lose a little of their bloom and vigour but, on the other hand, they may succumb and become unthrifty as the condition becomes more severe. For obvious reasons, healthy piglets have a much better chance of resisting the harmful effects of scouring. The first noticeable result of the scour is that the affected animal does not grow so well as the other piglets in the litter. Associated with this poor growth are loss of bloom, or a general unhealthy appearance, and loss of appetite.

The poor growth and unhealthy appearance are due to an upset in the

nutrition of the piglet. Severely affected animals won't eat and so they starve. The effects of starvation are well known. However, less severely affected piglets will consume only a very small amount of sow's milk and creep food. Sick piglets—and piglets with scours must be regarded as sick animals—suffer loss of appetite and so live on an amount of food that is not sufficient for good growth. Secondly, the food consumed is not so efficiently digested as it is by a healthy piglet and the combination of insufficient food and inadequate digestion means that the piglet is living on a very low nutritional plane—in fact, starvation rations! As a result of this, poor weight gains and even weight loss may result.

POINT OF NO RETURN.

As the scour develops in intensity, the cost of treatment may be uneconomical. This is shown in the diagram as the "economic point of no return."

If the cause of the scour is not eliminated, the condition will become more severe and terminate with death. Death is due to pathogenic or harmful bacteria in the more acute cases, and with the more protracted cases it is generally due to starvation.

THRIVING PIGLET

UNTREATED

TREATED



IF VERY SEVERE SCOURING

IF MILD SCOUR.

UNTHRIFTY PIGLET

IF ONLY MILD SCOUR THERE IS ONLY LOSS OF APPETITE FOR A SHORT PERIOD - NO PRONOUNCED SYMPTOMS

IF SEVERE - LOSS OF APPETITE - POOR GROWTH LOSS OF BLOOM IS NOTICED.

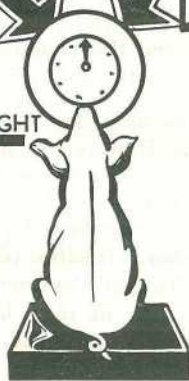
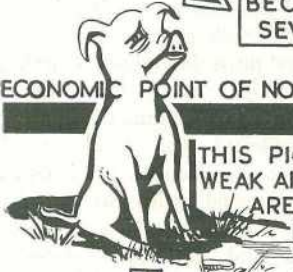
SCOURS BECOMING SEVERE

ECONOMIC POINT OF NO RETURN

MAY RECOVER NATURALLY

TREATMENT WITH DRUGS

THIS PIGLET IS WEAK AND SYMPTOMS ARE MORE PRONOUNCED WITH MARKED LOSS OF WEIGHT



SEVERE SCOURING



THRIVING PIGLET

DEATH

DUE TO STARVATION OR BACTERIAL DISEASE.

Plate 1.

Diagram Showing Treated and Untreated Scouring in Piglets.

THE CAUSES OF SCOURS.

The causes of scours may be classified broadly into three groups:

- (a) Filth-borne infections;
- (b) Nutritional disorders;
- (c) Factors affecting the general well-being of the animal.

The common cause of scours is considered to be filth-borne infections, and when an outbreak occurs in suckling pigs, it is usually a signal that the general sanitation within the piggery is at a low standard. The sleeping quarters, feeding equipment or the ground itself may be the source of the trouble.

Feeding equipment is more likely to get filthy where milk and liquids are fed with meal in troughs. Should the food not be cleaned up completely, the remaining food forms an ideal site for bacteria to grow and multiply. This thriving colony of bacteria may be ingested at a later meal by the piglet and once the bacteria have gained entrance to the stomach, they cause a disease of which scouring is the important symptom.

The sleeping quarters and the ground may become fouled with dung and urine if the body waste products

are not frequently removed from the pen. Filthy, insanitary pens are ideal sites for scour-causing bacteria to grow. A piggery with a history of most litters suffering from "the scours" is almost always one with a poor sanitation standard.

The prevention of filth-borne infections requires a high level of sanitation and hygiene. To improve the sanitation may require an alteration in the management programme and an improvement of the accommodation at the piggery.

The management programme should include a daily cleaning of the farrowing pens, the sow and litter pens, and the feeding equipment. Bedding should be removed when soiled and replaced with clean dry material.

The improvement of the accommodation is, in practice, only an aid to the management programme. To make cleaning easier, small pens with a hard, smooth, durable surface would be ideal. Feeding troughs with no corners or cracks, that could harbour uneaten meal, and which may be easily cleansed would be satisfactory. Self-feeding of dry meals will ensure these conditions.

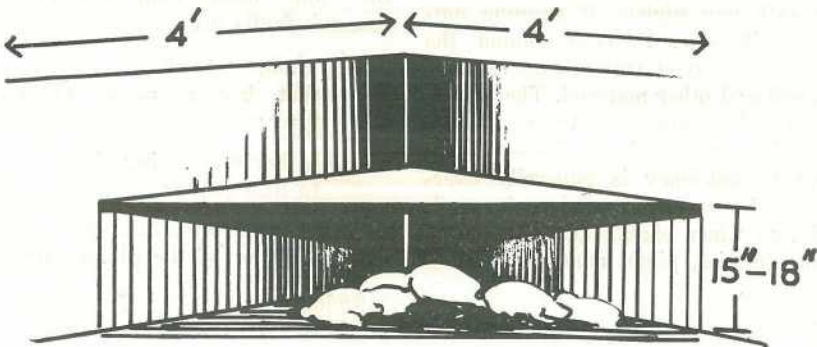


Plate 2.

The Hover Board Provides Warmth for Piglets in One Corner of a Farrowing Pen.

It is best to supply water in small automatic-type waterers which do not spill or overflow and so there is no possibility of a quagmire developing in the pig run.

The design of the piggery should be such that each pen is individually drained.

NUTRITIONAL DISORDERS.

These may take the form of a deficiency in the diet, or a digestive disorder.

The nutritional deficiency most likely to cause sucking piglets to scour is a lack of iron in the diet. The piglet uses iron in the formation of haemoglobin, which is the main constituent of red blood cells. In other words, iron helps in the formation of blood. When a deficiency of iron occurs, the blood-forming organs have not sufficient of the raw material to form blood and so the piglet suffers from anaemia or lack of red blood cells.

Most pig breeders refer to this condition as piglet anaemia.

The condition arises because the sow's milk is naturally lacking in iron and so after 5 or 6 days of life the piglets may start to show symptoms of deficiency.

Observations show that at the fifth or sixth day piglets, if running outside, will start to nose around the ground and food troughs, and so lick up soil and other material. The piglets get sufficient iron from the nosings in the soil to meet their requirements and so this deficiency is generally overcome. If no additional iron is available, as when piglets are confined in concrete sties, piglet anaemia becomes apparent.

The symptom of piglet anaemia is a white scour which may be liquid or of a pasty consistency, and it is generally found in piglets 1 to 3 weeks old which have been reared other than in

dirt pens. It can occur where piglets run on dirt but is much more frequent in intensive piggeries.

Prevention can take many forms, but one method is to allow the sow and litter a short period at parasite-free pasture daily when the litter is 5 to 7 days old. A second method is to supply the iron in the pen in the form of the chemical ferrous sulphate. The common technique is to scatter a small handful of ferrous sulphate over the floor of the pen.

Some farmers place a clod of clean dirt in the pen, that is, dirt which is not likely to have any roundworm eggs, and allow the piglets to get their iron requirements from nosing in the dirt.

The fourth method is to administer the iron into the mouth of the pig. This is considered the most satisfactory method as the farmer knows each pig has received its dose of iron. A small volume, usually 1 cc., of a saturated solution of iron and ammonium citrate placed on the tongue of the young piglet at five days is the recommended procedure. Some farmers prefer to inject the iron into the body cavity of the piglet. This practice is quite common in England where a compound of iron and dextrose is used.

Digestive disorders arise from faulty sow and litter management. The common faults are:—

- (1.) Sudden overfeeding or a sow that has a weak, unthrifty litter;
- (2.) Allowing starving piglets access to lush pasture;
- (3.) Sudden alteration of the composition of the piglet's feed.

Sudden overfeeding of the sow will cause a milk flush and consequently the piglets gorge the sow's milk and suffer digestive upsets. Lush pasture, when consumed in excess quantities, will produce a green coloured scour.

Moving the sow and litter to succulent pasture and continuing the sow on a full ration has also been observed to encourage the trouble, particularly when the ration contains liberal amounts of skim-milk, butter-milk or whey. Any sudden alteration in the protein level or change in the type of protein in a creep feed may produce a scour. This scour is particularly common where farmers wean piglets earlier than 8 weeks.

To prevent a scour of nutritional origin, practise good husbandry and make any dietary alterations gradually. The nutritional scour is not serious usually and it is best treated by reducing the food intake of the piglets. For example, if the piglet is suckling, reduce the food intake of the sow temporarily so that she will not produce her normal volume of milk or if the piglets are eating meal make the meal available only in restricted quantity.

All scours of this nature need to be diagnosed and treated immediately, as a sequel to the untreated scour may be the invasion of pathogenic bacteria due to the lowered resistance of the scouring animal.

GENERAL WELL-BEING.

The factors affecting the well-being of the piglet are generally associated with housing. It is well recognised that cold, damp or draughty sleeping quarters are prone to produce scours. Scours of this nature are not seasonal as they can occur in either summer or winter.

Where accommodation is the trouble, most litters are affected and a typical farm history with this problem is the

continual occurrence of mild scours when piglets are a few weeks old. To prevent this problem, improvements or alteration to the farrowing pens are necessary.

The mere provision of bedding is not sufficient to ensure a warm bed. Obviously to prevent chilling, piglets must have a warm floor and a warm environment. It is shown by field records that the warmest floor is a hollow concrete one. Details of the construction of this floor can be obtained from any Department of Agriculture and Stock Office. To provide warm surroundings, two methods are suggested. The first method is to construct a shelf 15 to 18 in. above the ground in one corner of the farrowing pen. This is known as a hover board. The dimensions are shown in Plate 2.

The underside of the hover board should have a reflecting surface so that the heat generated by the piglets' bodies is reflected back onto them. Aluminium foil has good reflecting properties.

The second method is to make a "snuggery." This is made of 6 bales of straw so arranged that they form an igloo. Both methods depend on retaining the heat generated by the piglets' bodies.

TREATMENT.

The use of drugs for the treatment of scours will be outlined in another issue. However powerful the drugs used, treatment remains an emergency measure of temporary benefit. Prevention by good housing and husbandry is better than cure.



1957 Index Now Ready.

The index to the Queensland Agricultural Journal for 1957 (Vol. 83) is available now and may be had on application to the Under Secretary, Department of Agriculture and Stock, Brisbane.

Brucellosis-Tested Swine Herds

(As at 23rd December, 1958.)

Berkshire.

S. Cochrane, "Stanroy" Stud, Felton
 J. L. Handley, "Meadow Vale" Stud, Lockyer
 O'Brien and Hickey, "Kildurham" Stud,
 Jandowae East
 G. C. Traves, "Wynwood" Stud, Oakey
 Westbrook Farm Home for Boys, Westbrook
 H.M. State Farm, "Palen" Stud, Palen Creek
 A. R. Ludwig and Sons, "Beau View" Stud,
 Beaudesert
 D. T. Law, "Rossvill" Stud, Trouts road,
 Aspley
 R. H. Crawley, "Rockthorpe" Stud, *via*
 Pittsworth
 F. R. J. Cook, Middle Creek, Pomona
 Mrs. I. M. James, "Kenmore" Stud, Cambooya
 H. L. Stark, "Florida," Kalbar
 H.M. State Farm, Numinbah
 G. L. Gabanko and R. H. Atkins, "Diamond
 Valley" Stud, Mooloolah
 L. Puschmann, "Tayfeld" Stud, Taylor
 C. E. Edwards, "Spring Valley" Stud,
 Kingaroy
 V. F. Weier, "La Crescent," Clifton
 N. Rosenberger, "Nevrose," Wyreema

L. P. Orange, "Hillview," Flagstone Creek
 B. Osborne and Dr. J. W. Best, Miltown Stud
 Piggery, Warwick
 W. Young, Kybong, *via* Gympie
 E. J. Clarke, Mt. Alford, *via* Boonah
 G. McLennan, "Murcott" Stud, Willowvale
 O. F. W. and B. A. Shellback, "Redvilla"
 Stud, Kingaroy
 J. C. Lees, "Bridge View" Stud, Yandina
 F. Thomas, "Rosevale" Stud, M.S. 373,
 Beaudesert
 A. O. Fletcher, "Myola" Stud, Jimbour
 Q.A.H.S. and College, Lawes
 E. F. Smythe, "Grandmere" Stud, Manyung,
 Murgon
 E. R. Kimber, Block 11, Mundubbera
 A. J. Potter, "Woodlands," Inglewood
 Regional Experiment Station, Hermitage
 J. W. Bukowski, "Secreto" Stud, Oxley
 R. Astbury, "Rangvilla," Pechey
 L. Pick, Mulgidge
 D. G. Grayson, Killarney
 A. French, "Wilson Park," Pittsworth
 P. L. Pfrunder, Pozieres

Large White.

H. J. Franke and Sons, "Delvue" Stud,
 Cawdor
 Garrawin Stud Farm Pty. Ltd., 657 Sandgate
 road, Clayfield
 J. A. Heading, "Highfields," Murgon
 R. Postle, "Yarralla" Stud, Pittsworth
 B. J. Jensen, "Bremerside" Stud, Rosevale,
via Rosewood.
 E. J. Bell, "Dorne" Stud, Chinchilla
 L. C. Lobegeiger, "Bremer Valley" Stud,
 Moorang, *via* Rosewood.
 H. R. Gibson, "Thistleton" Stud, Maleny
 H.M. State Farm, Numinbah
 V. P. McGoldrick, "Fairymeadow" Stud,
 Cooroy
 S. T. Fowler, "Kenstan" Stud, Pittsworth
 W. Zahnov, Rosevale, *via* Rosewood
 Regional Experiment Station, Biloela
 G. J. Hutton, "Grajea" Stud, Cabarlah
 H. L. Larsen, "Oakway," Kingaroy
 A. Palmer, "Remlap," Greenmount
 G. I. Skyring, "Bellwood" Stud, *via* Pomona
 G. Pampling, Watch Box road, Goomeri
 M. Hall, "Milena" Stud, D'Aguilar
 K. B. Jones, "Cefn" Stud, Pilton road, Clifton
 Barron Bros., "Chiltern Hill," Cooyar
 K. F. Stumer, French's Creek, Boonah

Q.A.H.S. and College, Lawes
 R. S. Powell, "Kybong" Stud, Kybong, *via*
 Gympie
 O. Wharton, "Central Burnett" Stud, Gayndah
 S. Jensen, Rosevale, *via* Rosewood
 V. V. Eadel, Coalstoun Lakes
 H. R. Stanton, Tansey, *via* Goomeri
 L. Stewart, Mulgowie, *via* Laidley
 D. T. Law, "Rossvill" Stud, Trouts road,
 Aspley
 O. J. Horton, "Manneum Brae" Stud,
 Manneum, Kingaroy
 Dr. B. J. Butcher and A. J. Parnwell,
 684 Logan road, Greenslopes, Brisbane
 R. Kennard, Collar Stud, Warwick
 A. C. H. Gibbons, Mt. Glorious
 A. Kanowski, "Exton," Pechey
 L. C. and E. Wieland, Lower Cressbrook
 P. L. and M. T. D. Hansen, "Regal" Stud,
 Oaklands, Rangeville, Toowoomba.
 J. C. Lees, "Bridge View" Stud, Yandina
 R. Rhodie, Clifton
 O. Assenbruck, Mundubbera
 A. J. Mack, Mundubbera
 J. & S. Kahler, East Nanango
 C. P. Duncan, "Hillview," Flagstone Creek

Tamworth.

D. F. L. Skerman, "Waverley" Stud, Kaim-
 killenbun
 A. O. Fletcher, "Myola" Stud, Jimbour
 Salvation Army Home for Boys, "Canaan"
 Stud, Riverview
 Department of Agriculture and Stock,
 Regional Experiment Station, Kairi
 F. N. Hales, Kerry road, Beaudesert
 T. A. Stephen, "Withcott," Helidon
 W. F. Kajewski, "Glenroy" Stud, Glencoe
 A. Herbst, "Hillbanside" Stud, Bahr Scrub,
via Beenleigh

F. Thomas, "Rosevale" Stud, M. S. 373,
 Beaudesert
 H. J. Armstrong, "Alhambra," Crownthorpe,
 Murgon
 R. H. Collier, Tallegalla, *via* Rosewood
 D. V. and P. V. Campbell, "Lawn Hill,"
 Lamington
 S. Kanowski, "Miecho" Stud, Pinelands
 N. R. Potter, "Actonvale" Stud, Wellcamp
 L. C. and E. Wieland, Lower Cressbrook
 J. D. Booth, Swan Ck., Warwick

Wessex Saddleback.

W. S. Douglas, "Greylight" Stud,
 Goombungee
 C. R. Smith, "Belton Park" Stud, Nara
 D. T. Law, "Rossvill" Stud, Trouts road,
 Aspley
 J. B. Dunlop, "Kurrawyn" Stud, Acacia
 road, Kuraby
 M. Nielsen, "Cressbrook" Stud, Goomburra

G. J. Cooper, "Cedar Glen" Stud, Yarraman
 "Wattledale" Stud, 492 Beenleigh road,
 Sunnybank
 Kruger and Sons, "Greyhurst," Goombungee
 A. Scott, "Wanstead" Stud, Grantham
 G. C. Burnett, "Rathburnie," Linville
 A. J. Mack, Mundubbera
 J. Ashwell, "Greenhill," Felton South

Large Black.

E. Pointon, Goomburra

Dr. Hammond's Talk On Pigmeat

By F. H. D. MARSHALL, Technical Officer,
Division of Animal Industry.

In the introductory remarks to that portion of his public lecture concerned with production of pigmeat, Dr. John Hammond, the world authority on animal husbandry, said that in pig carcasses as with cattle, the cuts from the back and hindquarters were in

greatest demand and thus brought the best prices.

Plate 1, he said, depicted the way in which pigs changed in shape or conformation as they grew older. The English Large White pig shown on the

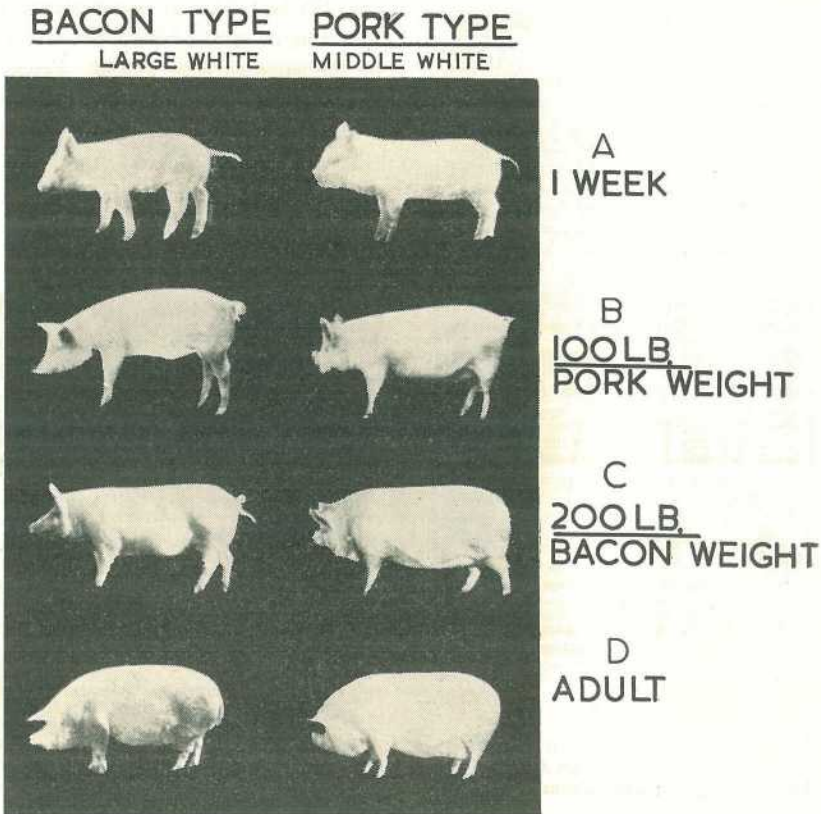


Plate 1.

The Way Pigs Change in Shape or Conformation as They Grow Older.

left of the illustration was a late-maturing type whereas the Middle White pig on the right was an earlier-maturing animal. The body of the Large White pig lengthened out during the first stage of its growth (plate 1B), in the early period of which there was a high proportion of bone to meat. Its body then commenced to deepen through the ribs and at this point in its development it was slaughtered for bacon at about 200 lb. liveweight (plate 1C). If carried on beyond this stage its body grew deeper until the adult pig assumed the undesirable conformation shown in plate 1D.

The early-maturing type of pig, continued Dr. Hammond, was a relatively shorter pig and its body commenced to

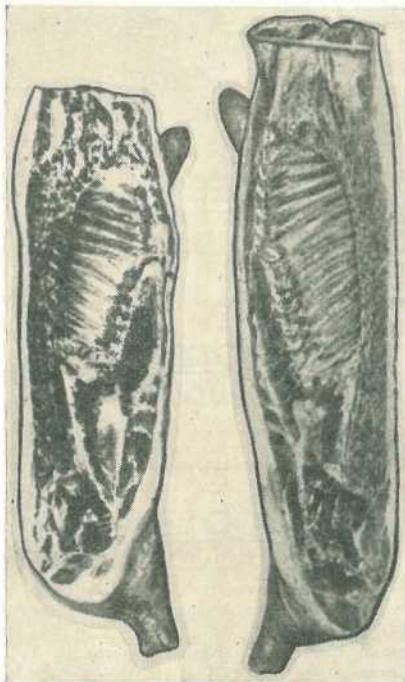


Plate 2.

Left: Champion Bacon Carcass exhibited at Peterborough Competition in 1932. Right: The Champion Bacon Carcass in 1951. To give a basis of comparison, the size of each side has been adjusted to a uniform shoulder measurement.

deepen at about 100 lb. liveweight. This was the right weight at which to slaughter this type of pig for pork. If allowed to grow to 200 lb. it would then be too deep and there would be too much low-priced meat on the carcass to make it profitable as bacon.

When farmers had pigs of mixed types, said Dr. Hammond, they should pick out the short ones when about 100 lb. weight and sell them for pork, keeping the longer pigs to rear as baconers. In this way the producer would get the best return from both markets.

LENGTH IN BACONER.

Referring to Plate 2, Dr. Hammond said the two sides of bacon shown had the same amount of back fat and were of the same carcass weight. From the consumers' point of view they were both good bacon. However, the illustration clearly showed the modern trend toward the longer, leaner carcass, which had a larger proportion of the higher-priced cuts.

Danish competition, he said, had been severely felt by English producers. Danish sides were longer and retailers preferred them because they cut more high-priced back rashers than the shorter English carcass, which had more of the cheaper belly rashers for which there was less demand. To encourage home producers to grow the longer type of pig required, English grading standards had been altered to include a measurement for length of carcass as well as for back fat.

Plate 3, said Dr. Hammond, was a series of sketches intended to show the change that had taken place in the pig's shape as the result of the work of breeders in "shifting" the weight in

the carcass from the less valuable fore-quarters to the more valuable hind-quarters. The top illustration depicted the wild boar with 70 per cent. of its weight in the fore-end of its body. The middle sketch was typical of the present day Argentine pig with weight distribution about 50-50, and the bottom drawing showed the type of pig that breeders were aiming at, with only 30 per cent. of its weight in the forequarters and 70 per cent. in the back and rear end.

FEEDING METHODS.

In dealing with pig-feeding methods in England, Dr. Hammond traced briefly the development of pigmeats in that country since the end of the war. At that time, he said, beef supplies from the Argentine were difficult to obtain and while re-establishing the home-grown beef industry (as outlined in last month's issue) the nation was fed mainly on pork.

Because of the demand for meat, no quality payment was made to producers, with the result that pork carcasses became excessively fat.

After a period of about three years, when beef began to make its appearance on the home market in increasing quantities, buyer-resistance developed towards overfat pigmeat. Grading of carcasses, as practised before the war, was then re-introduced and it was remarkable, said Dr. Hammond, how quickly the quality of carcasses improved.

This change was not due to breeding but almost solely to improved methods of feeding.

FEED YOUNG PIGS.

Plate 4 showed two pigs reared in a feeding experiment to test the value of

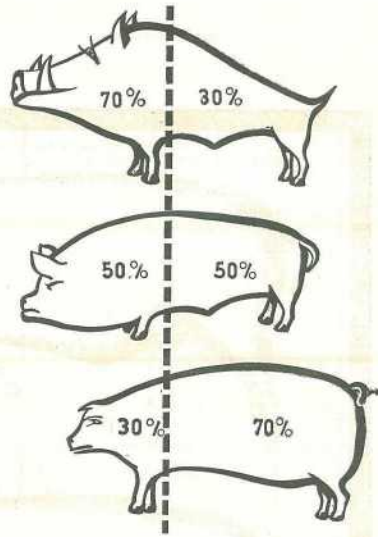


Plate 3.

Change in the Shape of Pigs Due to Breeding.

low-high and high-low levels of nutrition. In this trial, said Dr. Hammond, a litter of pigs was divided in halves. One half was poorly fed for 16 weeks, while the other half was well fed. The top pig was from the latter group and the lower pig from the poorly fed group. At the end of 16 weeks the poorly fed group was placed on a high level of feed till their weight reached 200 lb. liveweight. At the same time the well-fed group was rationed so that their growth was slowed down to enable them to reach that weight about the same time as the poorly fed group.

This treatment resulted in two groups of pigs of the same age and body weight yet with very different conformations. The pigs which had been well fed at the start made good length and muscle growth and when rationed continued this growth rather than put on fat. On the other hand,

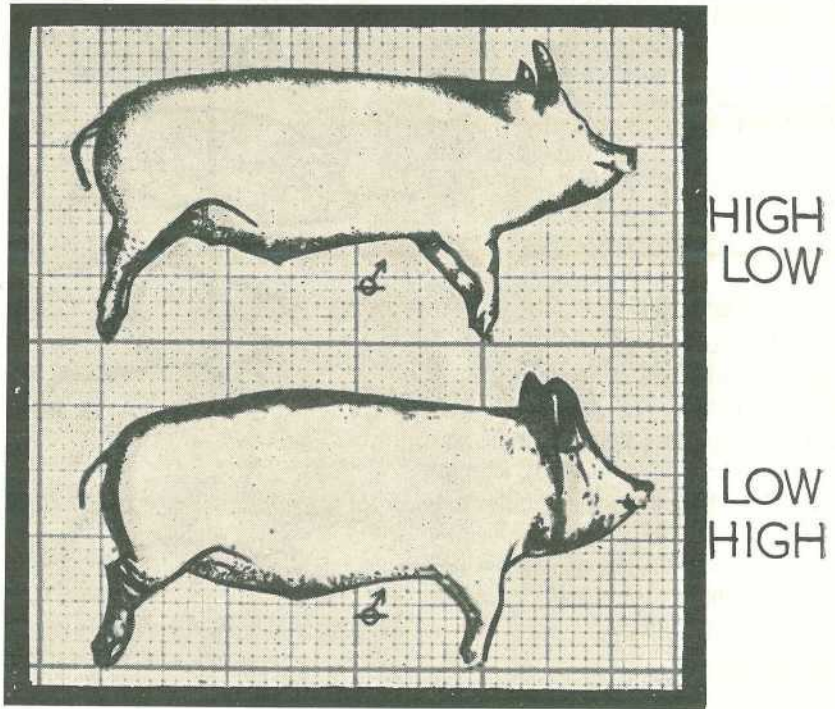


Plate 4.

Two Pigs Reared in a Feeding Experiment to Test the Value of Low-High and High-Low Levels of Nutrition.

the poorly fed pigs had a stunted frame and when well fed at a later stage quickly developed the "middle age spread" and were short and deep in the body.

The carcasses of the high-low ration group had a high proportion of muscle to fat but those of the low-high group were excessively fat. With the wider adoption of this high-low system of feeding in England the percentage of "A" grade carcasses improved, in the year following the re-introduction of grading, from 46 per cent. to 65 per cent. of the kill.

WEANING WEIGHTS.

Dr. Hammond said that Danish competition was compelling English pig producers to improve the feed efficiency of their animals. Pig Recording Societies had been started and information obtained by these bodies from farmers included: Average number of piglets born alive and dead (figures so far range from 6.5 to 11.9 live piglets per litter); average number of pigs and their weights at three weeks (so far, 12 lb. to over 14 lb.); average number of pigs and their weights at 8 weeks, which was really a

measurement of the efficiency of creep feeding and housing under English conditions (weights varied from 25 to 42.8 lb.). This weaning weight was very important, said Dr. Hammond, as a high weight at this time was associated with length of carcass. When the weaning weight was low the carcass tended to be short and to produce low quality bacon.

The top set of figures in Table 1, said Dr. Hammond, showed the results of grading a number of pig carcasses in one experiment and bore out the statement that when weaning weights were high more "A" grade carcasses were produced. The lower figures illustrated the difference in weaning weights and grade quality between the offspring of two different boars—the offspring having been fed upon the same ration.

PROGENY TESTING.

About 70 per cent. of the cost of producing a bacon pig in England, said Dr. Hammond, was the cost of feed, and home producers were trying to breed pigs, which would convert feed into meat more efficiently. Five progeny testing stations had been established in England, each of which held 400 pigs and had an annual through-put of 800.

Breeders sent to the station four pigs from each of a number of different litters by the same boar and the sire was tested by the performance of his progeny. The efficiency of live weight gain from 50 lb. to 200 lb. showed great variation between offspring of different boars, varying in some recent trials from 3.2 lb. to well over 4 lb. of feed consumed for each pound of body weight gained.

Carcass quality of the progeny was also measured and this information assisted in evaluating the worth of boars undergoing test.

By the use of artificial insemination, said Dr. Hammond, it was hoped to make much more profitable use of the superior boars discovered through this system of testing, by spreading their potentiality for efficiency of feed conversion and rapid growth through the industry.

QUEENSLAND'S PIG TESTING STATION.

Dr. Hammond said he had inspected the Pig Testing Station recently established by the Queensland Department of Agriculture and Stock at its Animal Husbandry Research Farm at Rocklea and felt certain that it would make a valuable contribution to pig raising in Queensland.

TABLE 1.

	Average Weight (lb.) at 8 Weeks Old.	Back Fat Grade — %.			Number of Pigs.
		A	C	D	
	20-29	49	33	18	57
	30-34	61	34	5	83
	35-45	82	18	0	33
Offspring of Boar X 30 lb. . . .		49	40	11	82
Offspring of Boar Y 33 lb. . . .		68	28	4	47

Safety on Farms

The accidents which frequently occur not only on Queensland farms, but on farms all over the world are due to many causes, among which are unprotected parts of running machinery, and carelessness of both experienced and inexperienced operators and their ignorance of the dangerous possibilities.

In an attempt to avert the fatal tragedies that occur to tractor drivers, the following 15 golden rules have been classified into two simple groups, namely DO and DON'T. Each tractor driver should be as familiar with each one of them as he is with his own name.

This is what every tractor driver should DO:

1. Lock brake pedals together when driving in high gear, as for example on roadways.
2. Slow down before taking a turn.
3. Drive slowly over rough ground and across drains.
4. Beware of potholes on hillsides.
5. Be careful in turning UPHILL on a slope with an unloaded tractor travelling at speed—it is easy to tip over.
6. Similarly, be careful turning DOWNHILL on a slope with a loaded tractor.

7. Always check the seat and see it is safe.

Now this is what you DON'T do:

1. Dismount when the tractor is moving.
2. Fail to stop the PTO before dismounting.
3. Ride on the drawbar or drawn implement.
4. Forget to engage the gears when descending steep hills.
5. Refuel when the engine is running or extremely hot.
6. In coupling implements, fail to back with care. (Stop about 1 ft. to 2 ft. from the implement—throttle down very low and ease back slowly, keeping the foot on the clutch. Anyone assisting you should be on the alert to get away.)
7. Wear loose clothing which is liable to get caught in moving parts such as the PTO.
8. Let your children ride on the tractor. Wait until they are strong enough, old enough and, above all, wise enough to handle it themselves.

—C. G. WRAGGE,

Agricultural Engineer.

Stock Gazette

SPRAYING pasture with a tallow and detergent emulsion reduces the constant risk of bloat when cattle are grazed on clover or lucerne pastures. From every point of view, this is the most practical method yet of controlling bloat—it's effective, the cost is low and the spraying schedule can be fitted readily into the farm programme.

Sufficient emulsion is sprayed on the pasture to give each cow 2 to 3 oz. of tallow a day. The spray material costs about 2d. a cow a day. The emulsion is sprayed on the pasture with a boom spray, usually one day ahead of grazing. This is because cattle take more readily to pasture treated the previous day than they do to freshly treated pasture.

If bloat is a problem on your farm, ask your district Cattle Husbandry Adviser for information on mixing the spray and the quantity you'll need for your herd.

—A. HUTCHINGS,
Senior Cattle Husbandry Adviser.

NO one will dispute the fact that the housewife likes her eggs to be spotlessly clean and it's much better to produce them that way than to depend on cleaning.

Dirt is loaded with bacteria and moulds. In the presence of moisture these organisms penetrate the shell and having done so are sure to cause spoilage.

The egg has two lines of defence; a physical defence provided by the "bloom" on the outer surface of the shell and the shell membranes just inside the shell, and a biochemical

defence due to the presence of a protein known as "globulin G1" in the white of the egg. The latter has the remarkable power of killing and dissolving these micro-organisms which gain entry to egg white.

Let's consider what happens when eggs are washed! The physical action of washing, whilst removing the dirt visible to the naked eye, also removes the "bloom"—and so opens up the first line of defence.

The action of washing has also spread micro-organisms practically all over the shell. Like a successful army invading in strength, penetration may be made at many points on the shell and the inner defence mechanism can't cope with the invasion. That the egg puts up a good battle against bacterial invasion is borne out by the fact that "rots" and "moulds" don't show up immediately; it may take days for this to happen.

This is the hard part because by this time it could have found its way from the farmer, through the Egg Marketing Board, out to the shopkeeper, and then to the housewife.

Let's be practical and admit that a few eggs inevitably become soiled and must be cleaned. It's proved more satisfactory to "dry clean" them with a piece of steel wool. Admittedly it's slower but it's a lot safer!

—F. N. J. MILNE,
Senior Poultry Husbandry Officer.

TIMELY TIPS FOR FEBRUARY.

All the hot months and especially February are the times to beware of arsenical poisoning. Over 50 per cent. of dip owners in Queensland still

use arsenic to kill ticks. Remember its always a potential danger to stock wherever it's used.

Be scrupulous about cleanliness in the bails and milking machines. The hot, humid weather we normally expect in February favours the growth of bacteria. Cleanliness will go a long way towards keeping mastitis down.

Paratyphoid may crop up this month. Sudden deaths from this can be disastrous in pigs of any age. It is caused by germs called salmonella.

Salmonellosis can take a chronic form, causing profuse, watery, green

scour and loss of condition over a period. A reasonable standard of cleanliness in the piggery, especially the food and water troughs, will help prevent both.

If an outbreak does occur prompt treatment pays off. Your veterinary surgeon will advise you on which form of treatment suits you best.

Warmth and moisture also favour the spread of leptospirosis in calves. Watch for "red water," sudden deaths and high temperature. (You need a thermometer.—The Department has a pamphlet on how to read one, if you don't know already).

Kikuyu Under Irrigation

"A.R.," of Moura, has inquired about the use and suitability of Kikuyu grass in irrigated pastures on sandy loams in associations with H1 Rye grass and White or Ladino clovers.

Answer: There is little first hand knowledge of the performance of Kikuyu grass under irrigation except for a few small areas at Maleny where the grass is doing well under rainfall conditions. The grass is growing there on a deep red loam.

At the Irrigation Station at Gatton, Kikuyu grass performed disappointingly on the heavy soils and in addition it suffered severely from frosting.

On the sandy loams "A.R." proposes to use, Kikuyu grass may perform satisfactorily though frosts will still constitute a serious hazard.

Kikuyu grass in its natural habitat grows on deep friable soils at high altitudes. In Queensland where the conditions are similar the grass performs well. The deep friable soils permit the underground rhizomes to

penetrate deeply in some cases up to 2 to 3 feet. Where the rhizomes are restricted by soil types these growths are replaced by surface runners or stolons which are confined to the ground's surface and consequently the grass does not develop or produce as well as the more favourable soil types.

On sandy loams, the rhizomes may penetrate well and so aid a good growth of grass; however, frosts will still constitute a hazard in "A.R.'s" case. A small trial area would be worth while to determine the performance of the grass under the local conditions.

Kikuyu grass produces a thick sward which would make the establishment of H1 rye grass a difficult matter in a pasture containing Kikuyu. In order to establish a good stand of white clover in Kikuyu grass it is necessary to carry out preparatory cultivation and thinning of the stand prior to sowing the clover. This must be followed by careful management and frequent renovations in order to maintain the white or ladino clovers in the Kikuyu grass pastures so treated.



Plate 1.—Tabbagong Victory With Some of His 47 Daughters. These cows had an average mature production of 358 lb. of butterfat.

How Good Is Your Dairy Bull?

By C. H. CLARK, Adviser, Division of Dairying.

MANY of today's dairymen are not content to make guesses at the value of their dairy bulls; they rely on herd recording to provide unbiased assessments.

Sire surveying is one of the most important phases of herd recording. It allows farmers to assess the value of their herd sire as soon as his first daughters complete a recorded lactation. With this knowledge, they are then in a position to decide whether to keep or dispose of him.

In a herd of 30 cows, approximately 12 to 15 heifer calves would be sired by the average bull each year. As most bulls have a working life of at least three years it follows that they would sire 35 to 45 heifer calves while they are being used. On the other hand only two or three heifer

calves would be available from any one cow during her lifetime. Therefore, on the average, the bull is about 16 times more important than any cow in the herd in determining the quality of animals available for replacements.

As half the hereditary make-up of each daughter is derived from the bull, he will exert a big influence on the productive ability of these animals. A sire survey indicates the production qualities a bull is actually transmitting to his daughters. As soon as they become herd replacements their sire will determine to a large extent the quality of the future herd.

It has been shown that an average pure-bred bull will raise the yield of a low-producing herd. However, where the herd production is low, feeding and management are probably the most

important factors in raising the level. When herd production is above the average, the quality of the herd sire plays an increasingly important part in determining the future level of production.

Thus any man with a better-than-average herd should keep a close watch on the production capabilities of his bulls by continually using the results of sire survey. This means that the capabilities of the bulls are being measured on the performance of their progeny.

Method of Surveys.

A sire survey is carried out by tabulating the production records of a bull's daughters according to age, and then calculating the average production of each age group. This figure is compared with the average production of other animals in the herd which are in the same age group—that is, the average production of the two-year-old daughters of a bull is compared with the average production of other two-year-old animals in the herd. Comparisons are made according to the year in which the lactations were completed.

The average production of the two-year-old and three-year-old daughters of the bull is also corrected to a figure equivalent to their production as mature cows. This figure is commonly known as the "maturity equivalent" production of these progeny. It is averaged with the production of any other daughters (that is, four- and five-year-olds) of the bull. This enables a comparison of a bull's daughters with other mature cows in the herd.

In order to get a true picture of a bull's capacity to transmit high or low production qualities, a survey must embrace as many daughters as possible or at least the first 10 daughters which have completed a lactation. Overseas research has shown that the herd sire will transmit his production characteristics to his first daughters equally as well as to those in later years.

Conditions of Surveys.

The owners of bulls used in recorded herds may make applications for sire surveys each year. Application forms are forwarded to members of the group recording scheme at the end of each recording year. An endeavour is made to complete surveys as soon as possible after the end of that period.

The dairy sire survey service has been formulated according to the following conditions:—

(1) All requests for a sire survey must be made on a form which is obtainable from the Director of Dairying. (Requests should preferably be made at the beginning of the recording year.)

(2) The applicant must undertake to supply all the particulars required. (see table 1.)

(3) Surveys will be issued in three stages, namely:—Preliminary, Intermediate, and final.

A *preliminary survey* of a bull may be issued when at least 10 of his daughters have completed one lactation.

An *intermediate survey* may be issued when at least eight of these daughters have completed a further lactation.

A survey will reach its *final stage* when three or more lactation records are available for at least six of the daughters.

(4) The sire shall be a pure-bred animal.

(5) The sires must be segregated from the herd, and complete particulars of all service dates and sires used must be recorded and made available for inspection as required.

(6) All the daughters of the sire to be surveyed shall be identifiable from the breed society's register or from particulars recorded under the group herd recording scheme.

(7) The application must show the particulars of all daughters which were identified as calves, and if any of

TABLE 1.

APPLICATION FOR SIRE SURVEY.

Herd Recording Group : Brisbane No. 1. Group Code No.: 60. Herd Index No.: 99. Owner : T. Brown.

Name of Sire to be Surveyed.	Particulars of all Daughters in the Herd.				Particulars of all Daughters which were sold, culled, died, etc.			
	Name.	Rec. No.	Last Calving Date.	Date of Birth.	Name.	Rec. No.	Last Calving Date.	Date of Birth.
Brisbane Rex	Biddy	8	21-8-56	16-6-53	Violet	65	15-6-56	11-2-52
	Iris	22	4-7-56	13-5-52	Susie	66	11-3-56	1-6-52
Herd Book No. 10142	Sarah	23	7-8-56	13-6-52				
	Strawberry	35	6-6-56	10-4-53				
His Sire Spring Hill Champ	Dahlia	39	30-7-56	11-7-54				
	Lily	44	14-4-56	1-2-53				
His Dam Manly Daphne	Carnation	45	15-5-56	3-3-53				
	Bonnie	48	16-6-56	7-1-53				
	Maisie	49	20-6-56	8-4-53				
	Topsy	54	17-4-56	18-3-53				
	Mabel	76	16-7-56	1-5-54				

Signature : T. Brown.

Date : 17th August, 1957.

these are not in the herd, an explanation such as "sold" or "died" must be given. (This is a necessary safeguard to ensure that the records of all available daughters are included in the survey.)

(8) The surveys may be issued to the owner in one or both of the following forms:—

(a) In the form of a statement setting out the average production of all daughters of the sire which have been recorded.

(b) In the form of a statement setting out the average production (Maturity Equivalent) of all daughters of the sire which have been recorded, together with the average production of other mature cows in the herd.

(9) In compiling surveys, the following adjustments will be made:—

(a) Any obviously subnormal production and productions of B class cows will be

TABLE 2.

Private
Preliminary
Intermediate SIRE SURVEY.
Final

Sire: Brisbane Rex { Sire: Spring Hill Champ.
Dam: Manly Daphne

Breed and Herd Book No.: Jersey 10142.

Owner: T. Brown. Group No.: 60. Herd No.: 99.

Year.	Maturity Equivalent Average Production of All Daughters.						Average Production of Other Mature Cows in the Herd.					
	Dtrs.	Lacts.	Milk.	Fat.	Test.	Days.	Cows.	Lacts.	Milk.	Fat.	Test.	Days.
1956-57	13	13	6535	281	4.3	244	27	27	6646	271	4.1	243

Year.	Particulars of Daughters.						Particulars of Other Cows.					
	Age.	Rec. No.	Milk.	Fat.	Test.	Days.	Age.	No.	Milk.	Fat.	Test.	Days.
1956-57	2	39	4605	211		240						
	2	76	4075	181		210						
	<i>Av.</i>	2	4340	196	4.5	225	2	5	5234	202	3.9	240
	3	8	5390	230		300						
	3	35	4310	179		270						
	3	44	4965	207		210						
	3	45	5895	229		270						
	3	48	6315	255		270						
	3	49	6210	244		240						
	3	54	5910	223		240						
	<i>Av.</i>	7	5570	224	4.0	257	3	14	6032	220	3.7	274
	4	22	5270	229		180						
	4	23	5015	185		210						
	4	65	7205	311		270						
	4	66	5555	257		270						
	<i>Av.</i>	4	5761	246	4.3	233	4	4	6180	238	3.8	248
	5	Nil						5	27	6646	271	4.1	243

excluded. (Cows are classed as B type according to the rules governing the group herd recording).

- (b) Only the first 300 days of any lactation will be used in assessing the lactation yield.
 - (c) The first and second lactation only will be corrected to Maturity Equivalent productions.
 - (d) The first lactation may be excluded where any heifer comes into production under 21 months of age.
- (10) A list of surveyed sires may be published annually.

(11) In all matters relating to the conduct of sire surveying, the ruling of the Director of Dairying shall be final. The Director of Dairying reserves the right to cancel or discontinue any survey where the results, or the manner in which the survey is being conducted by the member, are such that a reliable conclusion to the survey is impossible.

The results of sire surveys are issued according to the statements described in section 8. The form used is illustrated in Table 2.

Private Survey.

Owners desirous of having surveys made on sires which are ineligible for the surveys mentioned may apply for a "private" survey to be carried out. For example, owners whose sires have at least six daughters recorded for the first lactations could apply for this type of survey.

Results.

The sire surveying service for members of herd recording groups was introduced in 1955. In the first year surveys were made on 60 bulls. At the end of the 1956-57 recording year 139 surveys were compiled.

Information furnished by sire surveying is invaluable in selecting the next herd sire. If a sire on which a survey has been done is not available

then the next best selection is the son of a proven sire out of a cow from a reliable family with consistently high production records, and whose daughters are also consistent producers. When the sire has been selected by referring to production records, the next essential feature is to check his capabilities by recording the herd in which he is used and making a survey of his progeny.

How to use Surveys.

The immediate use of a sire survey is to make available to the owner of the bull, as soon as possible, information concerning the quality of the bull he is using. If a preliminary survey of a bull is satisfactory he may retain him for use as long as he remains fertile, but if the results are unsatisfactory the bull may be culled immediately. Unfortunately, many outstanding sires have been culled or sold before their heifers are in production and their true worth realised. This could be avoided by consistently using sire surveys.

Sire surveys are also important to breeders. Their more general use in stud herds would indicate to the industry the production characteristics of an increasing number of bulls from the best strains of breeding stock. Improvement by breeding will achieve its greatest progress if pedigree breeders safeguard the quality of their own herds by using only proven sires and bulls from proven strains. The importance of family or strain in breeding cannot be over-emphasised, and if dairymen concentrate on those studs which have families of high producing qualities, they will reduce considerably the gamble in the purchase of a herd sire.

In this State a survey is made of all pure bred bulls whose daughters are officially recorded for production. The names of the bulls together with the production records of their daughters are published annually. This publication enables dairy farmers when they are planning the purchase of a sire, to gauge the capabilities of some bulls used in the various studs.

Dairy Parade

FOR preference, dehorning should be done while animals are young. If you wish to obtain a dehorned dairy herd quickly, you may have to dehorn adult animals.

The guillotine dehorner is the most suitable instrument and it should be large and sharp enough to make a quick, clean cut. Just recently I heard of a Q.D.O. branch which bought a set of dehorner and hires them out to members at a low rate. It is a good idea.

Dehorning of cows causes a slight setback, resulting in lowered milk production for the milking period following the operation. You can cut losses to a minimum by observing these rules:—

- (1.) Avoid weather conditions of excessive heat or cold, or driving rain. Winter months are best. Try to choose a period of mild, sunny weather when flies are not active.
- (2.) Spray the heads of the animals a day or so before dehorning. Use one of the newer insecticides, as arsenic is of no value in this regard.
- (3.) Have a strong crush where the cow can be securely held.
- (4.) Soak the dehorner in an antiseptic solution (a two-gallon bucket is a suitable container) before starting and place them back in the solution when not in use.
- (5.) When cutting the horn, the dehorner should be placed so that they will remove about $\frac{1}{2}$ in. of skin around the base of the horn. In practice this usually means cutting as close to the head as possible. When the dehorner are in position around the horn, snap them shut with a quick movement. Have the cow's head so tied that you can remove both horns from the one position.
- (6.) Work with clean conditions and remove each cow from the yards as soon as she is dehorned. Dressings, medicaments or plugs should not be applied to the fresh wound—clean wounds heal quickly unless infection occurs.
- (7.) Reserve a fresh paddock for the herd on the day of dehorning. A grazing crop of oats or a spelled pasture paddock is quite suitable. You'll find that cows will quickly settle down to grazing under these conditions.
- (8.) Most bleeding should stop within a few minutes without any help from you. Excessive bleeding is rare but it can often be arrested by twining thin cord in a figure-of-eight-fashion around both horn bases and tying the ends of the cords over the poll.
- (9.) In a small percentage of cases infection occurs after dehorning. This is usually indicated by the oozing of pus down the side of the animal's face. Treatment consists of douching out the horn cavity with a weak antiseptic solution to remove the pus and then dusting on a mixture of boracic acid and sulphanilamide powder. If a flystrike occurs the above treatment can be followed plus the use of a fly repellent AROUND (not on) the wound.

Stock of normal development over 12 months can be dehorned with the guillotine dehorers. Bulls should always be done when young. The de-horning of mature bulls is very difficult with guillotine dehorers and should not be attempted by this method.

—*W. F. MAWSON, Senior Adviser in Cattle Husbandry.*

A MILKING machine represents a big, and these days essential, investment on a dairy farm. Only regular care and maintenance will enable you to get your money's worth out of it through years of trouble-free milking.

Your first care should be for the vacuum pump. The vacuum pump should be oiled at every milking. In addition, it should be flushed out with a mixture of half kerosene and half vacuum pump oil at least every six months.

Wetting agents used in modern dairy cleansers may be causing vacuum pump breakdown through washing oil from it. Take special care to prevent these solutions from getting into your vacuum pump. Ensure that there's

an effective vacuum tank or moisture trap between the pump and the rest of the machine.

Regularly dismantle and clean the vacuum relief valve, keep the pulsators free from dust and have the vacuum gauge repaired if it's faulty.

ATTENTION to the bowl locking nut and regular oiling will enable you to get your money's worth out of your cream separator.

A worn bowl nut is a hazard to the separator itself and to people working in the dairy. Instances of a separator "blowing up" during use are often traced to a poorly fitting bowl nut.

Check the bowl nut regularly by running it on to the bowl stem and trying to move it up and down. Vertical play will indicate that the threads are worn and the nut should be renewed. It is a wise precaution to renew the bowl nut every two years.

Don't allow the bearings in the frame to wear because of faulty oiling. Change the separator oil every six to eight weeks, using the grade of oil the manufacturer recommends.

—*J. D. ELINGTON, Senior Dairy Machinery Adviser.*

Troubled with Mat Grass.

"N.B.," of Kileoy, has been troubled with mat grass. He finds grubbing effective but slow and his experiments with 2,4-D seem to indicate to him that stronger spray mixtures are required.

Answer: The invading of land by mat grass usually means pasture deterioration. You should get better result by using pasture improvement to combat the invasion rather than weedkiller sprays. Spraying at best would only kill the mat grass leaving unsolved the more important problem of raising your soil fertility.

Mat grass seeds spread easily and rapidly in a pasture and will prove

troublesome where your soil fertility has declined. Any practice you undertake to raise the soil fertility in your pastures will improve them and so help to suppress mat grass.

Small areas of mat grass in your pastures may be grubbed or rotary hoed and the treated areas then planted with kikuyu grass. By applying farm yard manure or a nitrogen rich fertilizer to the freshly planted kikuyu you will help in its rapid establishment. You could plant Rhodes grass or paspalum seed and treat the freshly planted area with fertilizer.

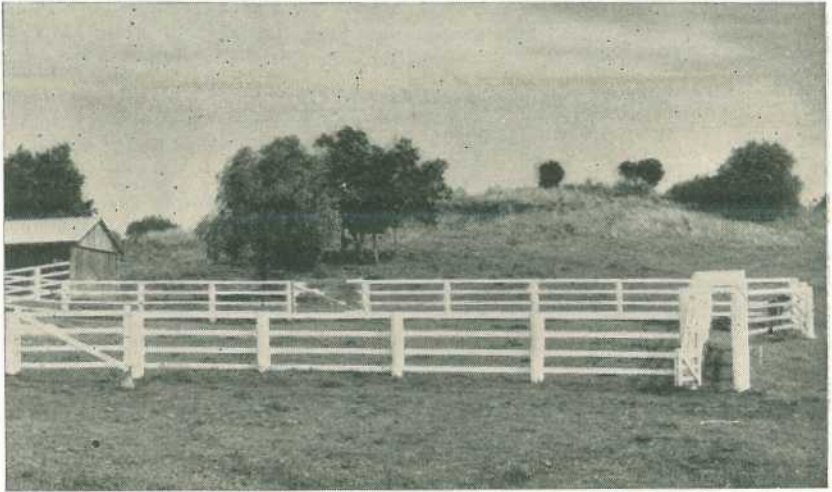


Plate 1: Dairy Yards with Forcing Yard. Crush and Bail Unit Attached. Treated animals walk out onto pasture.

A Crush Bail For Dairy Cows

By L. A. WILLIS, Cattle Husbandry Branch.

Any upset to cows in the milking bails tends to decrease their milk yield and so reduce the dairyman's returns. This is one reason why a crush bail unit should be used when performing such operations as dehorning, drenching and inoculating.

In addition to avoiding a loss in milk production, a crush bail will make the work easier and quicker. There is also less risk of injury to both man and beast.

The accompanying illustrations show a well-designed crush bail on the farm of Mr. F. Meech in the Marburg district. Measurements and design are shown clearly.

Timber used in the construction of the gate is 3 in. x 1½ in. Other materials comprise 15 ⅜ in. x 5 in. cup head bolts; 4 ⅝ in. x 3½ in. cup head bolts, all with washers and nuts; 2 hinges and gudgeons; a pin fitted with a ring to hold the bail in the closed position, a U pin to act as a guide for the rope and a length of rope.

All bolt heads are on the inside of the gate to avoid injury to animals. A bolt through the post above each gudgeon prevents any lifting of the gate.

This combined gate and bail unit has an advantage over the slide gate type in that the gate is securely

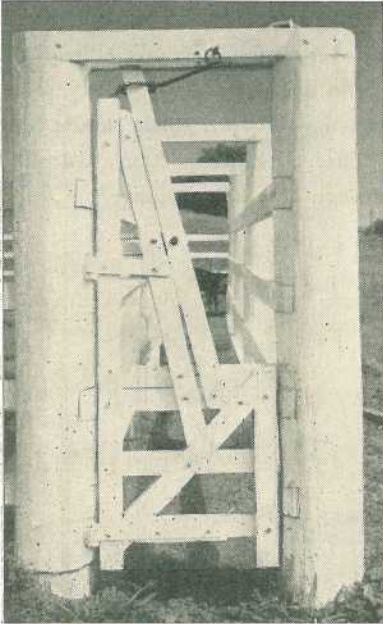


Plate 2.
Gate Closed with the Bail Open.



Plate 3.
Gate and Bail in Closed Position.

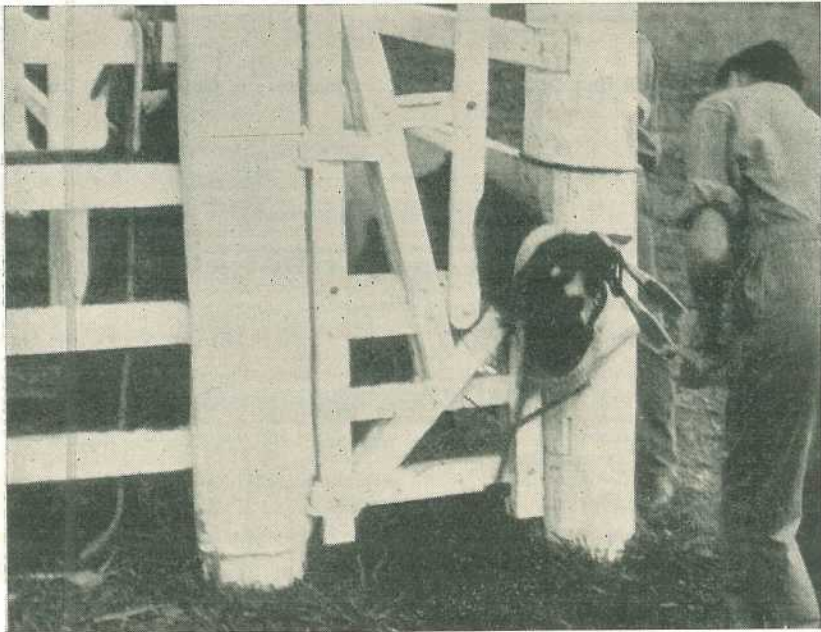


Plate 4.
Bail Being Used for Dehorning a Calf.

locked in the closed position with the bail portion open. There is no possibility of a beast's getting past before the bail can be closed. When the gate is opened animals may walk straight through.

The bail unit illustrated is most suited to animals handled frequently. Cattle not handled frequently show a tendency to put their heads down against the gate portion instead of through the bail opening.

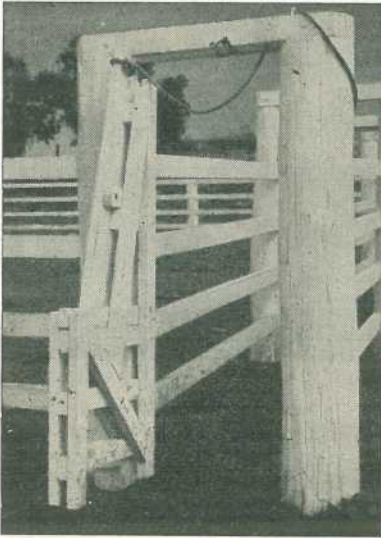


Plate 5.
Gate and Bail Unit Open.

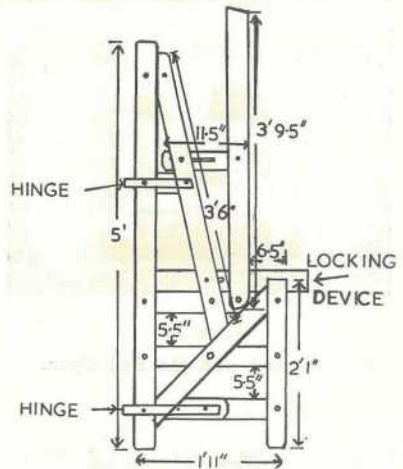


Plate 6.
Dimensions of Gate and Bail Unit.

Potatoes in Ipswich District

"R.B.," of Bundamba, has inquired about some aspects of potato production in his district.

Answer: The usual planting rate of potatoes is from 7 to 10 cwt. of seed potatoes per acre.

Growers in the Ipswich district generally favour Sebago as the best variety, with Sequoia and Katahdin as second and third preferences.

In south-eastern Queensland, growers have the possibility of growing two crops in the year. The first planting is during July-August and the second in February.

The price of seed varies from year to year but is usually about £2 to £2 10s. per cwt.

In the Ipswich area yields of 5 to 6 tons per acre are quite common.

Potted Facts—IV.

The Bean Knows No Frontiers

By **D. R. LEWIS,**
Division of Marketing.

"What do you want for tea,
Tommy?"

"Baked beans, please, Mum".

Little Tommy's appetite for baked beans, together with the appetites of all the other little Tommies in Australia, not forgetting their sisters and their mums and dads, add up to quite a lot of beans. However, before we talk about figures of consumption and production, and prices, let us consider for a moment the origin and use of beans.

Beans have been known to man for many thousands of years. The prehistoric lake dwellings of Switzerland, the cliff houses of the American Southwest, the writings of early Greeks, Romans, Egyptians, and Peruvians, all testify to the ages-old existence and importance of the bean.

It is often said "the Greeks had a word for it." In the case of beans "the Indians had a word for them." To the Algonquin tribe of American Indians beans were known as "tup-puhguamash," the Hurons named them "orgaressa," and the Indians along the St. Lawrence river called them "sahé" or "sahu." We call them beans.

Beans form part of many national dishes—the macaroni and beans of Italy, the fried beans of Costa Rica, the "chili con carne" of Mexico, and last, but not least, the baked beans of New England.

Early American colonists learnt bean-cooking methods from the Indian squaws, and it is said the prim and proper Pilgrim housewives got quickly into the baked bean act. Religion forbade worldly activities on the Sabbath. This tasty Indian dish could be made up on Saturday night to provide a warm and filling Sunday supper. The Pilgrim Father joyfully said goodbye to cold cuts and adopted the baked bean as his Sunday special. This tradition is still favoured widely in New England, where baked beans and brown bread can be found everywhere on week-end menus.

Historians tell us that it was war to which beans owe their introduction throughout the world. They have been carried as a main, staple item in the fighting rations of armies on the march. Their low water content and high protein value makes beans a valuable source of food where transportation is a problem. Easily transported, they keep well, can readily be prepared in a number of ways, and are highly nutritious. And it was war that gave birth to the navy bean growing industry in Australia.

War-time Growth. Before the last war, navy beans were not produced on a commercial scale in Australia. Imports came from Canada, Japan, Argentina, and the United States of America. After the outbreak of the war in the Far East, the United States Army authorities urged the production of navy beans in Australia, with a view to meeting the needs of the forces supplied from this country. The Commonwealth Government therefore embarked on a programme to encourage the production of these beans.

Production in Queensland during the war years was as follows:—

1942-43	.. ..	14,428 bushels
1943-44	.. ..	8,797 bushels
1944-45	.. ..	20,339 bushels
1945-46	.. ..	12,487 bushels

(Source: Government Statistician.)

The production and sale of navy beans were controlled by the Commonwealth Government under the Food

Control Regulations of the National Security Act, and control finally ceased with the harvesting and distribution of the 1946 crop.

Navy beans were produced both in Queensland and in New South Wales, and growers formed marketing boards in each State under the marketing legislation of the respective State. Thus was continued the orderly handling and marketing of the crop. In Queensland the Navy Bean Marketing Board has been functioning since November, 1946.

Demand Exceeds Supply. The demand for locally produced beans has remained firm since the end of the war, and is gradually increasing. Annual demand is now at a level of 2,000-2,500 tons. Production, however, in recent seasons has decreased considerably due to unfavourable weather conditions.

QUEENSLAND.

NAVY BEANS: Acreage, Production and Returns to Growers, 1947 to 1957.

Year.	District.	Number of Growers.	Acreage.	Total Production of Cleaned Beans.	Average Net Return per Bushel of Cleaned Beans at Grower's Siding.
				Bushels.	s. d.
1947	South Burnett	20	900	6,840	} 29 0
	Darling Downs	28	700	6,314	
1948	South Burnett	35	1,700	3,993	} 26 0
	Darling Downs	32	900	5,083	
1949	South Burnett	64	2,450	24,465	} 28 0
	Darling Downs	56	1,250	11,554	
1950	South Burnett	59	2,700	5,301	} 28 9
	Darling Downs	43	1,300	8,332	
1951	South Burnett	56	1,400	12,165	} 30 9
	Darling Downs	25	400	2,245	
1952	South Burnett	78	1,800	17,798	} 37 3
	Darling Downs	7	140	911	
1953	South Burnett	133	2,800	33,606	} 37 7
	Darling Downs	27	400	3,207	
1954	South Burnett	53	1,100	7,172	} 36 11
	Darling Downs	15	250	1,158	
1955	South Burnett	4	} 300	1,365	} 35 2
	Darling Downs	12			
1956	South Burnett	41	} 1,000	5,985	} 37 2
	Darling Downs	12			
1957	South Burnett	44	1,200	12,356	} 40 0
	Darling Downs	36	600	5,020	

(Source: The Navy Bean Marketing Board.)

The table on page 46 shows how production in Queensland has varied since the Board was constituted. It will be seen that our largest crop, that of 1953, amounted to just over 900 tons. Also shown are figures relating to the return to growers.

The chief production area in Queensland is in the South Burnett, in the Kingaroy district, but in recent years there has been renewed interest in the Darling Downs area. It is expected that this development will continue and much larger areas are expected to be planted on the Downs to navy beans in the coming season.

The main variety grown is the Californian White. Recently the Board received some seed of the Sanolae

variety, which one of the large processors had imported from the United States. This variety is reported to be more upright than the Californian White variety, and to be suitable for straight-heading harvesting. Trials are to be made by the Department in the Kingaroy district.

"Mum, why are they called navy beans,"

"Well, Tommy, no-one really knows. It is said that beans were supplied to the American, Commodore Perry, on Lake Erie in 1812. Whether that is why white pea beans are often called navy beans I do not know, but it may be so."

Getting Rid of Fowl Mites

Both poultry farmers and "back-yarders" have reported a build-up in tropical fowl mites in their flocks. These pests cause much irritation to the birds and to people working in fowlhouses.

The tropical fowl mite is a blood-sucker, and can be found on the birds both day and night. It can cause loss of production and unthriftiness through irritation, and in some cases blood-sucking.

Mites on the birds can be controlled by painting the perches with a special BHC perch paint. This paint acts by fumigating the fowls' feathers while they're roosting—the warmth of the birds' bodies causes the BHC to vaporise. Before use, most commercial preparations of perch paints have to be diluted with sump oil. When the mites are present on the walls of the fowlhouse, these should be sprayed with a dieldrin spray.

Control of Bell Vine

Inquiries have been received about chemical control of Bell vine. Frequently the vine gets a good hold where dry spring conditions have prevented thorough land preparation.

Both M.C.P.A. and 2,4-D used at a concentration of 0.1 per cent. active ingredient will kill Bell vine. Such treatment should cause no damage to maize or grain sorghum crops provided they are not too advanced in growth. If the leaf is fully expanded some damage to the

crop may be caused by spraying at that stage. Where such might be thought to occur a small area should be sprayed as a trial before attempting to spray the whole crop.

Some spraying equipment is fitted with crop booms which permit spraying between the rows below the level of leaves of the crop without damage. Such equipment allows the spraying of the crop without damage at a much later stage than where overhead boom sprays are used.



Plate 1. Protected Native Fern, Elkhorn Fern, at Binna Burra.

Queensland Flora Conservation

By C. ROFF.

Their comparative inaccessibility has given the best protection to native plants in the past, but the advent of modern transport has brought many more of these within the reach of a larger section of the community.

In Queensland the necessity for preventing the wholesale destruction of our native flowers, ferns, palms and orchids has been recognised for many years and legislation requirements are embodied in "*The Native Plants Protection Act of 1930.*"

The following relevant information should be of general interest:—

Definitions.

Various terms are defined in the legislation and it is particularly important to note—

"Native plant"—Any plant which is indigenous to Queensland, and includes any part thereof and the flower thereof, the term also includes any other plant which the Governor in Council may, by Order in Council from time to time, declare to be a native plant for the purpose of this Act.

“Pick”—(in relation to a native plant) means to gather, pluck, cut, pull up, destroy, take, dig up, remove, or injure the native plant or any part thereof.

Administration.

Certain officers of the Department of Agriculture and Stock are responsible primarily for administering the Act and, in addition, as many persons as deemed necessary for the conservation of flora in any locality may be appointed as honorary rangers.

The credentials of a person desiring appointment as an honorary ranger are important and accordingly it is



Plate 2.

Protected Native Flower, Christmas Bells, at Caloundra.

necessary for each applicant to supply certain personal details and a suitable reference.

All members of the police force, authorised local authority officers, certain forest officers and honorary rangers, in respect of any person committing or suspected of committing an offence, may

- (a) Require him to give his name and address.
- (b) Require him to deliver up any protected native plant in his possession.

These powers are also conferred on the owner or lessee of private land but only whilst the offender is on such private land.

It is an offence for any person to refuse to give his name and address, to give a false name and address, or to refuse to deliver up a protected native plant.

Protected Native Plants.

The following plants are protected throughout the whole State for an unlimited period, and from time to time as the occasion demands other plants may be added:—

The plants listed may not be picked on any Crown land, State Forest, National Park, public park, road or on land dedicated or reserved for public purposes. With regard to private land, protected native plants may only be collected after the owner's or lessee's permission has been obtained.

FERNS.

<i>Adiantum aethiopicum</i>	..	..	..	..	..	Common maiden hair fern
<i>Adiantum formosum</i>	..	..	..	..	..	Scrub maiden hair fern
<i>Adiantum hispidulum</i>	..	..	..	..	..	Five-fingered maiden hair fern
<i>Adiantum lunulatum</i> (<i>A. philippense</i>)	..	..	..	..	..	Kidney maiden hair fern
<i>Alsophila australis</i> (<i>Cyathea australis</i>)	..	..	..	..	..	Tree fern
<i>Alsophila baileyana</i> (<i>Cyathea baileyana</i>)	..	..	..	..	..	Wig tree fern
<i>Alsophila excelsa</i> (<i>Cyathea cooperi</i>)	..	..	..	..	..	Tall tree fern
<i>Alsophila leichhardtiana</i> (<i>Cyathea leichhardtiana</i>)	..	..	..	..	..	Prickly tree fern
<i>Alsophila robertsoniana</i> (<i>Cyathea robertsiana</i>)	..	..	..	..	..	Robertson's tree fern (Roberts's tree fern)

FERNS—continued.

<i>Alsophila rebecca</i> (<i>Cyathea rebecca</i>)	Broad-leaved tree fern
<i>Asplenium laserpitiifolium</i>	Johnston River maiden hair fern
<i>Asplenium nidus</i>	Bird's nest fern
<i>Asplenium simplicifrons</i>	Narrow-leaved bird's nest fern
<i>Davallia pyxidata</i>	Hare's foot fern
<i>Dicksonia antarctica</i>	Mountain tree fern
<i>Dicksonia youngiae</i>	Young's tree fern
<i>Lygodium</i> spp.	Climbing maiden hair ferns (all species)
<i>Ophioglossum pendulum</i>	Ribbon fern
<i>Platycterium grande</i>	Staghorn fern
<i>Drymophloeus normanbyi</i> (<i>P. bifurcatum</i>)	Elkhorn fern
<i>Pteris</i> spp. (all species)	
<i>Vittaria elongata</i>	Bootlace fern

PALMS.

<i>Archontophoenix alexandre</i> (<i>A. alexandrae</i>)	Northern piccabeen
<i>Archontophoenix cunninghamii</i>	Southern piccabeen
<i>Bacularia monostachya</i> (<i>Linospadix monostachyus</i>)	Walking-stick palm
<i>Drymophloeus normanbyi</i> (<i>Normanbya normanbyi</i>)	Black palm
<i>Licuala muelleri</i> (<i>L. ramsayi</i>)	Fan palm
<i>Livistona australis</i>	Cabbage tree palm

ORCHIDS.

<i>Calanthe veratrifolia</i>	Scrub lily
<i>Cymbidium albuciflorum</i>	Long-leaved arrowroot orchid
<i>Cymbidium canaliculatum</i>	Arrowroot orchid
<i>Cymbidium sparkesii</i>	Black orchid
<i>Cymbidium suave</i>	Slender arrowroot orchid
<i>Dendrobium aemulum</i>	Box-tree orchid
<i>Dendrobium beckeri</i>	Small pencil orchid
<i>Dendrobium bigibbum</i>	Purple orchid
<i>Dendrobium canaliculatum</i>	Tea tree orchid
<i>Dendrobium delicatum</i>	
<i>Dendrobium fusiforme</i>	
<i>Dendrobium gracilicaule</i>	Slender orchid
<i>Dendrobium johannis</i>	Golden orchid
<i>Dendrobium kingianum</i>	
<i>Dendrobium linguiforme</i>	Tongue orchid
<i>Dendrobium phalaenopsis</i> (<i>D. bigibbum</i> var. <i>phalaenopsis</i>)	Large purple orchid
<i>Dendrobium smilliae</i>	Bottle brush orchid
<i>Dendrobium speciosum</i>	King orchid or rock lily
<i>Dendrobium superbiens</i>	Torres Strait orchid
<i>Dendrobium teretifolium</i>	Pencil orchid
<i>Dendrobium tetragonum</i>	Spider orchid
<i>Dendrobium toftii</i>	
<i>Dendrobium undulatum</i>	Curly orchid
<i>Eria fitzalanii</i>	
<i>Oberonia</i> spp.	Soldier's crest orchid (all species)
<i>Phaius bernaysii</i> (<i>P. australis</i> var. <i>bernaysii</i>)	Yellow Phaius
<i>Phaius grandifolius</i> (<i>P. tankervilleae</i>)	Common Phaius
<i>Phalaenopsis amabilis</i>	
<i>Phalaenopsis rosenstromii</i> (<i>P. amabilis</i> var. <i>rosenstromii</i>)	
<i>Pholidota imbricata</i>	Banana orchid
<i>Sarcochilus fitzgeraldii</i>	
<i>Sarcochilus hartmannii</i>	

MISCELLANEOUS PLANTS.

<i>Blandfordia</i> spp.	Christmas bells (all species)
<i>Boronia</i> spp.	Boronia
<i>Cordyline terminalis</i> (<i>Codyline</i> spp.)	Palm Lily
<i>Dischidia nummularia</i>	Button orchid
<i>Eurycles amboinensis</i>	Cairns lily or Cardwell lily
<i>Helichrysum</i>	Everlastings
<i>Helipterum</i>	Everlastings
<i>Hoya australis</i>	Hoya or wax flower
<i>Lycopodium phlegmaria</i>	Tassel fern
<i>Lycopodium</i> spp.	All Lycopods and tassel ferns
<i>Myrmecodia antoinii</i>	Ant orchid
<i>Rhododendron lochae</i>	
<i>Selaginella</i> spp. (all species)	
<i>Sowerbaea juncea</i>	Vanilla lily

Specified Areas.

The legislation provides for the declaration of certain plants in specified districts as protected native plants and the following have been declared as such for a unlimited period in the localities indicated.

BISHOP ISLAND IN MORETON BAY.

<i>Aegiceras majus</i> (<i>A. corniculatum</i>)	River mangrove
<i>Avicennia marina</i> var. <i>resinifera</i>	White mangrove
<i>Casuarina equisetifolia</i> var. <i>incana</i>	She oak
<i>Enchylaena tomentosa</i> var. <i>glabra</i>	
<i>Erythrina caffra</i>	Coral tree
<i>Ficus cunninghamii</i> (<i>F. lacor</i>)	Cunningham's fig
<i>Hibiscus tiliaceus</i>	Cotton tree
<i>Ipomoea pes-caprae</i>	Goatsfoot convolvulus
<i>Mesembryanthemum aequilaterale</i> (<i>Carpobrotus glaucescens</i>)	Pigface
<i>Myoporum ellipticum</i>	
<i>Pongamia glabra</i> (<i>P. pinnata</i>)	Pongamia tree or bean tree
<i>Salicornia australis</i>	Glasswort
<i>Sesuvium portulacastrum</i>	
<i>Suaeda maritima</i>	Sea blite
<i>Vitex negundo</i>	
<i>Wedelia biflora</i>	
Grasses—	
<i>Brachiaria distachya</i> (<i>B. miliiformis</i>)	
<i>Chloris divaricata</i>	A star grass
<i>Cynodon dactylon</i>	Common couch grass
<i>Eriochloa</i> sp.	
<i>Lepturus repens</i>	
<i>Paspalum distichum</i>	Freshwater couch grass
<i>Paspalum vaginatum</i>	Saltwater couch grass
<i>Phragmites communis</i>	Common reed
<i>Rhynchelytrum roseum</i> (<i>R. repens</i>)	Red Natal grass
<i>Spinifex inermis</i> (<i>S. hirsutus</i>)	Spinifex grass
<i>Sporobolus virginicus</i>	
<i>Sporobolus virginicus</i> var. <i>minor</i>	
<i>Zoysia</i> sp. (<i>Zoysia macrantha</i>)	Coast couch grass



Plate 3.

Southern Piccabean, a Protected Native Palm, Growing at Buderim Mountain.

FRIDAY ISLAND IN TORRES STRAIT.

Any tree or bush of the genus <i>Acacia</i>	Wattles
<i>Albizia procera</i> (<i>Albizia procera</i>)	Acacia tree
<i>Avicennia officinalis</i> (<i>A. marina</i> var. <i>resinifera</i>)	White mangrove
Any tree or bush of the genus <i>Banksia</i>	Honeysuckle
<i>Bruguiera rheedii</i> (<i>B. gymnorrhiza</i>)	Black mangrove
<i>Casuarina</i>	She oaks—any variety
<i>Ceriops candolleana</i> (<i>C. tagal</i>)	Orange mangrove
<i>Cocos nucifera</i>	Coconut
<i>Eucalyptus alba</i>	Gum tree
<i>Eucalyptus corymbosa</i> (<i>E. polycarpa</i>)	Bloodwood
<i>Eucalyptus crebra</i>	Ironbark
<i>Eucalyptus tereticornis</i>	Blue gum
Any tree of the genus <i>Ficus</i>	Figs
<i>Licuala muelleri</i> (<i>L. ramsayi</i>)	Fan palm
Any tree or bush of the genus <i>Melaleuca</i>	Tea trees

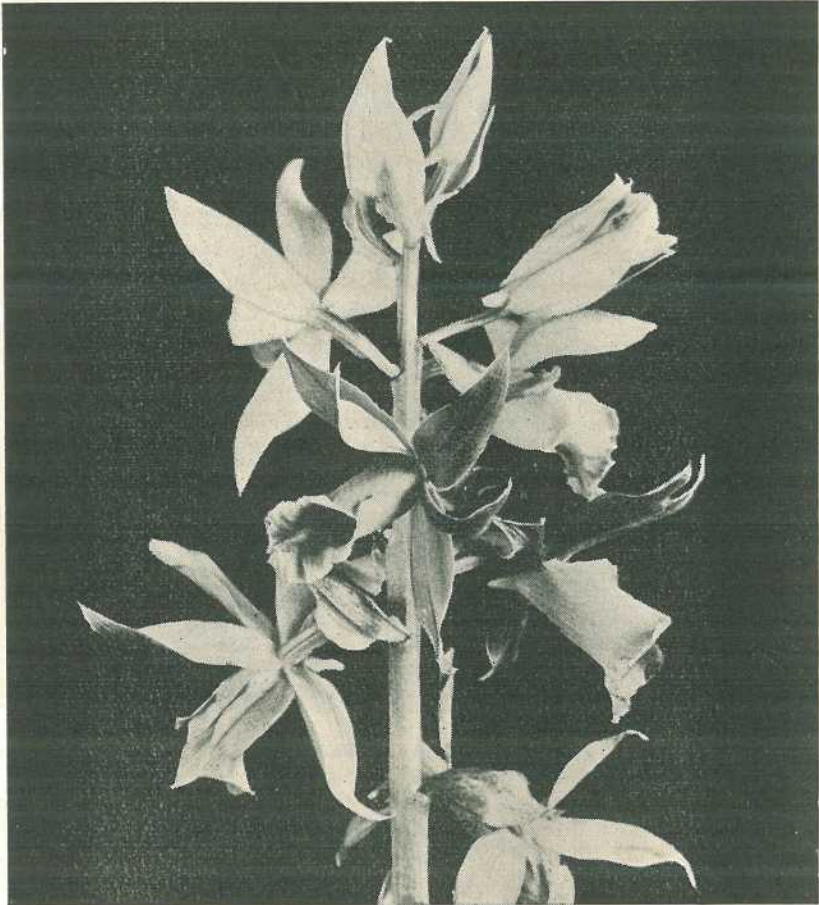


Plate 4.

Yellow Phaius Orchid, a Protected Native Orchid, Growing at Stradbroke Island.

FRIDAY ISLAND IN TORRES STRAIT—continued.

<i>Mimusops browniana</i> (<i>Manilkara kauki</i>)	..	..	Wongi tree
Any tree or bush of the genus <i>Pandanus</i>	..	..	Pandanus trees
<i>Ptychosperma elegans</i>	..	..	Palm tree
<i>Rhizophora mucronata</i>	..	..	Red mangrove
<i>Siphonodon pendulum</i>	..	..	Passion fruit tree
<i>Terminalia catappa</i>	..	..	Torres Strait almond
<i>Terminalia platyphylla</i>	..	..	Pear tree
<i>Tristania suaveolens</i>	..	..	Swamp mahogany

For scientific purposes the picking of protected native plants may be permitted. The terms and conditions under which a permit is granted are always indicated on the permit.



Plate 1: Dipping Citrus. Mould control in citrus can be effected by dipping the fruit in a solution of 4 per cent. borax and 2 per cent. boracic acid.

Storing Fruit In The Home

By C. D. STEVENSON,
Assistant Physiologist, Horticulture Branch.

SUCCESSFUL storage of fruits depends on the application of the same simple rules that apply to the storage of vegetables for home use. They are:—

Store only sound, mature fruit. This means that all cut, bruised, malformed fruit should be used for immediate consumption and not kept for storage purposes. Immature fruit

develops disorders more rapidly during the storage period than mature fruit, and over-mature fruit has only a very short life.

Make regular inspections during the storage period. Any fruit showing signs of breakdown must be removed immediately to prevent spread of the rots to other fruit.

Watch for Signs.

Don't try to keep the fruit too long. All fruits are living material and have only a limited storage life. During your inspections look for signs indicating that the end of the storage life is approaching. The most important sign is a rapid increase in the number of fruit showing decay. When the number of disorders exceeds 10 per cent., the fruit should be used as soon as possible. Other indications are loss of the fresh look and the development of excessive softness.

Knowing when to pick is most important. There is no sure way of telling this, but these facts will help you!

Maturity is usually associated with softening of the tissue and, by squeezing the fruit gently with the fingers, the degree of maturity can generally be ascertained.

Colour changes are also useful. Some fruits change from green to yellow at maturity, others develop a characteristic red blush, whilst some acquire a definite bloom.

Ease of removal from the parent plant is another guide; some fruits are easily removed by gentle finger pressure when maturity is reached.

However, experience with a particular crop is invaluable as a means of selecting fruit of the right maturity for storage purposes.

High humidities are necessary during the storage period. It is usually difficult to maintain these humidities

under home storage conditions. Keeping the floor—on which the fruit is stored—damp by sprinkling with water largely assists in maintaining the required humidity. But care must be exercised to ensure that the fruit does not get wet, as this condition favours mould growth. If humidities are too low shrivelling may occur.

Apples' Long Life.

Of all fruits grown, apples have probably the longest storage life. Some varieties, such as Democrat and Granny Smith, can be held in a cool, well-ventilated place for several months while the shorter storing varieties, such as Delicious or Jonathans, will keep under the same conditions for several weeks. Storage life is extended greatly by using a refrigerator, but since space in the home refrigerator is limited it is better keeping what space is available for more perishable fruits.

Stone fruits have a very short storage life and cannot be kept more than a couple of days unless placed in a refrigerator. Peaches have a shorter life than plums and will only keep in the refrigerator from one to two weeks while plums under the same conditions can be held for periods up to a month. Apricots and nectarines have a storage life about the same as peaches and must be kept refrigerated.

Tropical fruits do not keep very long at ordinary air temperatures and even when held in the refrigerator, care must be taken to ensure that the temperatures are not too low as the fruits will either blacken or develop breakdown.

Mangoes can be kept in the refrigerator from two to three weeks but they deteriorate rapidly at air temperatures.

Papaws are usually picked when showing about half colour and will ripen in a few days at atmospheric

temperatures. If kept in the refrigerator they may be held from two to three weeks, but as they develop rots very quickly during ripening they should be eaten soon after removal.

Pineapples, if placed in the refrigerator when fully ripe will keep in good condition for two weeks. Mature green fruit if kept under the same conditions may fail to ripen satisfactorily and consequently they should not be placed in a refrigerator running at low temperatures. If satisfactory temperatures are obtained, they should keep from three to four weeks.

Bananas should never be kept in a refrigerator as their skins will turn black and the pulp will fail to ripen.

This fruit is best picked when it is fully grown but with the skin green in colour. They can be ripened rapidly by cutting off hands and placing them in a gas oven for a few nights. The oven must be quite cool, otherwise the bananas will be severely damaged.

Moulds on Citrus.

Oranges, mandarins and grape fruit will keep in a well-ventilated kitchen cupboard for two or three weeks and this time will be about doubled if they are kept in a refrigerator. These fruits are very badly affected by moulds and these can largely be controlled by dipping the fruit, prior to storage, in a solution containing a tablespoon of borax and a dessert-spoon of boracic acid to the pint. In

order to wet the fruit a small amount of detergent should be added to the solution.

Lemons are much hardier and should keep for several months at air temperatures. Dipping them in the same solution as for the other citrus fruits will help to control mould growth.

The storage life of grapes depends largely on the variety but generally grapes can be kept for a week or more at air temperatures, provided that they are fully mature. If, during inspections, any mould is noticed, the grapes should be consumed immediately. Packed in plastic bags and held in the refrigerator their life should be well in excess of two weeks.

Strawberries are very perishable and should always be kept in the refrigerator.

Their storage life is only about a week. They are very severely affected by mould and should be consumed immediately if any mould appears.

Avocados will slowly ripen at air temperatures in a week to 10 days. For longer periods they should be kept in the refrigerator after ripening first at air temperatures.

Odours given off by stored fruit can taint stored dairy produce and eggs, and for this reason fruit should be kept in sealed containers where possible.

Supply of Buffel Grass Seed

Inquiries have been received regarding supply sources of the Biloela strain of Buffel grass.

The availability of the Biloela strain of Buffel grass varies considerably from season to season.

Any of the following list of suppliers may have seed available for sale: A. E. Larsen, Thangool, via

Rockhampton; S. J. Allen, Jambin, via Rockhampton; H. H. Rackemann, Lawgi, via Rockhampton; R. W. Theodore, Moura, via Rockhampton. A. D. Murray, Bushley, via Rockhampton.

The seed merchants may be able to supply Biloela strain Buffel grass from time to time.

for the junior farmer

By J. PARK,

State Organiser, Junior Farmers' Organisation.

COMMITTEES.

If a member is nominated or invited to serve on a committee, he, or she, should not refuse except for some very good reason—a reason that seems good to others besides oneself. If it is accepted, then the job must be taken seriously and the meetings attended. Membership of a committee brings responsibility.

When committees are formed it is usual for the club leader to act as chairman of them, *ex officio* (by virtue of his office). However, because he will undoubtedly be a very busy person, he usually delegates his authority to the deputy leader. If for some reason the deputy cannot do the job, the members of the committee elect their own chairman, with any one of them having the right to make a nomination.

The definition of the duties of a committee is called the "terms of reference," and in their actions and deliberations the committee must not go outside these terms. It is most important that the members are clear about them, and that they know their powers. For example, a committee may be given executive powers, and thus have authority to organise and carry out some course of action. In such a case the committee can, obviously, do a great deal without asking the club, for the club members have told them "to get on with the job."

There must, however, be some limits to every committee's powers, and these should be stated clearly in the terms of reference. For example, a committee appointed to organise a Show exhibit would probably be told the maximum amount of money that might be spent.

On the other hand a committee might be set up merely to inquire into some problem and to report to the club when the inquiry is finished. The committee has then no executive powers. Its task is to collect information and make a report, and the next move is up to the club when it has received the report. Such a committee may make recommendations, but it has no power to carry them out.

Must Use Discretion.

It is, of course, impossible to put into words instructions concerning everything, so the members of the committee must use their discretion and steer a reasonable course between timid refusal to accept responsibility and a disregard of the opinions of their fellow members who happen not to be on the committee. The test is often the question: "If I were not on this committee, would I want this matter referred to me before the action was taken?"

The member who is not on the committee, but who has helped in its appointment, must be ready to give it powers, unless it is a committee

appointed only to advise. It is unreasonable to vote that a job shall be given to a committee to do, and then to insist that all decisions shall be made by the club. The committee may well say: "What's the good of having us?"

The same balance of responsibility has to be kept between the officers (the executive) and the members of the club. When the club discusses and decides its policy (the big ideas), the members must be ready to take notice of the advice of their officers, and the officers in carrying out their routine duties must see to it that these do not in any way clash with the declared policy of the club.

When choosing people to serve on a committee, it is their interests, ability and character that should be considered. To appoint a member merely because he is free to attend the meetings is to do so for the wrong reasons. We need people on committees who not only can but will attend meetings and who are prepared to

work. Also, the work of different committees should be spread out amongst the members and not always given to the same people. In this way opportunities to learn are provided for the many and not only for the few; the club thereby gains in strength.

Before a member nominates anybody for an office or for membership of a committee he should make sure that the nominee is willing to accept the position.

Committee meetings are, strictly speaking, private affairs, and harm can be done by individual members speaking freely in public about everything that happens at them. That is why it is so important for a committee to report often and fully to the club. If this is not done the other members may lose confidence in the committee and begin to think that a lot of jiggery-pokery is going on. In this they may be, and probably are, quite wrong, but they must be given no cause to feel that way and to get restive.

Major Projects for 1959

THE two main projects adopted by the Queensland Junior Farmers' Organisation for Queensland's Centenary year will cover the twin objects of planting trees on a State-wide basis and a drive to cut down on farm accidents.

The idea of a State tree planting programme was recommended to junior farmers by the Minister for Education (Hon. J. C. A. Pizzey) last year. He also suggested that the organisation adopt a programme to train all members in first aid with a view to their gaining their certificates during centenary year. However, the response to this suggestion has been so great that already large numbers of

members have received their certificates and many more will be gaining theirs within the next few weeks.

It has now been decided that the organisation's main project for 1959 will be an all-out drive to lower the alarming rate of farm accidents occurring in Queensland each year. This was decided at a meeting of the State council executive in Brisbane.

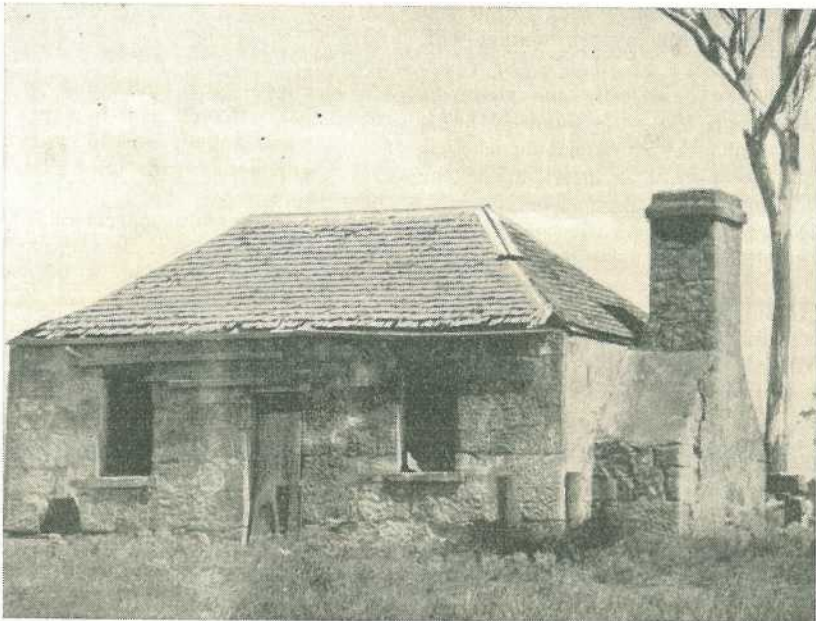
The first step in the plan will probably be a survey by clubs, in conjunction with their local hospitals and ambulances to determine the number of farm accidents, fatal and otherwise, resulting each year and their main causes.

This will be the first time that such a large-scale survey has been conducted by junior farmers, and some eye-opening results are expected. To date the only figures available are those issued by the State Government Insurance Office in relation to claims made on workers' compensation policies.

But these figures would by no means be complete, as they do not refer to the large number of farm workers not covered by any policy and, in particular, members of a farmer's own family, and the farmer himself.

The next step will be a drive by members, clubs, zones and State council to educate farmers on the rules of farm safety and accident prevention. It is also hoped that members of a farmer's family can be made aware of the risks they run on the average farm, and encourage them to cover themselves by some form of compensation or hospital benefits scheme.

These activities will be in addition to the other normal plans for 1959 and have been sponsored as part of the organisation's tribute to Queensland's centenary.



In Service Still

An original outstation of Glengallen Station, now a store for baled hay.

Holiday First Aid

HERE IS YOUR "WHAT-TO-DO-IN-EMERGENCY" GUIDE FOR HOLIDAY HAZARDS:

Holidays are for fun and relaxation. But accidents do happen and it is as well to be fully prepared for them.

These first aid hints will prove very useful and should be kept where they can be quickly found.

DROWNING.

If you are faced with having to revive an apparently drowned person your use of the correct method will, perhaps, save a life that might otherwise be lost. Directly the victim is taken from the water and if he is unconscious, try to determine whether it is because of a head injury or shock. If breathing has stopped, apply artificial respiration at once and, if at all possible, send for a doctor.

In the meantime, to restore breathing, apply this simple method of artificial respiration, the Holger-Neilson method, and persist until breathing is normal again or until a doctor has arrived to take over:

- (1) Check the mouth and throat for any obstruction . . . remove any dentures . . . and have the patient so placed that the head is lower than the feet so that any fluid in the breathing passages will drain more freely.
- (2) Kneel down in front of the patient's head (See Plate 1).



Plate 1.

- (3) Place your hands flat on his back, thumbs just touching and with fingers spread outwards and downwards. (See Plate 2.)
- (4) Compression movement should now commence. In this position you should be able to watch the patient's mouth and nostrils for signs of returned breathing.



Plate 2.

Move forward until your arms are almost vertical (Plate 3), allowing your weight to compress the patient's back with a



Plate 3.

slow steady pressure downwards on the hands. Be sure your hands do not slip or move and that your elbows are kept straight.

- (5) Now release the pressure, avoiding any thrust, from the patient's back by slightly rocking backwards. Take your hands from his back and grasp his arms immediately above the elbow (Plate 4), and with your



Plate 4.



Plate 5.

fingers and thumbs together, draw his arms upwards and towards you (Plate 5), lifting so that you can feel the resistance of his weight. Keep your arms straight and rock backward, drawing the patient's arms upwards all the time. At

the completion of this movement drop his arms.

- (6) Repeat these two movements alternately 12 times a minute, no more, no less, until breathing is restored to normal, or at least until a doctor arrives to take over.

And remember always you are fighting for a life . . . keep cool and follow the instructions.

We suggest you practice artificial respiration before you set off on your holiday or trip . . . it will save confusion if the need for it arises and will give you confidence.

SNAKE BITE.

The bite of a venomous snake looks like two pin pricks. There may be several punctures around the affected area, and if you are not sure of the kind of snake which made them, treat the wounds as for venomous bites.

- (1) If the bite is on a limb apply a ligature between the bite and the heart, placing it around the limb above the knee or the elbow. Tighten it so that the flow of blood to the bitten part is stopped. You must act quickly because the venom may spread rapidly. If a finger or toe is bitten a ligature at the base will be sufficient.
- (2) Wash the bite to remove any venom on the skin around the wound.
- (3) Pinch up the skin and cut out the bitten part . . . or make several cuts over the bite and encourage bleeding to wash out the venom . . . cut in line of the length of the limb, at least $\frac{1}{4}$ in. deep.
- (4) Send for or get a doctor as soon as possible . . . tell him if you know the kind of snake. If the snake has been killed let the doctor see it.

- (5) Keep the victim calm . . . it will ease the shock . . . assure him that most snake-bitten persons in Australia recover. Keep him resting as much as you can.
- (6) Give hot drinks such as tea, coffee or milk.
- (7) If breathing should fail, apply artificial respiration.
- (8) Relax the ligature every half hour for at least a minute . . . and remove entirely after two hours if a doctor has not arrived.
- (9) If the bite is not in such a position that a ligature can be applied, adopt treatment 3 to 7 as above.

CHOKING.

Open the mouth and attempt to remove the obstruction with the forefinger. If this is not effective, strike the back between the shoulder blades with the open hand. This helps expel the object.

GASES AND SMOKE.

Remove the patient from the source and into the fresh air.

STRANGULATION.

Cut away and remove whatever is constricting the throat. Immediately the cause of suffocation has been removed . . . if the patient is not breathing normally . . . carry out artificial respiration.

TICKS.

The bush or scrub tick, found mainly in scrub country along the coast, is dangerous. Unless gorged with blood it is difficult to detect . . . the head is always buried in the skin and only the body is visible. The bite at first causes an itch, which may be followed by a feeling of weakness or nausea. If the tick is allowed to remain in the skin for any length of

time the result can be serious, especially for children.

It is advisable to check the body for ticks frequently.

Try to remove the tick entirely, it may be killed first by dropping turpentine or kerosene on it. Tweezers pressed into the skin around the head of the tick should expel it. If the head does not come out at once apply iodine to the spot.

Any case of illness suspected from tick bite should be taken to a doctor.

SPIDERS.

Our two most dangerous spiders are the RED BACK and the FUNNEL WEB. The Red Back is a black insect with a red stripe on its body . . . This unpleasant spider is generally found in dark corners, tins and amongst rubbish . . . a favourite haunt is the lavatory seat. The Funnel Web spider is found in crevices in buildings, logs, trees, and stumps. Its bite is very dangerous and should be treated as for snake bite . . . a ligature tied between the bite and the heart and the blood induced to flow . . . if need be, by making several cuts at the bite mark. In either case, give fluids, keep the patient warm, and send for a doctor.

INSECT STINGS.

Extract the stings if possible and apply weak solution of ammonia, baking soda, or the household blue bag. For most insect stings, Benadryl cream is recommended.

JELLY FISH OR BLUE BOTTLES.

Rub the affected part with a handful of wet sand, then apply a weak solution of ammonia or the blue bag. Give hot drinks.

SUNSTROKE AND HEATSTROKE.

The same treatment is right for either. A splitting headache may be the first sign, then everything looks

red to the victim; he may even lose consciousness. A rise in temperature is almost immediate and can be dangerous. A doctor should be sought at once. Meantime, if you have a thermometer and it shows over 105, apply cold water and keep fanning to reduce temperature. Have a cold bath ready, the doctor may prescribe it when he arrives. If you have no thermometer, do nothing beyond loosening all tight clothing until the doctor arrives.

HEAT PROSTRATION OR HEAT EXHAUSTION.

This has different symptoms, the temperature goes down and the victim feels cold and clammy. Send for a doctor at once, and, regardless of the heat of the day, take all measures to keep the patient moderately warm.

SUNBURN.

Bath the burned area with warm water and apply a soothing lotion. If it is a bad case call a doctor. Prevention is better than cure, especially if the skin is fair. Keep a good sunburn preparation handy . . . one with a "sun screen" or a "barrier" base. This will help, but you must still take care not to overdo "baking."

BURNS AND SCALDS.

Serious burns and scalds, those affecting large areas, should not be touched except by a doctor. Make no attempt to remove clothing from the burned area. If it is exposed, cover with a clean towel or sheet. Keep the patient warm with blankets, but do not give alcohol.

With less serious burns or when medical help is not available, remove only such clothing as will come away easily. Immerse the burned area in water at body temperature until the proper dressings are ready. A level dessertspoonful of common salt in a pint of water will make a soothing lotion. Dress with strips of lint, linen or gauze soaked in a similar solution.

Keep dressing moist until medical aid comes and give plenty of fluids to drink.

For chemical burns, say an acid, wash with a solution of bicarbonate of soda. If alkaline, use a weak acid such as vinegar. If in doubt as to the nature of the chemical, use plenty of warm water.

CUTS.

Cuts from oyster shells, rocks, tins, broken glass, etc., may easily turn septic. Thorough cleansing and the application of an antiseptic before bandaging is effective against blood poisoning. Very deep cuts should be seen by a doctor as soon as possible.

BLEEDING FROM VEINS AND ARTERIES.

Send for a doctor and try to stop bleeding by pressing a pad of clean material over the wound. If possible, the injured part should be elevated and the patient made to lie down. If this does not halt the bleeding, apply a tourniquet . . . pressing the main artery against a bone with the fingers. Tourniquet should be loosened every 30 minutes. Tourniquets are a last resort only. Stimulants should not be given.

FRACTURES.

Apply firm bandages and ice packs to control internal bleeding. Do not move limb unnecessarily. Place in a light splint and give complete rest until a doctor or ambulance man arrives. Aspirin may be given to relieve pain.

TETANUS.

Tetanus may enter through a flesh wound although the wound may not be easily seen. Mostly the symptoms are a stiffness of the neck and lower jaw. Later, spasms of other parts of the body might develop. All wounds that could be infected should be cleaned and an antiseptic applied. The

patient should be taken to a doctor at once. For lasting protection, immunization is recommended. Seek the advice of your doctor before you go away.

FOOD POISONING.

Contaminated food is not always easy to detect by taste, smell or appearance . . . for safety's sake:—

Avoid blown tins or any canned food which when opened does not taste or smell right.

Store all left over foodstuffs in a cool place protected from flies and rats and cockroaches.

Hands and all cooking utensils must be thoroughly clean.

Symptoms of food poisoning are vomiting, abdominal pains, muscular pain and prostration. Call a doctor and keep the patient warm, giving fluids only until he arrives.

KEROSENE POISONING.

This can be avoided by keeping kerosene in properly labelled bottles and if there are children around, bottles should be kept well out of their reach.

On no account should anything be given to make the patient vomit. This is dangerous and could cause death in children. Medical attention must be obtained at once.

—*Qld. Health Education Council.*



A Veterinary Examination

A candid camera shot taken on the property of Mr. B. Hayes, Coominya.