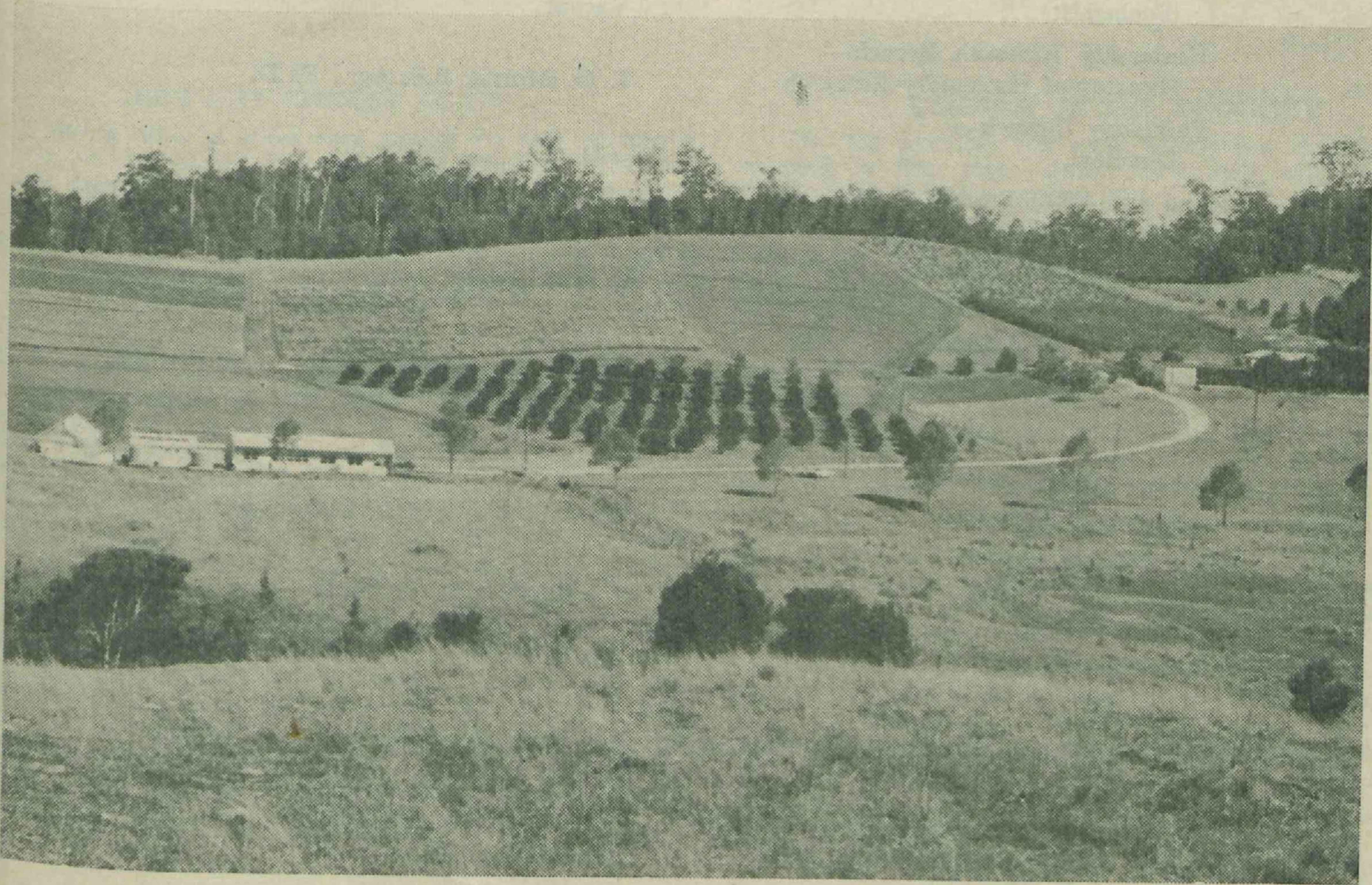


Govt. Pathologist

ANNUAL REPORT 1964-65

Queensland Department of Primary Industries



Maroochy Horticultural Research Station.

Presented to Parliament by Command

ORGANISATION OF THE DEPARTMENT AS AT 30th JUNE, 1965

MINISTER FOR PRIMARY INDUSTRIES .. Hon. J. A. Row, M.L.A.

CENTRAL ADMINISTRATION AND CLERICAL AND GENERAL DIVISION—

Director-General and Under Secretary .. W. J. S. Sloan, M.Sc.Agr.
 Deputy Director-General J. M. Harvey, D.Sc., A.R.A.C.I.
 Assistant Under Secretary H. Barnes
 Special Administration Officer C. L. Harris, A.A.S.A.
 Officer in Charge, Information Services .. C. W. Winders, B.Sc.Agr.
 Accountant E. C. R. Sadler, A.A.U.Q.

DIVISION OF ANIMAL INDUSTRY—

Director of the Division A. L. Clay, B.V.Sc.
 Deputy Director C. R. Mulhearn, B.V.Sc.

Veterinary Services Branch—

Director of Veterinary Services L. G. Newton, B.V.Sc.

Animal Research Institute—

Director of Veterinary Research J. W. Ryley, B.V.Sc.

Biochemical Branch—

Biochemist Vacant

Husbandry Research Branch—

Director of Husbandry Research J. G. Morris, B.Sc.Agr., Ph.D.

Pathology Branch—

Director Vacant

Sheep and Wool Branch—

Director of Sheep Husbandry A. T. Bell, B.V.Sc.

Cattle Husbandry Branch—

Director of Cattle Husbandry G. I. Alexander, B.V.Sc., M.S., Ph.D.

Pig and Poultry Branch—

Sections of Pig Husbandry (F. Bostock, Senior Pig Husbandry Officer); and Poultry Husbandry (F. N. J. Milne, B.Sc., Senior Poultry Husbandry Officer).

DIVISION OF DAIRYING—

Director of Dairying E. B. Rice, Dip.Ind.Chem., M.Inst.Biol.

Field Services Branch—

Director of Field Services V. R. Smythe, M.Agr.Sc.

Research Branch—

Director of Research L. E. Nichols, B.Sc.Agr., A.R.A.C.I.

DIVISION OF DEVELOPMENT PLANNING AND SOIL CONSERVATION—

Director of the Division J. E. Ladewig, B.Sc.Agr.

Development Planning Section—

Chief Development Planning Officer .. A. Hegarty, B.Sc.

Soil Conservation Section—

Chief Soil Conservationist J. Rosser, B.Agr.Sc.

DIVISION OF MARKETING—

Director of Marketing A. A. Ross, M.Agr.Sc.

Marketing Branch—

Assistant Director of Marketing D. P. Lapidge, B.Com.

Economics Research Branch—

Director of Economic Services E. O. Burns, B.Com., A.C.A.A., A.A.S.A.

Standards Branch—

Standards Officer A. C. Peel, Dip.Ind.Chem., A.R.A.C.I.

DIVISION OF PLANT INDUSTRY—

Director of the Division L. G. Miles, B.Sc.Agr., Ph.D.

Agriculture Branch—

Director of Agriculture S. Marriott, B.Sc.Agr.

Horticulture Branch—

Director of Horticulture J. H. Smith, N.D.A., M.Sc.

Agricultural Chemical Laboratory Branch—

Director of the Branch W. J. Cartmill, M.Sc., A.R.A.C.I.

Food Preservation Research Branch—

Director of the Branch S. A. Trout, M.Sc., Ph.D., F.R.A.C.I.

Science Branch—

Sections of Botany (S. L. Everist, B.Sc., Government Botanist); Entomology (W. A. McDougall, D.Sc., Government Entomologist); and Plant Pathology (B. L. Oxenham, B.Agr.Sc., Government Plant Pathologist).

REPORT OF THE DEPARTMENT OF PRIMARY INDUSTRIES FOR THE YEAR 1964-65

To the Honourable the Minister for Primary Industries

SIR,

I have the honour to provide the following report on the operations of the Department of Primary Industries for the year ended June 30, 1965.

A brief account of the work undertaken by the various Branches of the Department follows some general comments on matters of interest and developments within industries. It refers only to some of the more noteworthy achievements and activities. More detailed reports have been prepared by most Branches and are available on request.

Yours faithfully,

W. J. S. SLOAN,

Director-General.

DROUGHT STRIKES AGAIN

The spring rains of 1964 were among the best on record over most of the State. But for many primary producers, they were fated to be the last rains of any consequence to be seen for a long time.

Except in the far north, summer and autumn rainfall was well below average. The Darling Downs had 40 per cent. of its average summer-autumn rain; in the far south-west only 5 per cent. of the average was received.

By the end of March, three-quarters of the sheep country was suffering drought of an intensity unknown for over half a century. At the beginning of winter, more than half the State was experiencing one of the most severe droughts on record.

The far northern area fortunately had favourable conditions for pastures, and the Central Highlands, Central Coast and parts of the Burnett received useful relief rains in mid autumn. Some useful rain was also recorded in the south-east in June.

At the end of June, conditions were deteriorating south of a line drawn through Rockhampton, Blackall and Camooweal. Sheep areas in this region were in poor condition. The condition of stock generally was very poor and heavy losses were occurring.

Only a very small area of winter crops had been planted in the affected agricultural areas by the end of June.

SOME BRIGHT SPOTS

There are very few bright spots among the year's statistics.

Despite many setbacks caused by adverse weather and delayed harvesting, the 31 Queensland sugar mills crushed 14,316,569 tons of cane, exceeding the 1962 record of 12,098,582 tons. This achievement, however, was offset to some extent by the weather conditions, which reduced the sugar content of the cane. Raw sugar production was 1,854,768 tons. While this was a record production, it was disappointing in relation to the area harvested.

Egg receipts by the two marketing boards were up nearly 1½ million dozen on the previous year, while poultry slaughtering for meat were up by 10 per cent.

Largely because of increased use of irrigation, cotton production rose from 4,564 bales to an estimated 7,250 bales of raw cotton.

A record planting of over a million acres of wheat in 1964 produced a record crop of 24 million bushels. Barley production reached its highest level since the 1959 crop.

A long list of commodities showed declines on the previous year's production. Notable among these commodities are the following, with percentage decline (in some cases estimated only) given:

Wool offered for sale	17 per cent. down
Butter	7 per cent. down
Cheese	10 per cent. down
Grain sorghum	50 per cent. down
Maize	50 per cent. down
Millets	45 per cent. down
Peanuts	50 per cent. down

LESSONS OF THE DROUGHT

On the average, the next widespread drought can be expected in five years' time. How well will the primary industries be prepared to face it?

One thing is certain. The 1964-65 drought has set in train a lot more positive thinking among a wider circle of people than any of the several droughts that have afflicted the State in the last 25 years.

This is certain to result in a concerted and positive approach to preparation for drought as distinct from drought amelioration "off the cuff".

Back in 1957 the late Arthur Bell, then Under Secretary for Agriculture and Stock, was bold enough to look into the decade ahead and put his forecasts into print.

These are the developments in relation to what we might call "drought protection measures" that he forecast:

1. There will be a rapidly multiplying increase in the use of improved pastures and in fodder conservation.
2. Water harvesting will develop slowly at first but exploitation of farm underground water supplies will progress rapidly.
3. Dairy farmers will increasingly develop an "insurance patch" of irrigated pasture.
4. Cultivation of fodder crops, in association with animal production, will move inland.

The first forecast may be claimed as half hit and half miss.

Pasture improvement has forged ahead. In 1956 there were 1,882,000 acres of non-native pastures; in 1964 there were 3,292,095 acres. Fertilizers were used on less than 1,500 acres of pasture in 1956; by 1964 the area fertilized was 43,907 acres.

The forecast on fodder conservation was well astray. Fodder stocks on farms at the beginning of the 1964-65 drought were so low that the entire store of silage and hay would have fed the State's million dairy cattle for only six weeks. The grain held in reserve on properties throughout the State would have maintained the State's 9½ million breeding ewes for 10 days!

The "insurance patch" of irrigated pasture has become a reality on many dairy farms. The area of irrigated pasture, most of it on dairy farms, jumped from 9,400 to 27,400 acres between 1960 and 1964.

Statistics of water harvesting and exploitation of underground water are not available. Certainly many farmers have sought assistance under the Farm Water Supplies Assistance Act, and many wells and bores have been sunk. But there is plenty of evidence that the potential for these forms of water supply and storage has hardly been tapped.

The cultivation of fodder crops has extended inland, as forecast. Roma and South-west Divisions grew 7,500 acres of oats for green fodder in 1955-56. Last year the area exceeded 50,000 acres. Total green fodder area in those Divisions rose from 14,000 to 78,000 acres. Central-west and Far West grew 45,000 acres of green fodder in 1963-64, compared with 4,700 acres in 1955-56. Roma and the three western divisions thus jumped from about 29,000 to 123,000 acres over the eight years. Added to this, of course, is a

large increase in grain sorghum stubble resulting from the expansion of grain sorghum production in these Divisions—from 18,000 to 88,000 acres.

Is this record good enough? Certainly it has not met the 1964-65 situation anything like adequately.

The situation calls for a determined effort, by those who have the resources of land and water, to store home-grown fodder in anticipation of the next drought. It calls for an early appraisal of the feasibility of buying and storing hay and grain at reasonable prices when home-grown fodder will not suffice.

Conservation of stock food, of course, is a highly important approach to mitigating the effects of drought. But increased conservation of water, additional fencing, more improved pastures and better property management must all be considered in fighting drought.

TOWARDS STABILISATION

The matter of stabilising returns to primary producers at reasonable levels is always with us in one form or another.

It is of particular concern for those export products that have to meet competition on fluctuating overseas markets.

In the case of sugar, for example, the world free market price can be expected to fluctuate widely even within the selling period of one season's crop. Thus, in the past year it varied between £stg46 and £stg20 per ton; in the previous year it went as high as £stg105.

As about half the Australian raw sugar production is sold at prices related to the world free market price, we have an intense interest in stabilising that price at a reasonable level.

Australia has always actively supported schemes, both local and international, intended to give the industry a fair measure of stability.

Local action includes control of production of raw sugar, a Commonwealth/State agreement on price fixing for both domestic use and use in manufactured goods for export, acquisition of the entire crop by the Queensland Government, and distribution of proceeds of sales among mills and cane-growers in a manner determined by a statutory Board.

In the case of export sugar, term agreements have been entered into with various overseas buyers.

But with such a large proportion of the crop still tied to the free market price, it has been a matter for concern that the International Sugar Agreement which lapsed some years ago has not been renewed.

It is disturbing to an industry which has recently undertaken a massive expansion programme to be faced with drawn-out negotiations for a fixed share of free markets and relatively stable prices. But the Australian sugar industry is fully geared to enter negotiations determined to argue and establish Australia's fair share of free markets.

The tobacco leaf and wool industries also have a current interest in price stabilisation.

For the tobacco leaf industry, the matter is purely a domestic one. The solution to the problem of disposing of usable leaf to Australian manufacturers at reasonable prices has engaged the attention of the industry and of the Governments concerned for a long time.

A major step towards a measure of stability was made during the year. Discussions between the Commonwealth Government, the State Governments concerned, tobacco growers and manufacturers culminated in November in an announcement that the parties would proceed to bring a stabilisation plan into operation.

Under this plan, the Commonwealth Government will undertake to ensure that, if available, 26 million lb. of Australian leaf of acceptable grades will be bought each year by manufacturers at an average minimum price of not less than 125d. per lb. on a normal crop fallout. Queensland's share has been set at 14 million lb.

An interim committee has given a tentative indication to growers of likely farm quotas. A special Tobacco Quota Committee will later be established to allot farm quotas, generally on the basis of a grower's best two years out of the four seasons ended 1963-64.

Another industry that has explored ways and means of price stabilisation over a number of years is the wool industry.

In July 1964 the Australian Wool Board presented a report to the Australian Wool Industry Conference based on enquiries made by the Australian Wool Marketing Committee. The main recommendation was for the establishment of a reserve price scheme within the auction system.

Subsequently the Conference and the Commonwealth Government agreed on proposals for a conservative reserve price marketing scheme to be submitted to woolgrowers by referendum late in 1965.

LOCAL WHEATS ON TOP

The tremendous weight that growers give to rust resistant varieties as a factor in their crop returns is understandable.

So also is their concern that everything possible should be done to have new varieties always on hand with which to replace popular varieties that may become highly susceptible to a new race of rust.

It is this concern, no doubt, that tends to concentrate attention on the promising, if untested, newcomer while taking the reliable, if not wholly adequate, established varieties for granted.

Queensland growers are able to draw on varieties specially bred for the State or for the adjacent area of northern New South Wales by three separate teams of plant breeders.

This Department has been engaged in wheat breeding for 60 years. The New South Wales Department of Agriculture has been breeding wheat for its northern tablelands for many decades also. The University of Sydney team many years ago extended its academic interest in rust races to the field of breeding commercial varieties and included Queensland land in its sphere of operations.

The varietal complex has varied from year to year, but in the 11 seasons to 1964, Spica, a Departmental variety, was in top position in four years and was never lower than fourth.

In 1964, Spica provided 38 per cent. of the State's acreage and yield, and another Departmental variety, Gala, was in second position with 15 per cent.

Seven varieties produced by Departmental plant breeders provided 64 per cent. of the total crop.

Three of the top dozen varieties, including Mengavi, were bred by the Sydney University group and constituted 17 per cent. of the crop. The other two varieties in the leading dozen, Festival and Charter, were bred by the New South Wales Department of Agriculture and yielded 12 per cent. of the total crop.

Spica has the distinction of being outstanding in flour yield and in baking quality. While it holds its dominating position in the varietal field, the premium of 1s. 6d. per bushel that Queensland's best grades obtain on overseas markets seems to be assured.

Because of the changing rust races, none of the top 12 varieties is now fully rust-resistant under Queensland conditions. But Spica and some other Queensland varieties are able to produce a useful crop of grain even when carrying a moderate rust infection.

Certainly, the Department's wheat breeders cannot afford to rest on their laurels. But at least let us recognise their achievements.

PLANNED DEVELOPMENT

With the creation of a Division of Development Planning and Soil Conservation during the year, the basis was laid for a purposeful approach to co-ordinated planning of developmental projects in primary industry.

Co-operation between the various bodies concerned in planning has never been desultory, but it has lacked cohesiveness at some spots. The new Division provides a permanent core devoted to one particular purpose.

The close association of soil conservation services with development planning will strengthen the emphasis that must be placed on soil conservation in any land development projects, whether irrigated or dryland.

Activities of the Division requiring co-ordinated investigations with other Divisions and authorities are exemplified in the following outline of recent projects:

- (a) Preparation of a joint report on the Emerald Irrigation Project. A total irrigable area of 60,000 acres is envisaged, with cotton, grain crops, lucerne and irrigated pastures the main plantings.
- (b) Assessment of the estimated value of the increased production resulting from irrigation development along the North Branch of the Condamine River. This is associated with the possible diversion of Leslie Dam water from the Condamine to the North Branch for use by riparian landholders.
- (c) Economic investigations and soil surveys of the Kolan River area related to the practicability of expanding irrigation for sugar-cane production.
- (d) Preliminary investigation of the St. George Irrigation Area, where expansion of the existing scheme is envisaged.
- (e) Participation with C.S.I.R.O. Land Research and Regional Survey Division in the conduct of an agronomic survey of 120 properties representative of the major land systems in Banana Shire.

SOIL CONSERVATION

The fate of the African city of Carthage is commonly used as a talking point in soil conservation propaganda.

No one can envisage Toowoomba or Kingaroy or Atherton being physically overwhelmed by the shifting sands of eroded land. But the possibility of towns and even cities being overtaken by economic disaster as a result of soil erosion is not a remote one.

A change in direction in official soil conservation activities, to provide a further safeguard against the run-down of farmlands and the development of "little Carthages", was effected during the year.

The Soil Conservation Act of 1965 provides the statutory facilities for landholders to undertake joint soil conservation activity either under Government guidance or through local sponsorship and leadership.

It provides also for co-operative activity with statutory authorities and for an authoritative approval of plans for soil conservation schemes. Once a plan has been approved for an area, its full implementation is no longer threatened by the unco-operativeness of a minority in the area or by failure of a new owner to carry through a plan already under way.

Provision is made for financial assistance by way of loans through the Agricultural Bank for the implementation of soil conservation programmes.

The Director-General of Primary Industries is constituted the Soil Conservation Authority and as such is, subject to the Minister, responsible for the administration of the new Act.

An interesting feature of the legislation is the provision for the establishment of Soil Conservation Districts to be administered by Soil Conservation Trusts. Each Trust will be a corporate body, similar to a Shire Council, which can devote its full-time attention to the organisation and co-ordination of soil conservation programmes for a district. Most of the members of a Trust will be landholders.

MEAT INDUSTRY CHANGES

"A Bill to Consolidate and Amend the Law Relating to the Meat Industry."

This short title covers in a few words a measure that has resulted in the entire recasting of the legislation covering the meat industry in Queensland.

It had its genesis in the report of the Committee of Inquiry into the Livestock and Meat Industry set up by the Government in 1964.

Following consideration by the Government of the Committee's report and recommendations, the Premier in early December announced the decisions that had been reached. These included:

- (a) The establishment of a Queensland Meat Industry Authority to advise the Minister for Primary Industries on all matters of public policy in relation to meat and to administer defined policy, including overriding control of Public Abattoir and District Abattoir Boards.
- (b) The renaming of the Queensland Meat Industry Board as the Metropolitan Public Abattoir Board and the restriction of its authority to the Brisbane area.
- (c) The withdrawal of franchises from those abattoirs killing for both export and domestic consumption, except in the case of Rockhampton, where special circumstances existed.

These decisions were translated into the Meat Industry Bill and culminated in the proclamation of the Meat Industry Act of 1965 to come into operation on July 1, 1965.

To ensure that the Authority would be a working organisation from the time of proclamation, and that regulations would be ready for operation at that time, the Authority was constituted tentatively some time in advance.

"CONSUMER BOREDOM"

Continuity of supply of certain fruits and vegetables, once available only seasonally, is tending to create consumer boredom.

This is one of the points made by a team of Departmental officers which investigated fruit and vegetable retail price margins in 1964.

Compare cauliflowers and beans. Cauliflowers are "in" for only a short time—by the time the demand has been saturated and the consumer loses interest, cauliflowers virtually go off the market. But beans are now available practically all the year round; if prices jump up because of slow supply, the consumer is prepared to sit it out until the price falls.

This is one of the asides in the report, which was concerned primarily with what happens to the price between the wholesaler and the consumer.

The disparity between what the consumer pays for his fruit and vegetables and what the grower receives is always a sore point with both growers and consumers.

The wholesale agent is often blamed for taking an undue profit. In practice, agents voluntarily operate on a margin of 10 per cent., which is regarded as reasonable.

The facts as to what happens between the wholesale agent and the consumer in the Brisbane area have been set out in a special report which is now being considered by the parties concerned.

The operations of shopdroppers, secondary wholesalers who service many suburban retail shops, were found not to result in any significant increase in prices to consumers. Indeed, they add to the volume of fruit and vegetables distributed by servicing shopkeepers who otherwise would not bother to handle these commodities.

Retailers were found to use various practices for determining mark-up margins.

A fairly standard money margin operated for some lines. For example, for Granny Smith apples, a margin of 15s. to 21s. per case was common; pumpkins were marked up 2d. to 3d. per lb.; for cabbages, retailers appeared to work on a minimum margin of 4s. per doz.

For other lines, the margin applied appeared to be correlated with wholesale price movements. For example, margins for potatoes remained at 1½d. to 2d. per lb. at wholesale price levels under 4d. but went up to 2d. to 4d. when wholesale prices were higher.

The survey was a fact-finding one only. No attempt was made to indict any section of the trade.

But it did bring out that there are some factors in retail price margins that are inclined to be overlooked.

Transport, handling and wastage costs incurred between the point of wholesale sale and final retail sale can be fairly considerable.

One example of how intermediate costs can mount up is given for bananas. A grower may get 6d. per lb. for a green bunch. Losses in dehanding are 2d., charges for ripening and cartoning 3d. This makes the price 11d. before the retailer adds his margin—which has to take account of cartage, wastage, selling, overhead and profit.

One point brought out was that with price fixing in 1951 the permissible margin on a half-bushel case of tomatoes was 8s.; the average current mark-up is 10s. to 12s. In the meantime the Consumer Price Index for Brisbane has risen by 75 per cent.

GUIDANCE ON RESEARCH

Is research too remote from the production end of primary industry? Do scientists sometimes tend to lose sight of the need for results that have practical application? Are research workers establishing the best priorities for their projects?

These questions are often asked when financial provision for research is under discussion and when the lag between research findings and their application is being criticised.

The obvious remedy for misdirection of scientific effort is closer collaboration between all the parties concerned. Research projects need to be planned and conducted in such a way as to ensure that priorities are being met and that the endpoint of practical application of results will not be unduly delayed.

Machinery for such collaboration does exist, but mainly at a national or State level. This is somewhat remote from the grassroots level of collaboration that is desirable.

Within recent years, steps have been taken to secure producer guidance on research on a local level.

Thus, graziers have been working on advisory committees for both Toorak Sheep Field Research Station in the north-west and Swan's Lagoon Cattle Field Research Station on the Burdekin. A similar association of primary producers with local research exists in the deciduous fruit district of the Granite Belt.

This concept of direct association of primary producers with the research work in their district was furthered during the past year, when primary producer representation on the new Brigalow Research Station near Theodore was invited by the Department.

The Department has many other research stations serving particular districts, and it may be expected that collaboration of local producers with research workers on these stations will be encouraged.

KANGAROOS OR SHEEP?

This question has been vigorously debated on television and radio, in newspapers and on street corners during the past year.

But the question is not quite so stark as that. It is a rather involved one of the relationship between conservation of a native animal, harvesting of a valuable self-regenerating meat and skin crop, and utilisation of native pastures to the best advantage.

The proper relationship can be worked out only on the basis of scientific fact, tempered with a concern for the preservation of a unique national animal.

Collection of the necessary facts is an exercise in scientific research rather than a collation of superficial observations, surmises, distortions and emotions.

The Department now has a team, although a small one, of competent zoologists studying the kangaroo complex.

Information collected to date in the St. George district indicates that, even in this intensively hunted district, each grey kangaroo family will on the average contribute more than enough young to maintain the population.

It appears that year-round breeding has a major effect in maintaining the kangaroo population, as the animals begin breeding again as soon as a joey or a juvenile dies.

As the young are dependent on their mothers for several months after they grow too big for the pouch, they can survive only if the mother is not taken during this period. Most of the young are at the vulnerable stage from September to April. Professional hunters do not shoot during the summer, as the skins then are inferior, so there is not much destruction of does at that time.

An interesting observation was that captive grey kangaroos when grazed on oats ate only about half as much as a grown sheep.

Observations to date suggest that there is no cause for immediate concern on kangaroo numbers. But changes in land management and methods of hunting could make survival more difficult. Changes in conservation programmes may then become necessary.

STAFFING IS A CHALLENGE

No organisation in Queensland has a wider range of professions represented among its staff than the Department of Primary Industries.

Agronomists, agrostologists . . . dairy technologists . . . pathologists, plant breeders . . . veterinarians—these are among the 30 or more distinct professional categories within the Department.

Even with close to 400 University graduates and 300 diploma holders on the strength, the needs of the State for the research, advisory and general technical services provided by the Department are far from being met.

REVIEW OF THE PRIMARY INDUSTRIES, 1964-65

LIVESTOCK INDUSTRIES

The far north coast and the Peninsula and Gulf country generally had fair to ample rainfall and good to excellent conditions for livestock during the year. Though the spring rains were good over most of the State, summer and autumn falls in central and southern areas were far below average.

The onset of winter accentuated drought conditions in the southern districts. Sheep were shorn early, lowering production. Beef cattle numbers were reduced on drought-affected properties by sending stock to slaughter. Dairy production declined at an increasing rate from November onwards.

Beef.—Beef production in Queensland fell slightly below that of the previous year, though Australian production constituted a record. Saleyards prices of cattle were firm throughout the year, reflecting the increased demand for Australian beef on the United Kingdom market and on the Continent. The strong United Kingdom demand has been due mainly to a marked reduction in Argentine chilled beef, caused by higher sales on the Continent. Australian beef exports were predominantly in the form of cuts rather than quarter beef, reflecting the changing market demand.

Exports to the U.S.A. decreased significantly. A disquieting feature of the U.S.A. market is the discriminatory action that has been taken against foreign meat by a number of State legislatures.

The main avenue of expansion within the beef industry was the development of brigalow land, particularly the Fitzroy Basin Brigalow Development Scheme. Climatic conditions were unfavourable for development of blocks in this scheme in 1964-65. Unsatisfactory pasture establishment followed aerial seeding in December and January. Sucker regrowth has been extensive, and required the aerial spraying of 20,000 acres with weedicide during May. Some indication of the progress of the scheme is given by the fact that about 200,000 acres of scrub have been pulled to date and some 137,000 acres sown to Rhodes grass, green panic and buffel grass.

With world demand for beef increasing, the prospects for the industry are bright. As an earner of overseas exchange with great potential, the industry warrants national encouragement. Expansion of the beef roads scheme is one way in which this can be given.

Wool.—The official estimate of Australian wool production for 1964-65 at 1,789 m.lb. greasy wool is likely to be a record. For 1965-66 a fall in production appears inevitable because of drought conditions in southern Queensland and most of the New South Wales sheep areas, resulting in sheep losses and lighter fleeces.

There is a continuous demand from producers' organisations for more research establishments, more research on particular commodities, more local officers to adapt research findings to the local situation, more assistance with soil conservation planning, more assistance on business management of properties.

Many organisations are providing funds for these purposes and are actively promoting a higher output of scientists and technologists from Universities and colleges.

But on both these fronts—funds and trained manpower—the Department is barely holding its own.

Unfortunately this is at a time when cropping and improved pastures are expanding in Queensland at the rate of hundreds of thousands of acres each year.

The two main problems are the heavy and continuing drain on numbers of advisory staff and the lack of adequate funds to provide the technical equipment for a scientific staff which is becoming more highly qualified each year.

The shortage of trained scientific and technical officers is Australia-wide. Competition between employers for new graduates and for more experienced staff is accordingly quite high.

The Department lost 62 technical officers during the year and recruited 75 replacements.

In the main, numerical strength can be maintained only by replacing experienced men with inexperienced.

In-service training of officers within the Department and dissemination of results from research groups to advisory officers and thence to primary producers is being examined closely. Improvement along these lines is required to supplement current efforts with short refresher courses, training schools and conferences.

It is anticipated that some new approaches can be developed with the use of proven extension methods in 1966-67.

Wool prices in March 1964 were at the highest level since 1957-58, but this gain was lost before the end of the 1963-64 selling season. In 1964-65, prices continued to fall and the gross value of wool, at about £420 m., was some 18 per cent. below 1963-64. Nevertheless, it was still the fourth highest on record. Queensland sales realised £61½m.

An interesting development in the south-western sheep area is the use of water-spreading techniques to virtually double the amount of water received from rainfall. More than 30,000 acres of semi-desert country are now getting up to 28 inches of water a year, enabling crops and improved pastures to be grown.

Eggs.—Commercial egg production as represented by receipts of the two egg marketing boards was 11.6 per cent. greater in 1964-65 than in 1963-64. However, the unsatisfactory returns from exports reduced average net returns paid by the South Queensland Egg Marketing Board to suppliers to 36.12d. per doz., compared with 42.96d. in the previous year.

Production in Central Queensland continued to expand and the necessity to provide larger and more modern handling facilities is becoming obvious. Receipts by the Central Queensland Egg Marketing Board for 1964-65 totalled 878,500 doz., an increase of 12 per cent. on the 1963-64 figure. The possible amalgamation of the two egg marketing boards was again considered but was not supported by the Central Queensland growers at a ballot which was taken at the growers' request.

The plan for the stabilisation of the Australian egg industry proposed by the Council of Egg Marketing Authorities of Australia was implemented by Commonwealth legislation. A levy is imposed for the equalisation of returns as between local sales and the less remunerative export market. The aim of the levy is to ensure that an equitable contribution to the export burden is made by all producers, including those who sell outside Board marketing channels under protection of Section 92 of the Constitution or by evasion.

The total number of chickens hatched in Queensland in 1963 exceeded 13 million, which was 14 per cent. higher than for the previous year. The number of chickens sexed for commercial egg production was 5,377,523.

Table Poultry.—Production of broilers (table chickens) in 1964-65 was estimated to be some 18 per cent. higher than in 1963-64. This is in marked contrast to the 43.8 per cent. rise noted in the previous year. It would appear that the broiler industry after its rapid growth in the past five years has reached a stage where production is meeting demand. It is expected, however, that further expansion will take place in the coming year at about the same rate.

The benefit of breeding programmes begun a few years ago to develop specific meat-type chickens, aided by improved feedstuffs, has become evident, with improvements in weight at marketing and more efficient food utilisation. There is a trend for some broiler growers to rear pullets and cockerels separately, claiming better growth and feed conversion.

Pigmeats.—The poor season for summer grain crops was reflected in a lower production of pigmeats. On the Atherton Tableland, a continuing decline in production has brought in its train problems of supply and the need to bring pigs into the controlled marketing area from central and southern Queensland.

The pig industry, however, is potentially strong. It is moving away from being a sideline to dairying and is being taken up by more growers as a full-time business venture, using grain rather than skim-milk as the basic foodstuff. A series of difficult summer grain seasons in some of the main producing areas has halted expansion, but this is likely to be only temporary.

DAIRYING

Queensland production of butter and cheese for 1964-65 fell 7 and 10·8 per cent. respectively. Diversion of milk to market milk supply accounted for some of the decline in cheese production.

The quota of butter which Australia may export to the United Kingdom for the year which commenced on April 1, 1965, was fixed at 66,700 tons, the same as for 1964-65. Last year's quota, however, was increased by additional authorisations totalling 15,000 tons, which ensured the clearance of Australia's exportable surplus. At the beginning of the 1964-65 quota year the price of Australia's choicest butter on the United Kingdom market was 334s. stg. per cwt. After a rise to 350s. from October 1964 to April 1965, the price declined to 321s. by the end of June.

Towards the end of the year it was necessary to supplement local production of butter by imports from Victoria. Some 12,000 boxes were supplied in June and arrangements were made for another 24,000 boxes to be supplied in July.

The price for Australian cheese on the United Kingdom market at July 1964 stood at 248s. stg. per cwt. but rose to 260s. by November. However, with the arrival of new season stocks prices fell to 245s. towards the end of the year. Shipments of Australian cheese to the United Kingdom increased, but this was offset by smaller exports to other destinations. It is of interest, however, that annual sales to Japan have risen from 100 tons to 2,800 tons in five years.

The input of milk into the Brisbane Milk District rose by 2·9 per cent. to 21,700,000 gallons.

The development of storage and collection of milk in bulk gained impetus in Queensland during the year. A total of 200 farm tanks is now operating in six regions and several other schemes are being planned. Prototype models of farm tanks are examined by the Department for construction and cooling performance.

A Special Dairy Industry Advisory Committee set up by the Premier met on several occasions during the year to examine the current situation and production problems in the industry. A report is being prepared, with recommendations on action considered necessary to assist the industry stabilize on a sound footing.

CROPS

Sugar.—The 1964 season's crushing of 14,316,569 tons of cane yielded 1,854,768 tons of raw sugar, which was divided as follows:—

	tons
Home consumption	587,720
Surplus within peaks	1,034,808
Excess	232,240

The whole of the production was acquired. The overall average price was £47 15s. 4d. Sugar within peaks averaged £49 2s. and the return from excess sugar was £38 9s.

The expansion of sugar lands envisaged by the 1963 Committee of Inquiry was completed in April 1965. In the expansion, 1,225 new farms totalling 71,293 assigned acres have been established. In addition, 5,571 growers received increased assignments totalling 83,002 acres.

Wheat.—The 1964 wheat harvest was a good one and established a record production of 24 million bushels from a record area planted. For the first time, the wheat acreage in Queensland exceeded the million mark.

Wheat growing is expanding in central Queensland and 71,300 acres were sown in 1964, compared with 61,000 acres in the previous year.

Total production of wheat in Australia for 1964-65 is estimated at a new record of 370 million bushels. Large export sales to China and Russia continued to be a feature of the marketing of wheat.

Barley.—The quality of the barley crop was very good. Board receivals totalled 74,000 tons, the highest since the 1959 crop. The board was successful in selling a large quantity of barley to maltsters in the southern States. It was also able to regain an entry into the Japanese market with the export of 13,000 tons of malting barley. The local feed market continued to increase.

Grain Sorghum.—The marketing of grain sorghum was reorganised by amending legislation and the Board's activities are now confined to the marketing of grain sorghum grown in Central Queensland. It was hoped that this reorganisation would place the Board and the industry on a firm footing, but seasonal conditions created serious problems. Production in Central Queensland was estimated at 20,000 tons, compared with 32,000 tons for the 1964 crop, itself a poor crop.

An interesting development in the industry is the proposed use of grain sorghum as a source of starch in alumina production at Gladstone.

The area registered for the production of certified grain sorghum seed almost doubled in the past season to 3,496 acres.

Maize.—Maize production from the 1965 crop is estimated at 55,000 tons, of which about 46,000 tons came from southern Queensland. This is less than half of average production.

There is a large unexplored overseas market for maize, particularly in Japan, which has a preference for the reddish yellow maize such as is produced in Queensland. However, to compete on this market at world parity prices, large-scale production, high yields per acre and streamlined transport arrangements are required.

Tobacco.—The tobacco industry suffered from serious marketing problems because clearances at the tobacco leaf auctions were most unsatisfactory. As mentioned elsewhere, an Australia-wide stabilisation scheme is in process of being implemented through complementary legislation.

Cotton.—There was a significant increase in the area under irrigated cotton in both central and southern areas of the State. Irrigated cotton harvested in 1965 increased to an estimated 5,050 acres, compared with 2,700 acres in 1964. Cotton production has spread in recent years to the Lockyer Valley and this area produced the highest yielding crops in 1965, some growers obtaining yields over 3,000 lb. of seed cotton per acre. The total 1965 crop is estimated at 7,250 bales of raw cotton, compared with 4,564 bales in the previous year. Production would have been higher but for the severe effects of the drought on dryland cotton, where yields are not expected to exceed 200 lb. per acre.

It is estimated that irrigation works in progress or in the planning stage could add as much as 35,000 acres to the State's irrigated cotton area. The areas concerned are the Central Highlands, Central Burnett, Darling Downs and Border Streams.

Peanuts.—Peanut Marketing Board receivals totalled only 8,300 tons of an estimated production of 10,000 tons, compared with a normal crop of 20,000 tons. The year's plantings were originally estimated to yield some 28,000 tons. Production was far below Australian requirements and considerable purchases were made overseas to make up the short-fall.

Navy Beans.—Encouraged by a tariff of 3d. per lb. on imported navy beans, Queensland growers increased their plantings and the 1965 harvest was expected to produce 2,000 tons. However, due to dry conditions production was less than 200 tons. The Navy Bean Marketing Board has made arrangements to have beans cleaned and graded in Kingaroy rather than Brisbane.

Oilseeds.—Linseed production has increased rapidly and the 1964 Australian crop produced nearly twice the country's annual requirements of linseed. Growers have been placed on quotas by the Linseed Crushers Association.

Safflower seed production is increasing in central Queensland and the current crop is expected to result in a surplus to local requirements of some 6,000 tons.

The increasing interest shown in oilseed production, and the fact that many oils are interchangeable, led to the holding of a conference on vegetable oilseeds in October, 1964. Growers, processors, end-users and Commonwealth and State Departments were represented at the conference.

Deciduous Fruits.—Growers are showing an increasing interest in new rootstocks for apples and pears, supplementary irrigation, and the erection of cool store facilities on the orchard. Commercial cool stores now accommodate some 550,000 bushels of apples and grower cool stores another 135,000 bushels. In terms of cool store facilities for fruit, Queensland is the best equipped State in the Commonwealth.

Pineapples.—Central Queensland now grows some 30 per cent. of Queensland's pineapple crop and individual production areas continue to increase in size. The latter is a direct outcome of mechanised harvesting, weed control, fertilizing and harvesting. Bulk harvesting is now the standard method of handling cannery fruit.

Papaws.—The papaw industry is heavily committed to the processing industry, which takes some 50 per cent. of the crop, mostly the larger fruit. Near-metropolitan areas have lost their dominant position in the industry to Yarwun, which now produces about half the Queensland crop.

Bananas.—The area under bananas shows a further decline, but production has increased. This can be attributed to more critical selection of planting material, better pest and disease control, the efficient use of weedicides, and the adoption of crop control techniques. Experienced growers from New South Wales are acquiring a stake in the North Queensland crop; this reflects industry interest in the area.

Citrus.—Some of the more important developments in the citrus industry are orchard installations of modern packing shed equipment for washing and waxing the fruit; increased exploitation of export markets for citrus, particularly Ellendale mandarins; and extensive plantings of mandarins to offset competition on the orange market from other States.

Strawberries.—Significant developments in the strawberry industry are mechanised planting and the use of aluminium-coated polythene as a mulch. The latter reduces

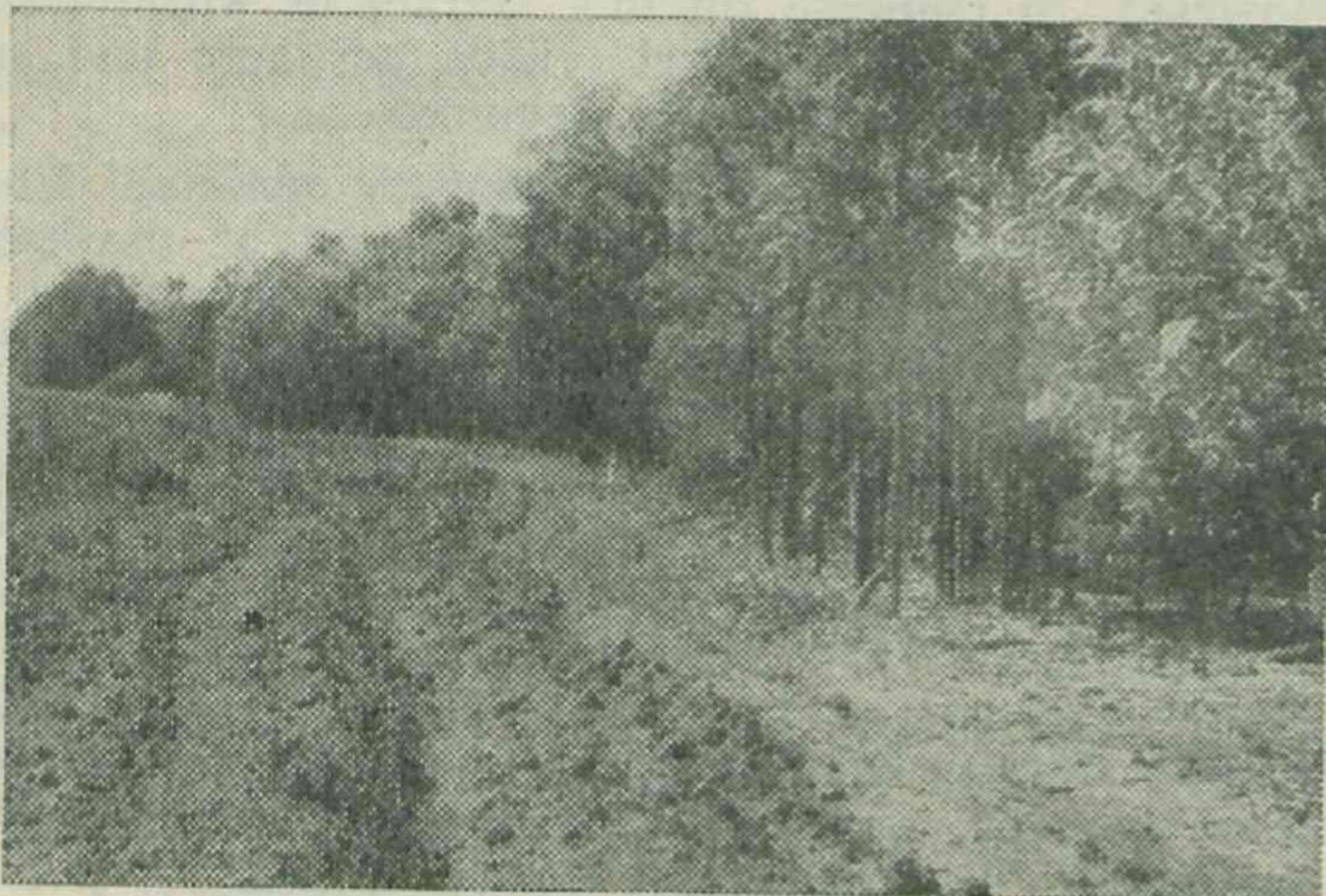
the incidence of berry rots and increases yield per plant. Substantial quantities of virus-free planting material were fed into the industry during 1965 and production per acre should rise quite substantially.

Vegetables.—At last, industry has come to recognise Queensland's potential for the production of processed vegetables. Contracts for beetroot have increased to cope with the demand for the canned product on the Australian market. This is due to the inherent quality of the roots grown in the Lockyer Valley and to the adoption of advanced processing methods.

Pilot plantings (about 200 acres) of peas for processing in 1964 proved satisfactory in spite of some frost damage. The 1965 target amounted to 1,000 acres but this had to be scaled down because of restrictions on the use of water for irrigation.

Ginger.—The ginger industry has expanded fourfold in the last four years. The 1964 crop reached a peak of 1,050 tons, but the estimated crop of 1,800 tons in 1965 was reduced to about 1,200 tons because of unfavourable weather.

DEPARTMENTAL HIGHLIGHTS, 1964-65



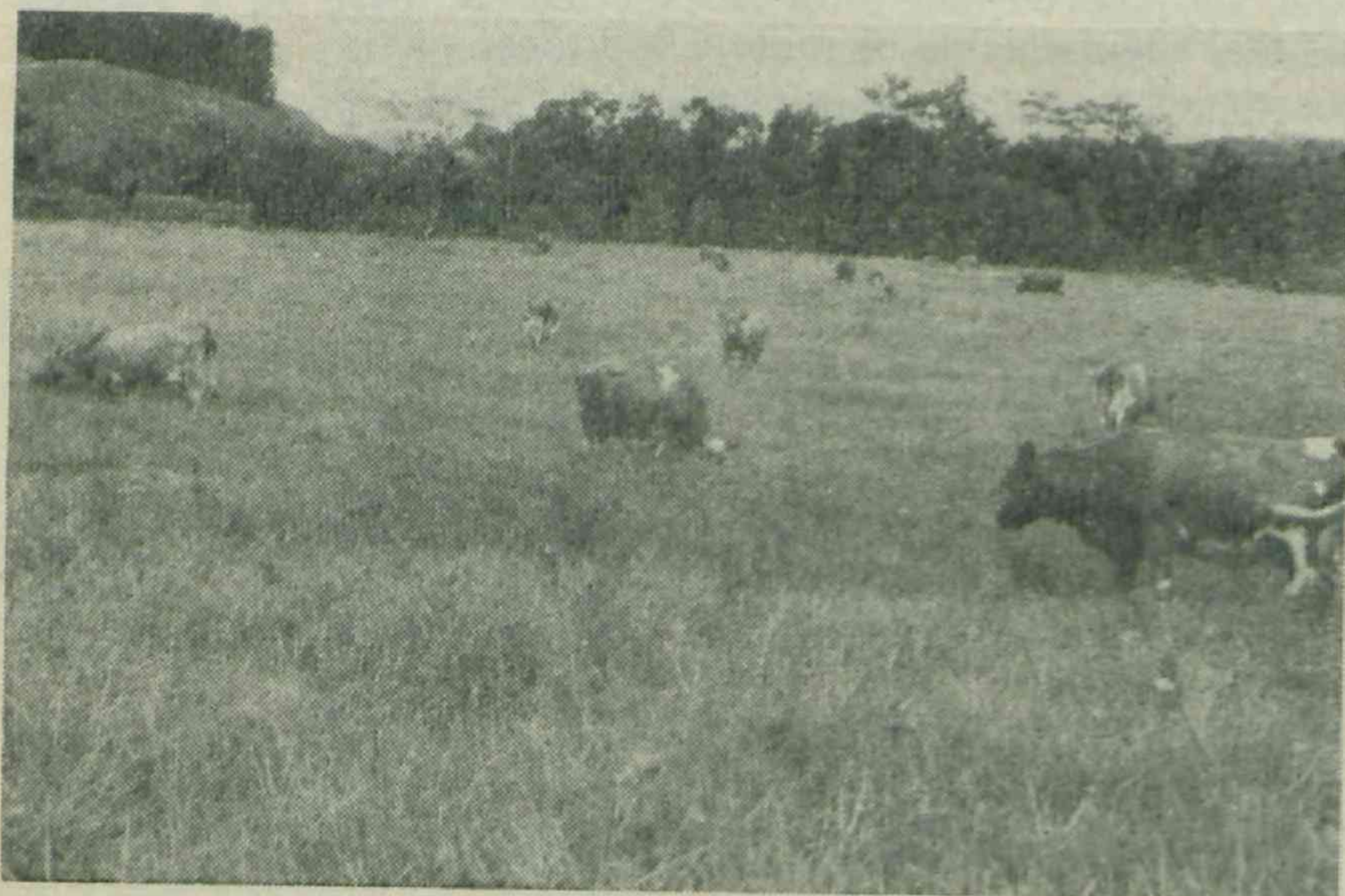
LAND DEVELOPMENT

New Division formed to co-ordinate developmental projects
 "Crash" aerial spraying project in brigalow
 Wallum development for beef cattle
 Brigalow Research Station opened



SOIL CONSERVATION

3,000 miles of site surveys made
 7,650 farm visits by extension officers
 Conservation measures applied to 100,000 acres
 New approach to soil conservation extension



FEEDING DAIRY HERDS

Pasture improvement based on tropical legumes
 Pre- and post-calving feeding surveys
 Late-sown forages to meet autumn decline
 Mechanised greenlot feeding studies



HEALTH AND PRODUCTION OF BEEF CATTLE

Vaccination for botulism control established
 Pleuropneumonia protected and free areas extended
 Standardised vaccine for tick fevers
 Insecticide resistant ticks contained
 Milk production of beef cattle studied



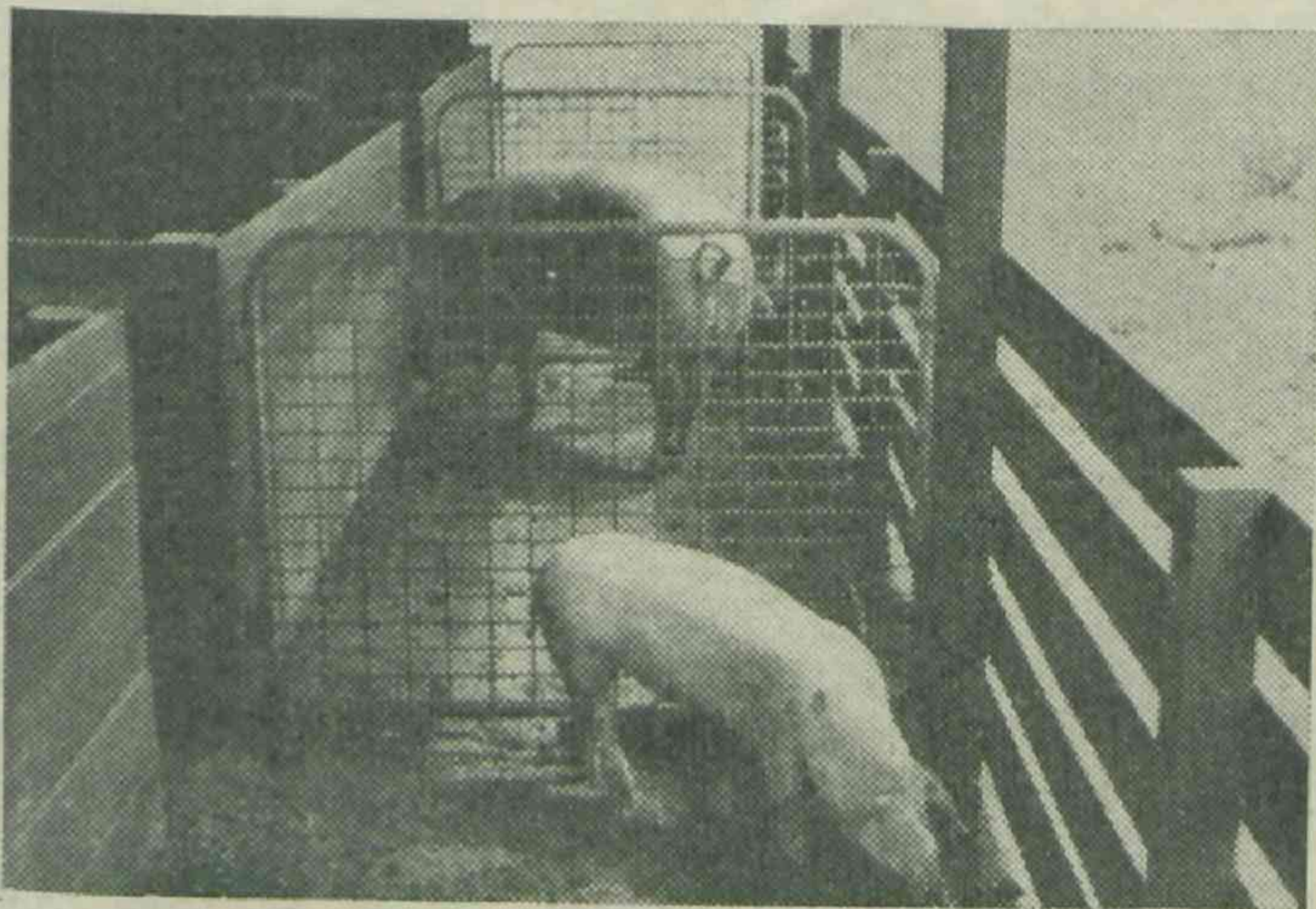
PLANT IMPROVEMENT

Zulu, new forage sorghum, released
 Breakthrough on Tableland maize varieties
 Improved pineapple and banana clones
 Better hybrid grain sorghums on way
 New tomato progenies under test



SHEEP AND WOOL

New pasture plants for semi-arid areas
 Water spreading techniques studied
 Mitchell grass under close scrutiny
 Husbandry trials in the north-west

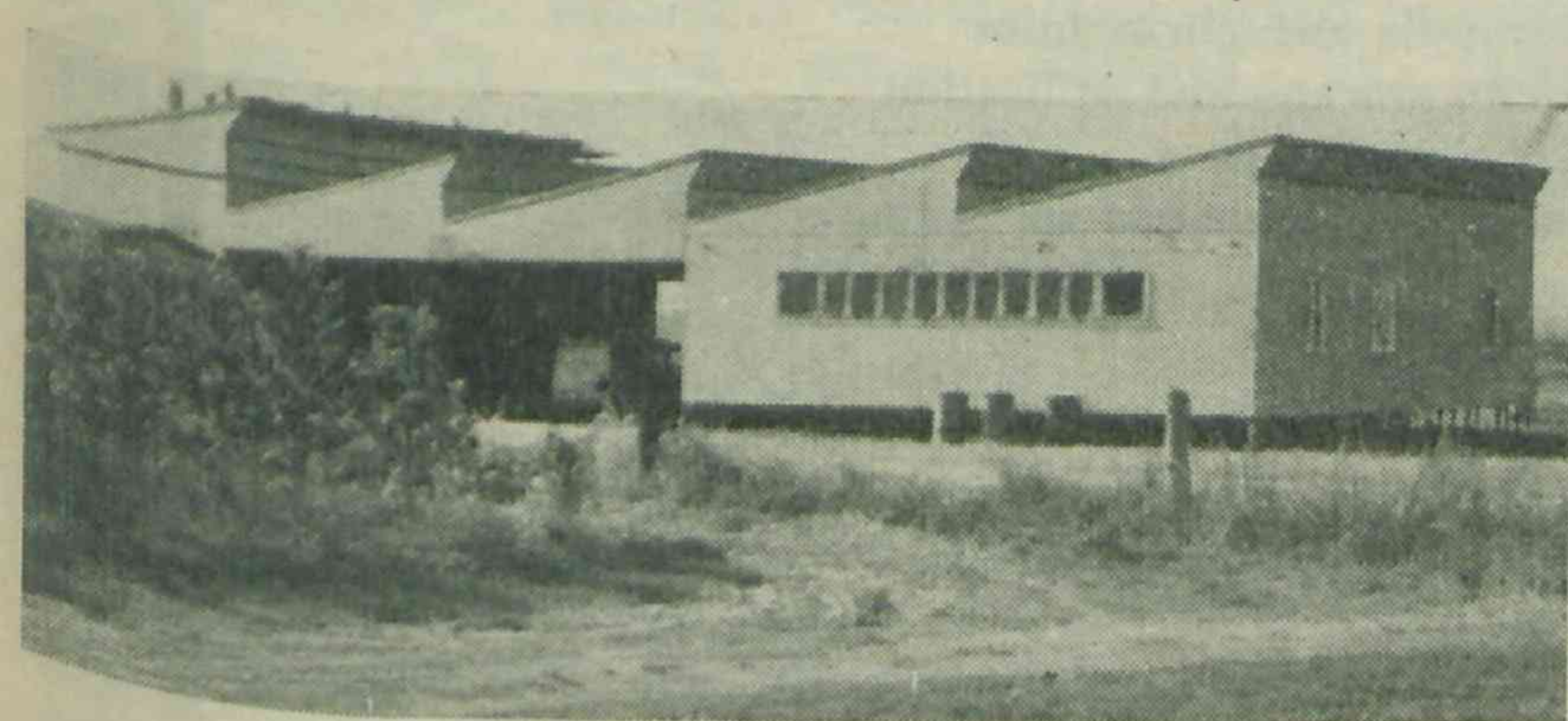


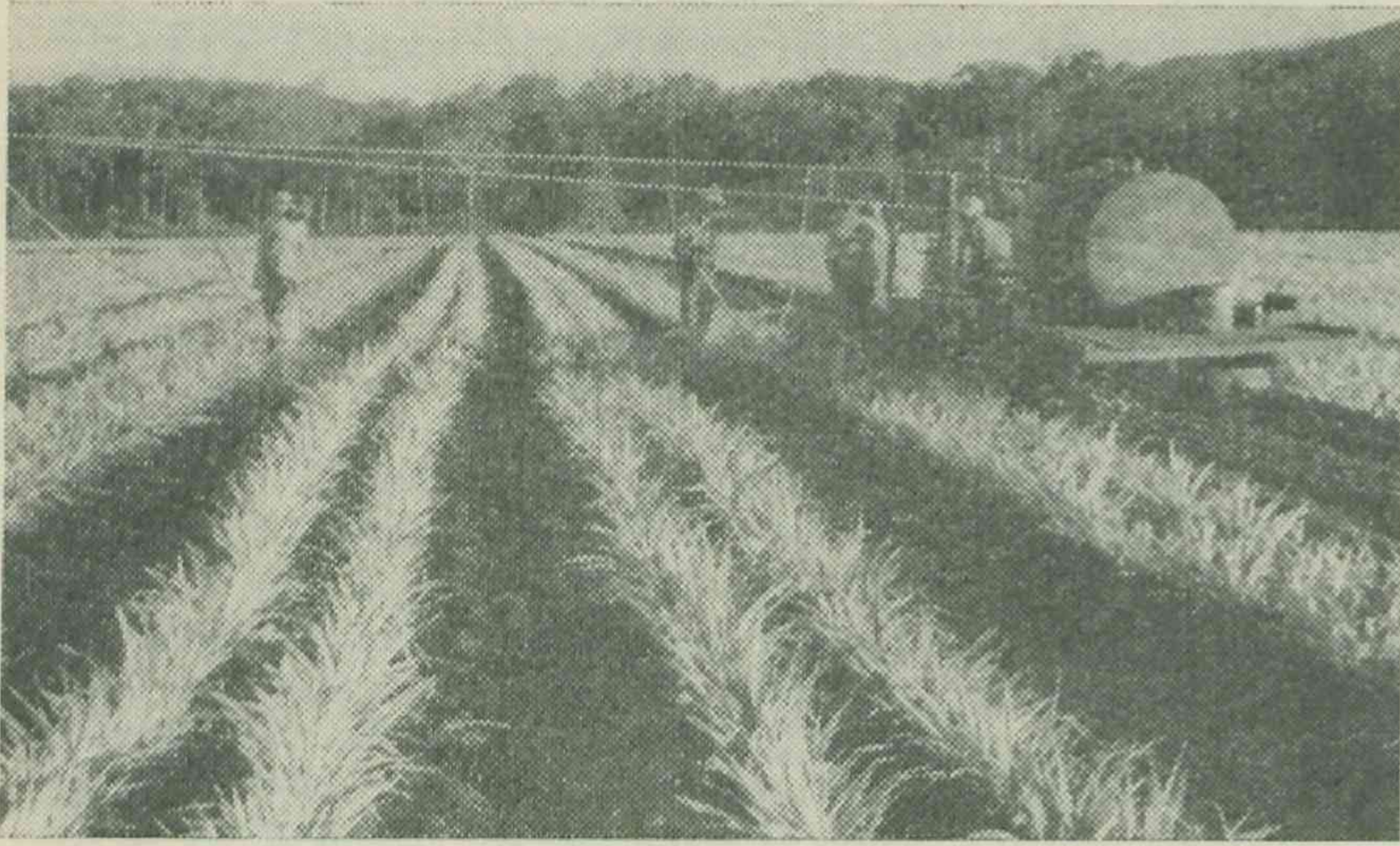
PIGS

Highest annual throughput at Testing Station
 New shed designs widely accepted
 Biological quality of feeds studied

MARKETING

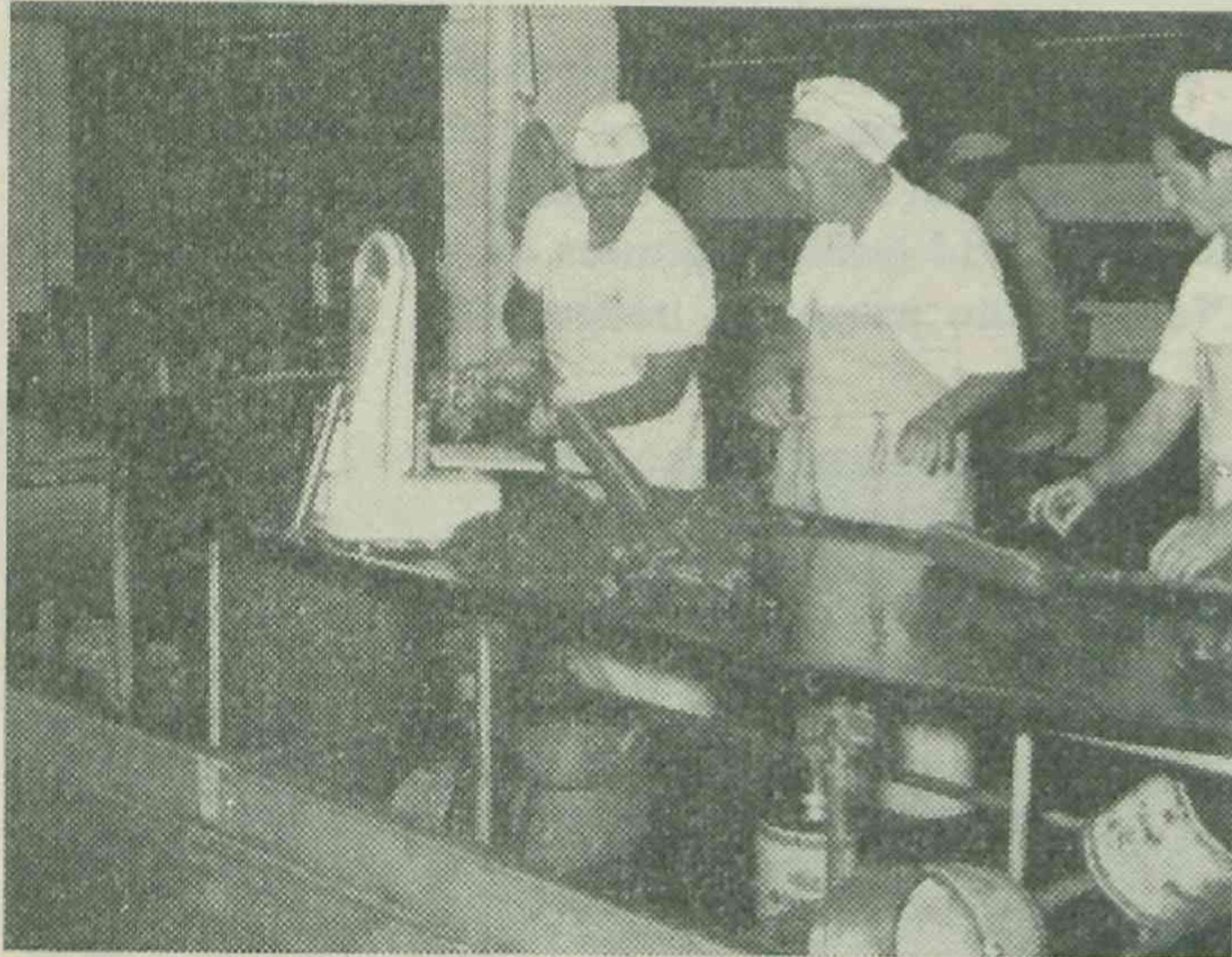
Tobacco stabilisation plan devised
 North Queensland market survey
 Fruit and vegetable prices margin survey





CROP PRODUCTION METHODS

Foliar diagnosis in tobacco and citrus studies
 Zinc deficiency in linseed overcome
 Balanced pineapple fertilizer schedule
 Phosphorus and nitrogen needs of wheat soils



LEGISLATION

New Meat Industry Act
 New Soil Conservation Act
 New Farm Produce Agents Act
 Grain sorghum marketing change



ECONOMIC SURVEYS

Granite Belt fruit industry
 Dairy farm practices surveys
 Banana marketing
 Farm Accounting Groups extended



PRODUCT STORAGE AND UTILISATION

Apple storage methods devised
 Pineapple and citrus juice
 Potato storage and utilisation
 Processing of peas
 Carriage of bananas and papaws

SUMMARY OF DEPARTMENTAL WORK, 1964-65

BEEF INDUSTRY

The opportunity was taken during the year to examine the efficiency of modifications of management and nutrition as drought mitigation measures.

Early weaning of calves before the annual winter deterioration of pastures has become widely accepted as a valuable aid in reducing normal dry season losses in breeders. During the 1964-65 drought, the value of a more drastic measure, the mass weaning of calves regardless of age when the summer rains fail, has been demonstrated.

Rations for weaned calves during drought have been tested under field conditions.

The drought has stimulated interest in pregnancy diagnosis, a technique which enables unproductive breeders to be detected and disposed of to reduce the grazing pressure on pastures.

The first phase of a series of beef production projects on wallum country at Coolum Research Station was completed during the year. Liveweight gains of the order of 476 lb. per head in 360 days at a grazing rate of one animal to 1.6 acres were obtained on a young pangola grass/*lotononis* pasture.



Beef cattle on pangola grass/*lotononis* pasture at Coolum Research Station in the wallum country.

The experiment initiated in 1962 to study the effects of nitrogen application and stocking rate on animal productivity from paspalum pasture has continued. Animal production per acre as indicated by body-weight gain has been less at the lower stocking rate although the gain per head has been greater. There appear to be no differences in gain between fertilized and unfertilized pastures at the low stocking rate, whereas at the high stocking rate nitrogen application appears beneficial.

Factors concerned in the utilisation of rations containing a high proportion of sorghum grain have been further investigated. The effects of three types of roughage (wheaten chaff, lucerne chaff and sorghum silage) in the ration were examined. There were no significant differences between the rate gain of steers fed the three roughage types.

Changes in carcass composition of steers resulting from intensive finishing were estimated by the comparative slaughter technique. Intensive finishing resulted in a proportionally greater increase in the yield of saleable meat and of dissectable muscle than either fat or bone. Dissectable fat exhibited a larger increase than fat trimmings, as a considerable proportion of the increase in fat was in the form of saleable meat. These measurements indicate that "intensive finishing" is a more appropriate term than "feed-lot fattening" for this type of beef production which involves a preferential increase in the yield of lean meat.

An experiment was initiated to examine liver vitamin A reserves in different classes of beef cattle at 3-monthly intervals. Initially mean liver vitamin A reserves were highest in calves from the early mated group, followed by calves from the normal and late-mated groups. There was no relationship between liver vitamin A reserves of dam and calf.

Studies were continued on the vitamin A requirements of cattle finished on high grain rations. There appeared to be no relationship between vitamin A status and weight gains.

The performance of cattle grazing a spear grass/blue grass pasture at "Brian Pastures" Pasture Research Station was compared with that of four groups receiving supplements providing constant protein and variable energy intake. Results indicate that the pasture protein content limited gain at 0.55 lb. per day.

In lot feeding investigations on the lower Burdekin, molasses has been shown to be as effective as grain for fattening cattle when used at up to 25 per cent. of a ration based on cowpea roughage. With sweet sorghum roughage, the best liveweight gain was made with 0.6 lb. molasses (dry matter) plus 1 lb. bloodmeal and 3 oz. urea per head per day.

At "Brian Pastures," a grazing trial is in progress to examine the utility of deferring sown summer pastures for winter grazing. During the winter of 1964 results indicated the importance of optimum stocking rate for more complete and economic utilisation of the pasture. At too low a stocking rate, conservation, storage and feeding back of some summer growth are necessary to maximise liveweight gains per acre.

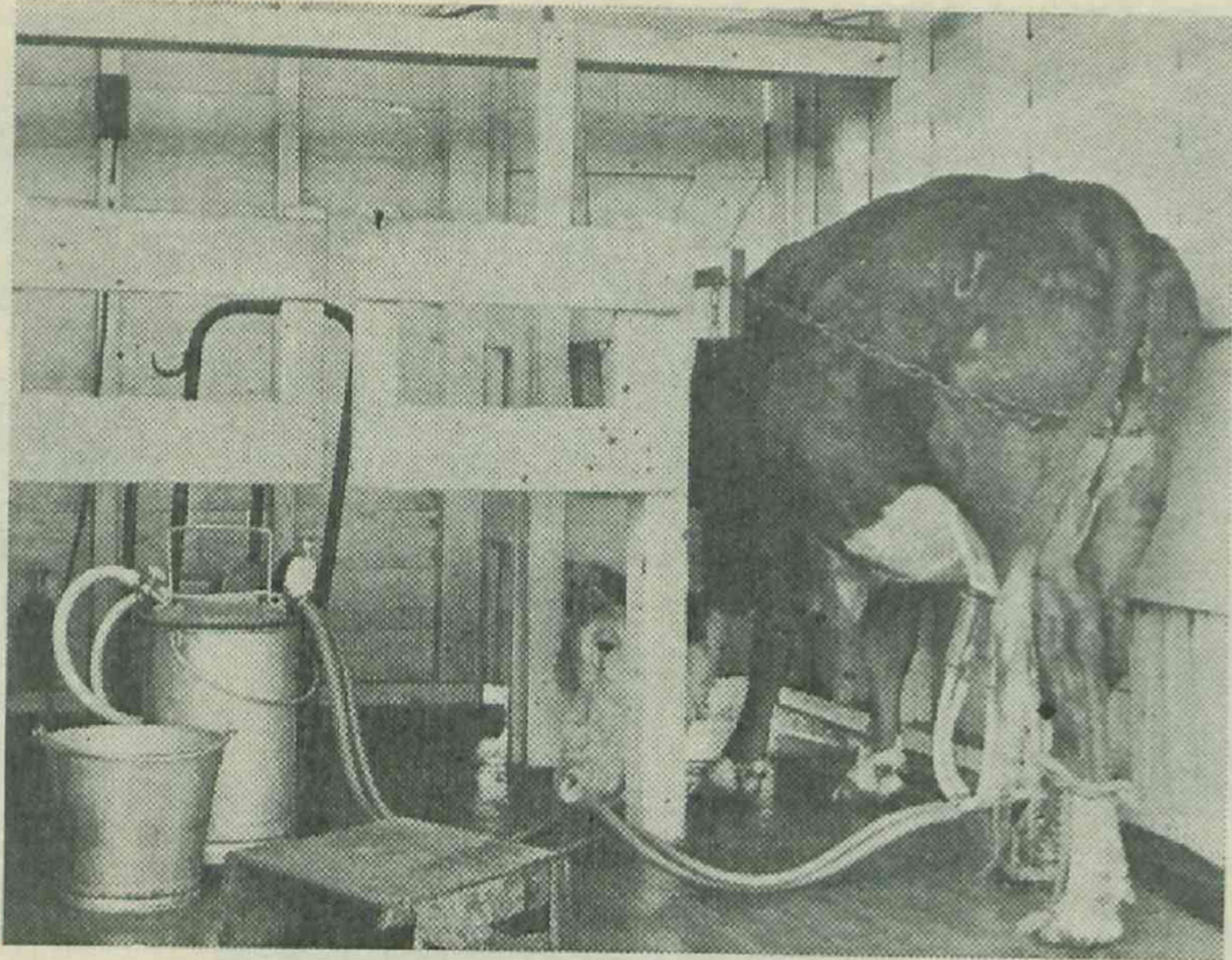
At the Tropical Agriculture Research Station at South Johnstone, Capricorn elephant grass developed by the Department produced under grazing 367 lb. liveweight gain per acre during six months in 1964, compared with 239 lb. produced from guinea grass.

A series of trials in the Rockhampton area has defined the degree of cultivation necessary for optimum establishment of Townsville lucerne and has highlighted a very significant response to superphosphate.

The first stage of an experiment to assess the acceptability of waters containing various salts by cattle was completed. The depression of water intake at equivalent salt concentrations was in general of greater magnitude when cattle were consuming a diet of lucerne chaff than when fed paspalum chaff.

Evaluation studies of mating at different times in the northern region are in progress at Swan's Lagoon Field Research Station on the Burdekin.

The time of mating investigation at "Brian Pastures" completed its sixth year. Results to date suggest that, within limits, nutritional status at mating is a more important determinant of breeding performance than time of year.



Set-up for studying milk yield of Hereford cows at "Brian Pastures" Pasture Research Station, near Gayndah.

Another "Brian Pastures" project has provided the tentative conclusion that the later in the season a cow calves, the greater will be her initial yield of milk but the rate of decline in yield will be more rapid.

Experience during the year indicated that the problem of botulism among breeding cattle in northern areas has yielded to annual vaccinations with a bivalent toxoid. Vaccination experiments are being continued at the Animal Research Institute.

The year was marked by severe incursions of ticks into clean country, especially on the Darling Downs. Ninety-nine properties are quarantined on the Downs.

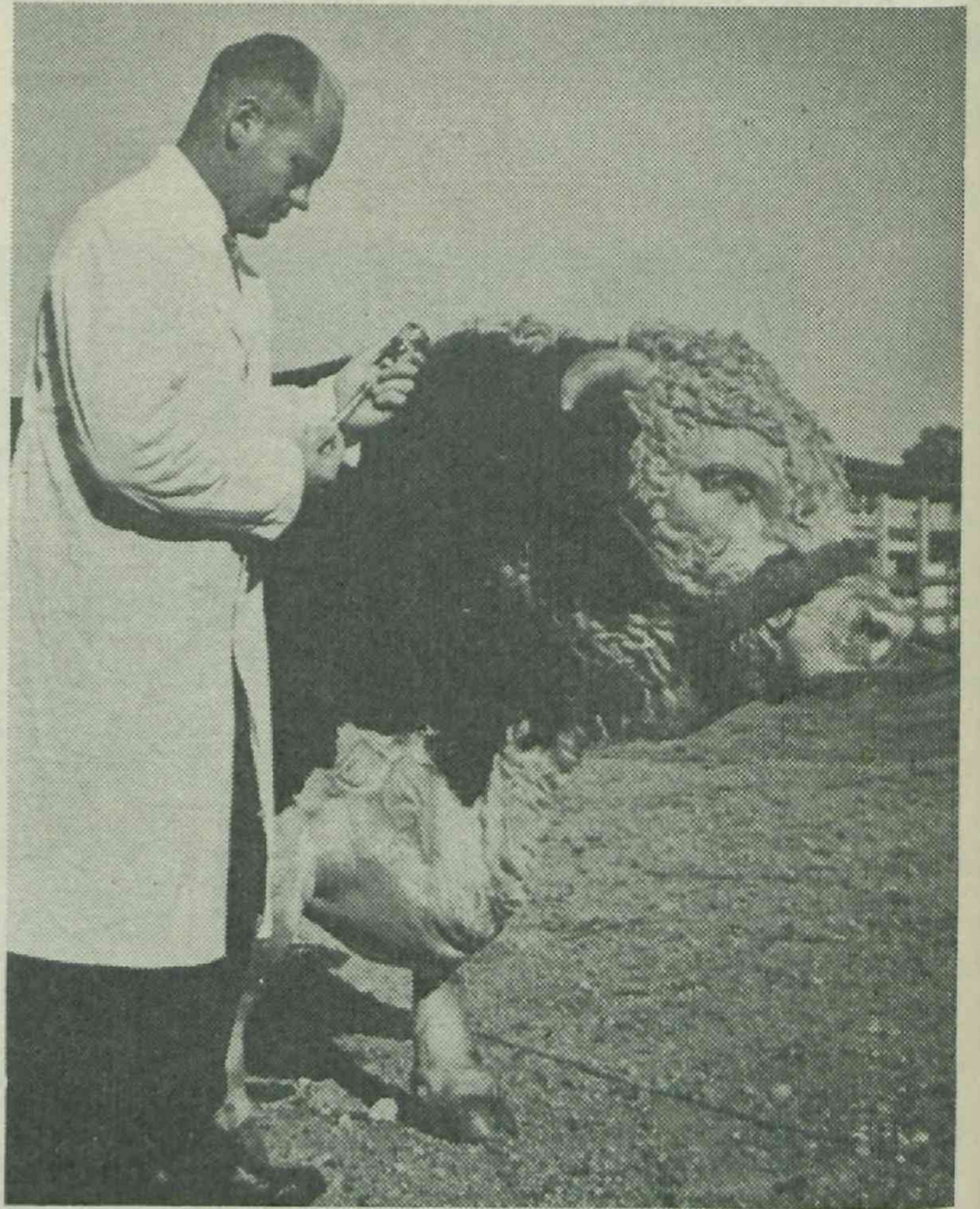
There has been increasing evidence of the cattle tick acquiring tolerance and eventual resistance to organic phosphorus insecticides. Wherever evidence of the presence of tolerant strains is obtained, quarantine and eradication measures are adopted. About 20 herds are involved in the Rockhampton district and a smaller number elsewhere. Tolerance is most marked to Delnav, Trithion and Sevin. Asuntol and Ethion are least involved.

An active survey of the problem of chlorinated hydrocarbon residues in meat has been pursued. Sources of contamination listed include the illegal use of chlorinated hydrocarbons for cattle tick control, some residue from earlier use of these insecticides, spraying of crops and pastures with these materials, and their use in seed protection treatments.

Research directed towards improving tick fever vaccination continued. The low pathogenicity of field strains of *Babesia bigemina* was established. It was confirmed for both

B. argentina and *B. bigemina* that a substantial reduction in the number of parasites inoculated in blood did not reduce the severity of the reaction but only lengthened the prepatent period.

The Animal Research Institute has introduced a standardised tick fever vaccine which has given a greater measure of protection of vaccinated animals from tick-borne infection. This is more satisfactory than the blood from a prepared bleeder, which may not transmit the necessary particular organism to susceptible cattle.



Tick fever protection studies and their application are a feature of operations at the Animal Research Institute, Yeerongpilly.

There was a rapid extension of the contagious pleuropneumonia free and protected areas during the year. The free area was extended to include the southern and central districts as far west as the dingo barrier fence, while the protected area now extends northwards beyond the central western railway to include the complete shires of Fitzroy, Duinga and Peak Downs. A field survey unit using the Huddart test has been operating north of the protected area.



The Brigalow Research Station is being developed to serve livestock and crop production in the Fitzroy Basin Brigalow Development Areas.

Some 20,000 beef cattle tested for tuberculosis gave a reaction rate of about 1 per cent. Condemnations at meat-works provide supporting evidence of infection of herds. An attempt is being made to evolve a testing scheme which will be workable on large beef properties.

To obtain data on the incidence of brucellosis in beef cattle, 8,350 samples of blood from 115 herds have been tested during the last 2½ years. The overall incidence of reactors was 1.5 per cent. Only 18 properties had positive reactors, the average incidence on reactors on these properties being 8.2 per cent. It may be concluded that brucellosis is relatively uncommon in beef herds.

A notable joint effort of the Department, the Land Administration Commission and commercial interests during the year was the organisation and supervision of an urgent aerial spraying project which resulted in the application of hormone weedicide to 20,000 acres of brigalow suckers in the Fitzroy Basin Brigalow Development area. The project was completed within 10 days of the evaluation of the needs and involved five aircraft operating from three airstrips.

SHEEP AND WOOL

At the instance of the Animal Production Committee of the Standing Committee on Agriculture, a survey of vital statistics of breeding flocks was begun. Information obtained for the year 1963 from various wool-growing districts showed average lamb-marking percentages to range from 44.4 to 77.6.

The Wool Biology Laboratory received about the same number of wool samples from graziers as in the previous year and the total number of samples examined was 3,460.

Trials in progress at Toorak Sheep Field Research Station included long-term heritability and lambing performances in wrinkled and plain-bodied sheep; manifestation of oestrus in ewes; mass and staggered joining of rams; supplementation; and seasonal wool growth.

At Texas, a grazing trial continued to demonstrate the capacity of supplementary lucerne grazing to increase carrying capacity, thereby increasing wool production per acre, from native pastures even in bad years.

A long-term research programme in the south-west based on Charleville is designed to study ecological factors for the elucidation of optimum management for mulga scrubs and Mitchell grass pastures. In addition, seven trials are in operation to study the usefulness of structures for the control and absorption of runoff water for better utilisation by pasture plants.

In the north-west, studies are in progress on farming systems for fodder and grain crops, crop varieties, and introduced pasture species and fodder trees. Here also a trial of different methods of using Mitchell grass pasture is disclosing a pattern of response in the survival and persistence of this pasture.

An experiment involving two groups of 200 weaner sheep, one with continuous access to meat-and-bone meal and the other an untreated control, has been in progress since 1963. There have been no significant differences between protein supplemented and unsupplemented sheep in terms of fleece lines, fleece weights and body-weights. The average faecal protein level in the unsupplemented sheep was 11 per cent. This has been shown to correspond to a production level in cattle, and apparently may also be regarded as a production level of dietary protein for sheep on Mitchell grass country.

The effect of a cottonseed supplement on Mitchell grass collected over four consecutive 3-monthly periods from Toorak Sheep Field Research Station was determined. The four grasses contained between 5.2 and 8.5 per cent. protein on a dry-matter basis. Supplementation with 4 oz. of cottonseed meal daily did not significantly increase voluntary intake or digestion co-efficients of the four grasses.

A survey of fat lamb marketing in Queensland established that a large proportion of the fat lamb market was supplied by lamb either introduced in carcass form from New South Wales or New South Wales lambs slaughtered in Queensland. Consumer preference in Brisbane favours the uniform, small, chunky sucker lamb which is typified by the imported carcass. In any effort to capture a higher percentage of the Brisbane market, Queensland producers may expect to meet strong competition on a quality and price basis from the central and northern Tablelands of New South Wales.

MEAT INDUSTRY

With the appointment of a Director of Meat Control in July, 1964, the growing specialisation of the meat industry was recognised. Inspection of carcasses of stock to ensure wholesomeness and freedom from disease is carried out by full-time inspectorial staff at some 20 abattoirs and part-time inspection provided at 350 licensed country slaughterhouses. All butchers' shops, numbering about 1,500, receive regular inspection.

Stock slaughtered during the year for local consumption and total poultry slaughterings were as follows:

STOCK SLAUGHTERED FOR LOCAL CONSUMPTION, 1964-65

	Cattle	Calves	Sheep	Pigs
Brisbane Abattoir	128,291	91,317	836,158	37,694
District Abattoirs	66,786	22,410	556,891	33,523
Bacon Factories and Abattoirs	371,188	182,796	302,955	377,670
Other Centres	139,912	41,228	411,477	60,574
Totals	706,177	337,751	2,107,481	509,461

POULTRY SLAUGHTERED IN QUEENSLAND

Year	Chickens (Broilers)	Hens	All Poultry
1962-63	5,127,775	668,062	5,868,863
1963-64	7,180,893	754,435	8,021,350
1964-65	7,952,362	778,682	8,817,403

In addition, considerable quantities of meat from export slaughterings were diverted to local consumption.

The major cause of condemnations was bovine tuberculosis, mainly in beef cattle. Condemnations for bruising, emaciation and fever conditions caused considerable economic loss. Heavy condemnations of pigs for arthritis reveal the severe economic loss that this condition causes the pig industry.

Voluntary grading of beef was undertaken at the Brisbane Abattoir, at the District Abattoirs at Ipswich, Toowoomba and Townsville, and at the Moreton Freezing Works in Brisbane. The drought caused a big reduction in the percentage of carcasses qualifying for prime and choice grades. Ribbon branding of lamb and yearling beef carcasses was continued.

New procedures for works killing for the local trade only were set out and are in process of being instituted.

Poultry slaughterings were undertaken at some 170 licensed poultry slaughterhouses, but most slaughterings are made at several large processing establishments in Brisbane and one at Maryborough.

Proceedings in respect of breaches of the Slaughtering Acts were instituted in seven cases.

PIG INDUSTRY

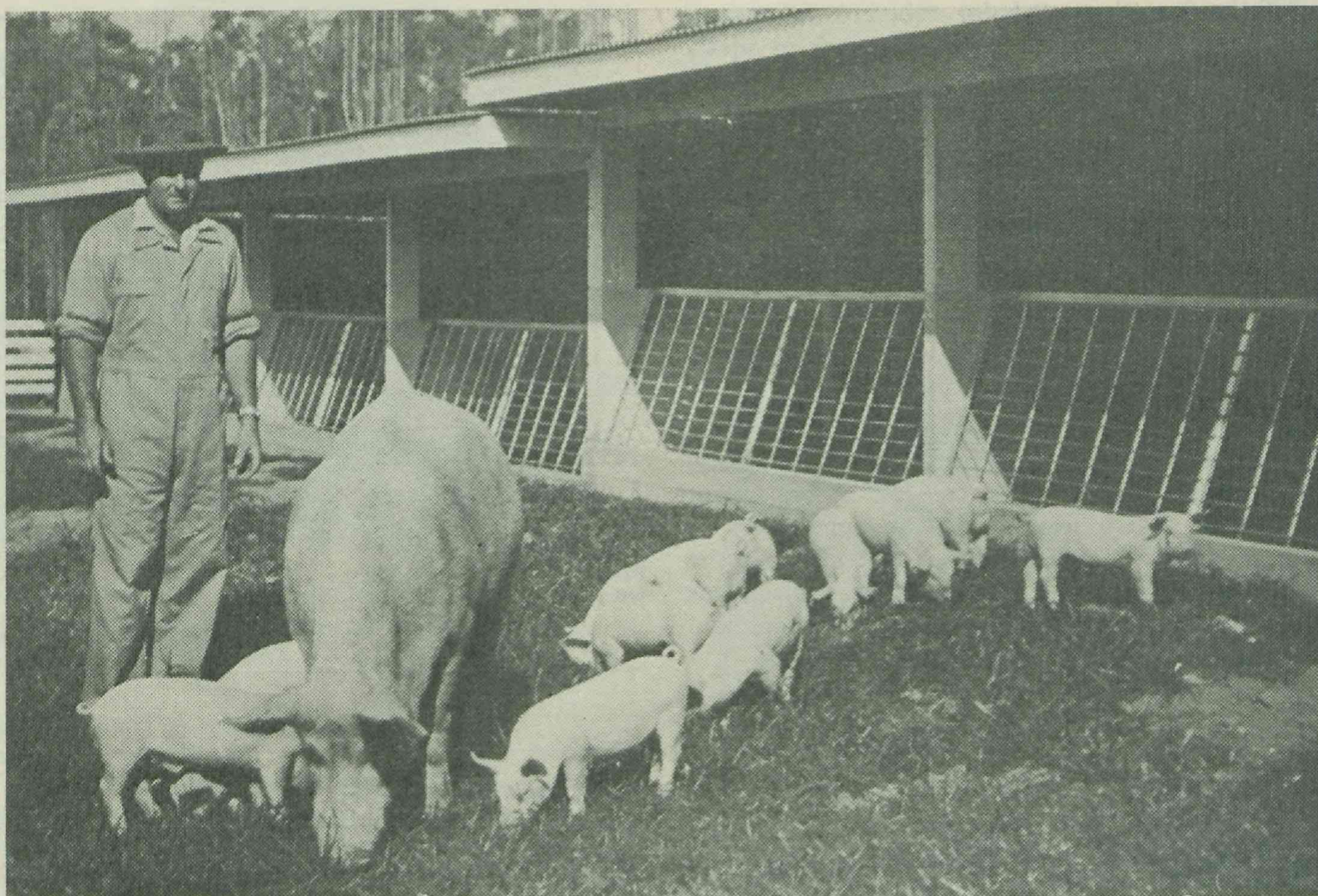
Feeding trials conducted during the year were concerned largely with the use of soybeans and soybean products, meat-and-bone meals, fishmeal and livermeal as protein-rich supplements for growing pigs. These trials were supported by observations made on commercial farms, which gave further evidence of the inadequacy of local meat-and-bone meals as a sole supplementary source of protein in pig feeds.

Much extension work was done on feeding, as the drought induced shortages of grain and other feeds. Apart from feeding, the main extension emphasis was on intensive type buildings and manure disposal systems.

The trend towards centralised large-scale pig producing enterprises prompted the initiation of an examination of the implications for research and extension. Economists and pig husbandry officers are collaborating in this survey.

Interest in pig testing increased, and the highest annual throughput at the Rocklea Pig Testing Station was achieved. The progeny of 12 boars completed tests, and groups from eight other boars are under test.

New standards were set for most pig foods offered for sale and grades were established for meat-and-bone meal.



The Department is promoting the adoption of improved buildings for pig production such as the one shown here.

EGG AND BROILER PRODUCTION

The 1963-64 layer random sample test was completed during the year. The adult mortality of 21.1 per cent. was higher than usual and average egg weight of 1.9 oz. was lower than usual; both factors, as well as higher feed costs and a lower net return from eggs, reduced profitability to £1 2s., compared with £1 12s. 7d. in the previous year. The increased hen-day average (202.9, compared with 197.7) suggests an improvement in rate of lay, which could be attributed to the breeding programmes commenced in the late fifties.

One broiler random sample test was conducted over January to April and a second was begun in April. Average weight in the first test was 3.1 lb.; this relatively low figure was undoubtedly a result of hot weather during the test period. Feed conversion rate was 2.4.

The number of fowls tested for pullorum disease was 382,296 (369,381 in 1963-64). Much of the increase is accounted for by the need to retest repeatedly in some infected flocks. The percentage reaction for the State was, at 0.42, three times as high as in the previous year.

Replacement stocks obtained by a large Queensland hatchery from a New South Wales organisation under a franchise agreement revealed a high pullorum level on blood-testing. This is a cause for concern, particularly as some of the farms using this replacement stock had in previous years enjoyed pullorum-free accreditation. The present situation points up the need to maintain rigid control over pullorum testing.



Broiler rearing has become big business—8 million broiler chickens were produced in 1964-65. Production studies are being carried out by the Department.

A large-scale test of the segregation of sexes in broiler rearing is under way.

To determine whether chickens fed sorghum grain containing high levels of tannins have a reduced rate of gain, as found in North America, two experiments were conducted. There was no significant difference between chicks fed Texas 630 (0.1 per cent. tannin) and Alpha (0.2 per cent. tannin) in rate of gain or efficiency of feed conversion. Increasing the tannin level of Texas 630 to 1 per cent. markedly depressed growth rate and feed conversion. Early Sumac (2.5 per cent. tannin), when compared with Texas 630, gave a significantly lower body-weight gain. Analyses suggest that the grain sorghum varieties grown in Queensland do not contain sufficient tannin to have a deleterious effect on the growth rate of chicks.

Stock Foods Regulations were amended to improve the provisions relating to stock foods containing drugs. Current husbandry practices in the poultry industry were closely considered in the revision of standards for poultry foods offered for sale.

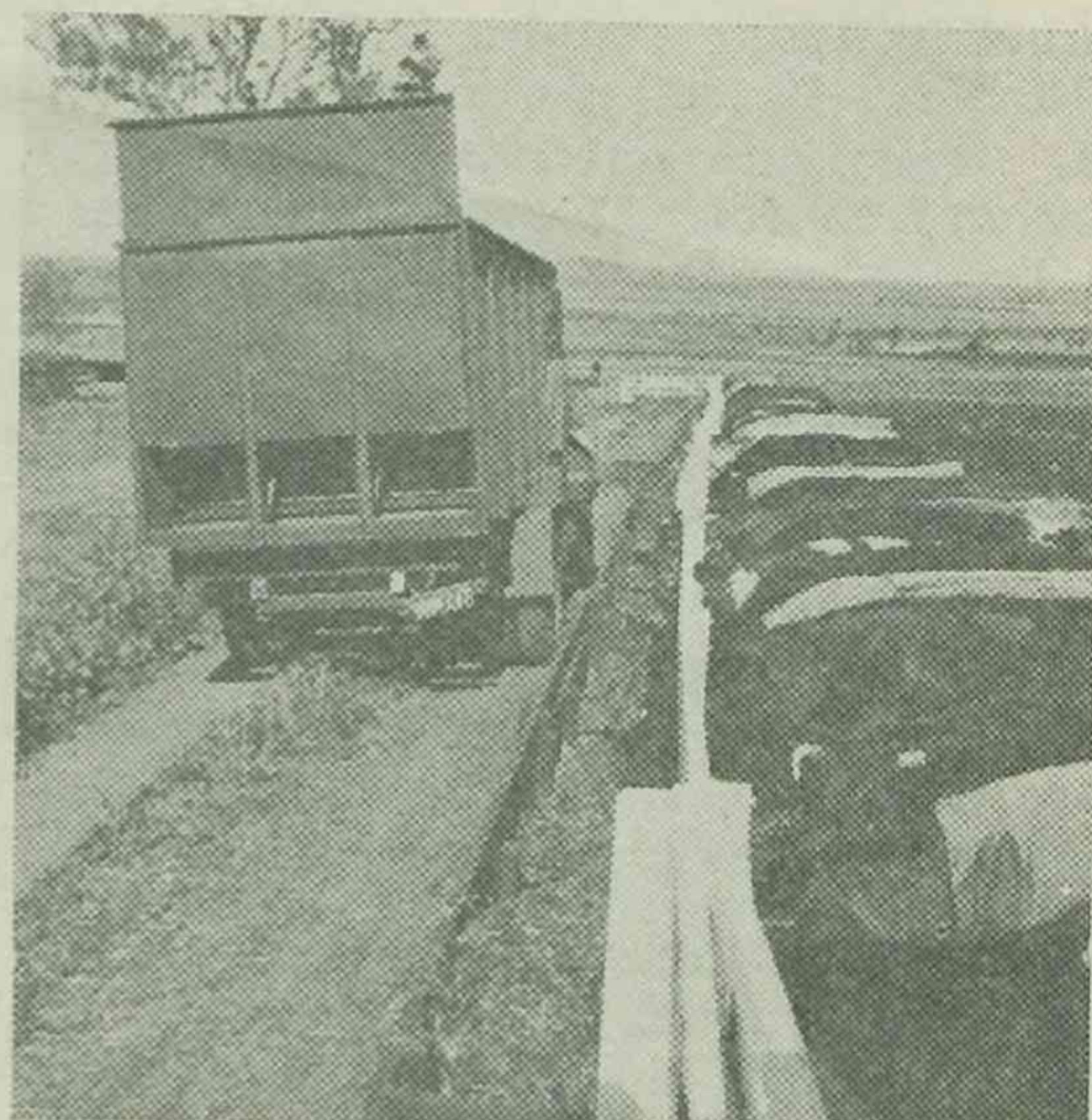
BEEKEEPING

The Department has continued its routine extension programme in apiculture throughout the State. It has expanded efforts in North Queensland and has emphasised the themes of mechanical equipment and honey promotion.

DAIRYING

Analyses of performance of individual herds in a number of dairying regions have revealed several major defects in the annual production pattern. These include: (a) Cows calving in spring tend to have a long lactation period, but production over most of the period is relatively low; (b) cows calving in summer-autumn have shorter lactations and the lactation curve is markedly sloped.

The starting yield in winter lactations has a considerable influence on total yield, so the value of using grains to a greater extent in the pre- and post-calving period is under test.



Mechanised greenlot feeding is being surveyed to determine its place in dairying.

Mechanised greenlot feeding as a permanent practice is the subject of a survey to assess its effects on farm and herd productivity. Early indications are that carrying capacity may be raised 50 per cent. and production per cow 25 per cent.

An intensified pasture research and extension programme in the Cooroy area is defining the way to greatly increased net returns for dairymen on degraded coastal pastures. Suitable perennial pasture mixtures, based on tropical legumes, can now be recommended for the main soils and situations. *Dolichos axillaris* and *Vigna marina* were added to the range of useful species during the year. The need for applications of the trace element molybdenum for maximum growth has been established.



Recommendations for dairy pastures based on tropical legumes are now available for a large part of the coast.

A complementary programme is being continued in the Gympie district. Varied responses by pasture plant species, according to soil type, have been recorded to phosphate, potash, molybdenum and calcium. Pasture work on the Atherton Tableland embraces both species and plant nutrition. Here, intense weed competition is a major environmental factor and investigations so far indicate that accurate fertilizer placement is needed for satisfactory growth responses.

Invasion of dairy pastures on the northern tablelands by the pasture funnel ant causes destruction of the soil structure and desiccation of grass roots. In control trials it is now clear that the maintenance of sufficient grass sward is of prime importance in overcoming pasture devastation by this pest. Green panic, guinea, kikuyu, molasses, paspalum and Rhodes grasses all grow well in funnel ant soil if properly managed. A chemical control trial showed that heptachlor was not effective.

Studies have been undertaken on the suitability of high-protein crops for silage making. Silage made from *Dolichos lablab* was readily eaten by sheep and cattle and averaged 15 per cent. crude protein. Lucerne ensiled with and without additives (molasses at 40 and 80 lb. per ton, plus sodium metabisulphite) produced high quality silage of high digestibility.

A new variety of forage sorghum bred by the Department and named Zulu was released during the year. It is expected to be of great value to dairy farmers and beef cattle raisers.

Economic research into the dairy industry resulted in the publication of two reports, one on the influence of various farm practices on the farm business, the other on the economic effects of introducing dryland tropical pastures into the farm fodder programme.

Approximately 1,800 samples from 23 herds in one district were tested for brucellosis, *Leptospira pomona*, *L. hyos* and vibriosis. The annual testing of these herds will allow an assessment of the role of those diseases in infertility by studying the breeding records of new reactors.

Surveys of the reproductive performance of dairy cattle have been continued, and unexplained causes of herd infertility are under investigation.

The bull proving schemes which have been proceeding since 1955 (Jerseys in the Nambour area) and 1958 (A.I.S. in the South Burnett) have reached the second stage, the testing of sons of proven sires. Sons are now available from six of the eight bulls rated as "A.I. Proven".

Some 50,000 dairy cows were inseminated in Queensland during the year, most with semen produced at the Department's A.I. centres at Wacol and Kairi. There are now 74 dairy bulls accommodated at these centres. The distribution of semen is now firmly based on the use of liquid nitrogen; this has improved conception rate and lowered operating costs. Liquid nitrogen frozen semen gave an average non-return per-

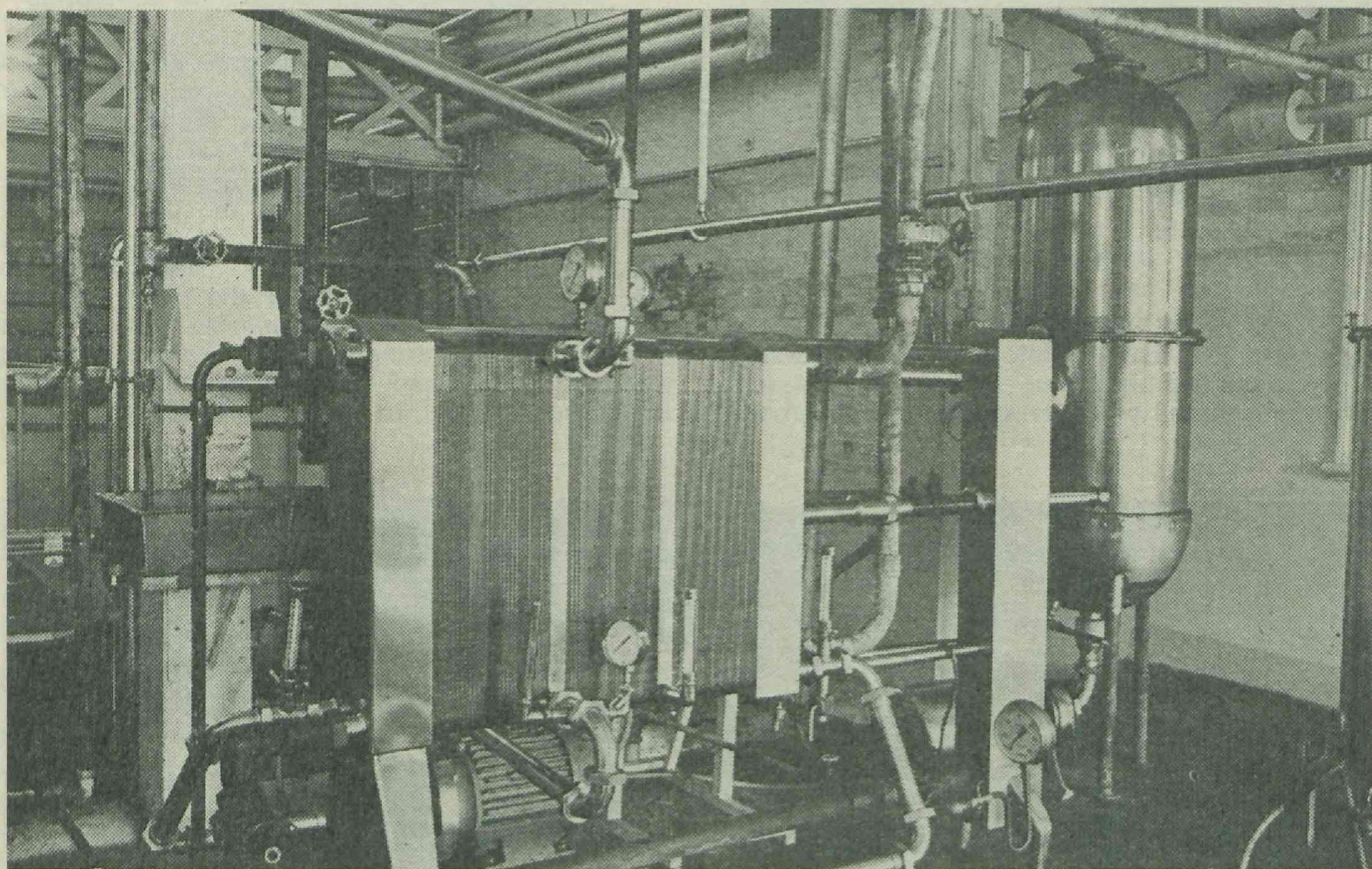
formance of 64.8 per cent., compared with 62.6 per cent. for chilled semen.

A major survey is in progress to study the scope, importance of, and factors associated with the incidence of abnormal milk produced on farms. Preliminary results indicate that subclinical mastitis, as detected by the Californian Mastitis Test, is associated with loss in production approaching 20 per cent.

Another survey is concerned with the level of copper contamination in bulk creams received at butter factories. It appears that many farmers are supplying produce containing excessive levels of copper derived from equipment.

Pesticide residue studies showed that carbaryl residues are not detectable in milk 53 hours after treatment. This is probably related to its temporary storage in and rapid excretion from depot fat.

Following successful research into the removal of weed taint from butteroil, a commercial process was evolved and is now in use by the Butter Marketing Board. The work has now been extended to the removal of weed taint from cream.



This equipment is being used by the Department's Dairy Research Branch into the removal of weed taint from cream intended for butter production.

Further progress was made in the development of new recombined dairy foods.

Methods of manufacture of Cheshire, Feta and Romano cheeses to suit Queensland conditions were developed.

The wider export of cheese has meant the attainment of higher compositional and quality standards, especially for the Japanese market. Much assistance has been given to cheese factories in meeting the higher standards.

To assist milk factories to improve the quality of pasteurized milk, a market milk quality index based on chemical and bacteriological quality was introduced for the guidance of field officers.

Despite the drought, 176 purebred herds were production recorded, compared with 159 in the previous year. Average production was slightly higher.

Lack of finance prevented any increase in group herd recording. During the recording year which ended in September, 1964, almost 50,000 cows from 1,143 herds were recorded. The average yield was 4,379 lb. milk with an average test of 4.2 per cent., giving 184 lb. fat. Average lactation test was 257 days. All of these figures were the highest averages ever obtained.

CROPS

Grain Sorghum.—Progress was made in the hybrid grain sorghum programme and it now appears that Texas 626 and Texas 671 could profitably be included in the certified seed scheme. Both are head smut resistant and yield as well as or better than the most popular hybrid, Texas 610. Texas 671 should be particularly suitable for production under irrigation. Seed certification of grain sorghum was markedly increased during the year.

A survey of the starch content of grain sorghum grown in central Queensland was made in connection with the utilisation of starch in the production of alumina from bauxite in the new plant at Gladstone.

Wheat.—In a crop rotation trial, Spica wheat with an average yield of 30 bus. per acre following a lucerne-prairie grass phase outyielded Spica on continuous cultivation by 34 per cent.

Prediction of phosphate fertilizer requirements of wheat soils by laboratory tests has been shown to be feasible. A large-scale nitrogen fertilizer prediction study in association with A. C. F. & Shirleys Fertilizers Ltd. and the University of Queensland has been commenced.

Noteworthy results obtained in plant pathology work with wheat included the finding of the perfect stage of the wheat crown rot fungus for the first time in Queensland, and the experimental production of crown rot by inoculation with isolates of the fungus from barley and several grasses. Valid methods for testing wheat varieties for resistance to crown rot have been developed.

Detailed testing of strains of *Azotobacter* for nitrogen fixation, auxin production and effects on the growth and yield of wheat varieties was commenced.

Wheat aphid control trials did not reveal any wholly effective treatment against root populations.

Wheat breeding work was continued, with yield, rust resistance and grain quality as the main objectives.

Field work was commenced in a 3-year survey of investment in plant and machinery on Darling Downs wheat farms.



Plant breeders are continuing to improve the lines of hybrid grain sorghum available to Queensland grain growers.

Maize.—Work on maize improvement for the Atherton Tableland has shown that there is a potential for producing commercial rust resistant hybrids with yields exceeding those of the hybrids in current use. The best new hybrid, KDC 15, with 90 bus. per acre, outyielded the most favoured commercial hybrid, GH 128, by 69 per cent. in a trial.

Barley.—Two new barley varieties, Resibee and Anabee, have outyielded the standard Prior in tests on the Darling Downs.

Oilseeds.—Linseed variety trials continued on a regional basis. Zinc sulphate sprays, costing 1s. per acre, increased significantly the yield of linseed showing zinc deficiency symptoms, the average yield increase in 1964 trials being 36 per cent.

In irrigated soybean trials at Gatton, Mamroy, Mamotan, Nanda and S999 all exceeded the previous record of 2,112 lb. per acre set by S999.

A survey of diseases affecting oilseed crops in Queensland is under way. Stem break and browning disease of linseed and *Phytophthora* stem and root rot of safflower were recorded for the first time here.

Good control of climbing buckwheat in linseed is being obtained with picloram.

Tobacco.—In tobacco research, priority has been given at all centres to nutritional studies. Particular emphasis has been placed on using foliar diagnosis to determine nutritional levels.

A variety improvement programme has been initiated, with Hicks receiving initial attention. Co-operative testing of lines bred for resistance to blue mould reveals that all present material is susceptible to certain strains of blue mould. Further progress was made in work on various methods of applying fungicides to control blue mould.

Work with sucker control oils indicated that substantial yield and quality gains are possible. Two new materials gave complete sucker control for up to six weeks.

The soil survey of the Mareeba-Dimbulah Irrigation Area is nearing completion, with 140,000 acres classified according to their potential for agricultural development.

Several hundred samples of tobacco leaf and irrigation waters were examined for growers in south-eastern Queensland and northern New South Wales. The most common fault in both leaf and water was a high chloride content.

Cotton.—High yields of cotton were obtained in fertilizer and irrigation trials. At Biloela Research Station, four varieties exceeded 3,000 lb. seed cotton per acre and at Walkamin Research Station three varieties exceeded 2,700 lb.

Verticillium wilt showed up strongly in some plantings of irrigated cotton and research to combat this potential danger is planned.

Properly conducted pest control schedules in irrigated cotton again contributed to very high yields. In North Queensland, a control schedule from the time of the first burst of squaring demonstrated that high yields of good quality cotton can be grown in that area.

Peanuts.—At the request of the Peanut Marketing Board, an economic survey of the peanut growing industry was begun during the year. Field work has been completed and the data are being processed. Recommendations for the improved control of storage pests of peanuts have been evolved.

Lucerne.—The production level of irrigated lucerne in the Lockyer Valley has been maintained over five years by the application of sulphur fertilizer, while untreated plots dropped to half of the first-year production.

Deciduous Fruits.—Some vegetatively propagated stocks, notably the locally selected 77, produce more productive Williams Bon Chretien pear trees than the standard Kieffer hybrid seedling stock. They are suitable for nursery propagation and merit adoption by the industry.

As a result of several years of investigation of cool storage of apples, storage conditions can now be recommended for the major varieties. Experiments on Legana, Winesap and Red Statesman are under way.

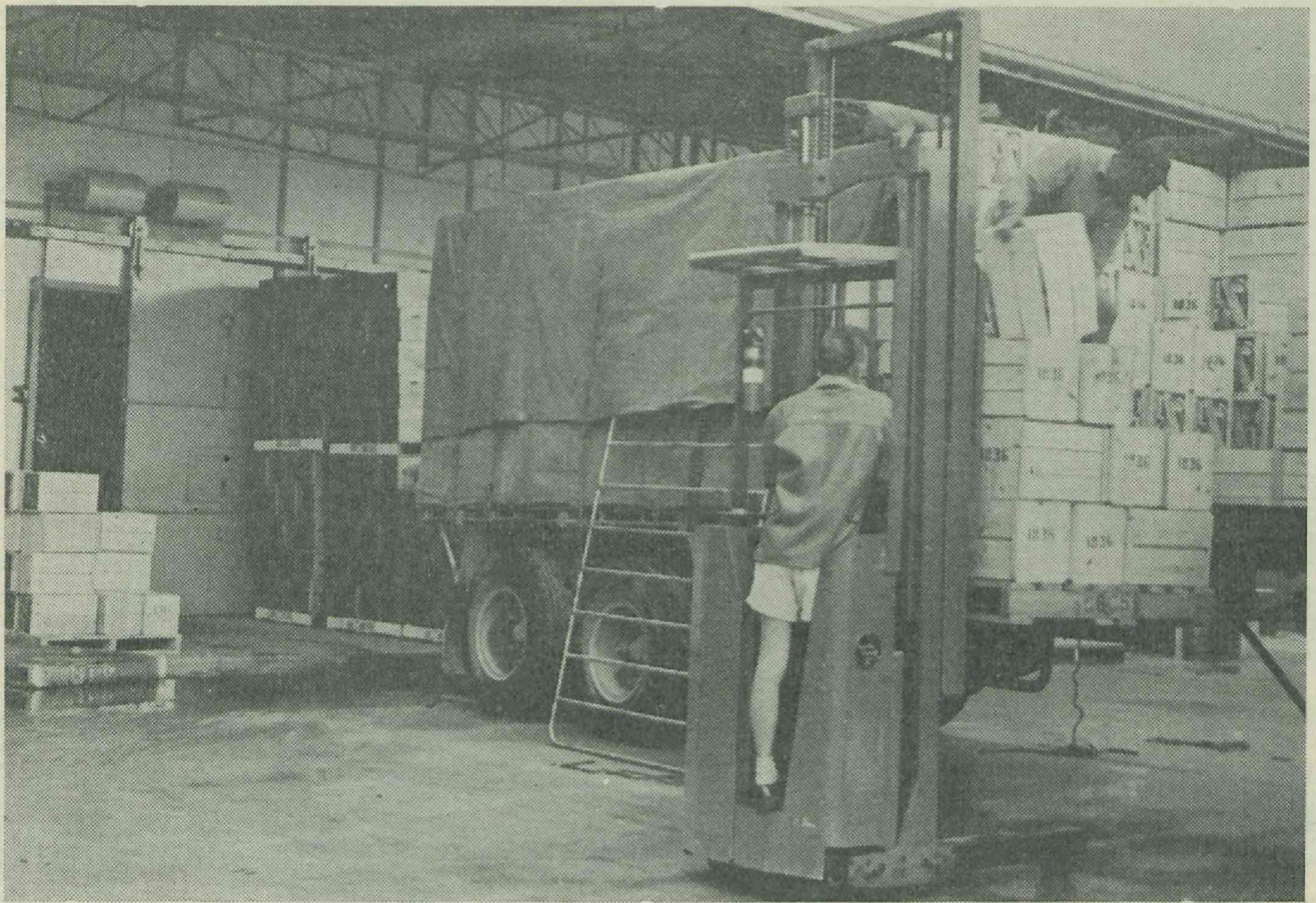
A special service was provided to assist grape growers comply with the standards of maturity prescribed in New South Wales. Arrangements were made for growers to submit their consignments for maturity testing at South Brisbane station prior to consignment to Sydney. Certificates of compliance with the New South Wales requirements were issued, thus expediting the movement of fruit through inspection channels in Sydney.

In an attempt to improve the berry quality of grapes grown near the coast, the effect of cultural practices on fruit quality is being investigated.

Control trials against red spider showed that on deciduous fruits summer applications of insecticides cannot be relied upon to effect rapid reductions of heavy populations and confirm previous experience that mite control should be carried out before populations reach high levels.

A report on the findings of the economic survey of the deciduous fruit growing industry in the Granite Belt was published during the year, while a further departmental contribution towards improved property management was the formation of a new accounting group in Stanthorpe, as part of the Farm Management Accounting Groups Scheme.

Pineapples.—As a result of investigations at the Pineapple Research Laboratory on nutrient uptake by the pineapple plant in relation to soil type and time of year, a balanced fertilizer schedule, in which rates and times of application are co-ordinated with the requirements of the crop, has been formulated. The schedule is currently under test in a series of field trials. Sucker development in the balanced fertilizer schedule plots is superior to that in all other treatments and its value may therefore be demonstrated in the ratoon crop harvest.



Cool storage of apples has greatly extended the marketing period. The Food Preservation Research Laboratory is now able to recommend suitable storage procedures for individual varieties.

Three pineapple watering regimens are under test. A correlation has been established between soil moisture and tissue moisture as calculated from leaf thickness.

Pineapple clone 13, the best of the series in production tests, is now included in most regional trials. Yields are 20 per cent. above those of mass selected material and the fruit is acceptable on both the fresh fruit and the factory markets.

BOH, a new flower inductant investigated at Maroochy Horticultural Research Station, has proved more reliable than ANA, particularly for application during February–March. It can be expected to give better control over cropping.

With a view to improving the appearance and quality of canned pineapple, experiments were continued on the canning suitability of fruit from 32 selected clones.

Experimental work has shown that processing and transport charges for concentrated pineapple juice can be reduced by evaporating at elevated temperatures to higher sugar levels and storing at room temperature. Heat sterilization was found unnecessary but the effect of the treatments on flavour changes is being investigated.

Bananas.—As earlier work had indicated an increased uptake of mananese by bananas in soil fumigated with EDB for banana nematode control, the matter is being pursued further in drum trials.

Banana clone 10 has proved the best of the Cavendish types under test on the North Coast. Bunch weight and fruit quality are excellent.

The banana fruit rot research was continued. Hot water treatment and Shirilan dipping of green fruit have reached the semi-commercial testing stage.

In an endeavour to solve the problem of mixed-ripe bananas, experiments are in progress to determine the effect of ethylene on the storage behaviour of bananas picked at various stages of maturity and stored at a range of temperatures.

A further trial against fruit fly in northern bananas proved that complete sterilization of fruit can be achieved with a dip of only a few seconds in very dilute concentrations of fenthion or dimethoate. Banana growers now have available a practical and cheap method of fruit sterilization.

A banana marketing survey revealed that the important preferences from the consumer's point of view are medium size, good palatability and texture, and reasonable prices.

Papaws.—Fruit weight, bruising and other data were collected from experimental railings of papaws in wooden and fibreboard containers of various dimensions.

Citrus.—Investigations were carried out to determine the suitability of Queensland oranges for processing purposes. The results indicate that both Joppa and Valencia Late oranges grown on trifoliata rootstock are superior to fruit grown on sweet orange and rough lemon rootstock because they have higher sugar and juice yields as well as less bitterness and

off-flavours in the canned product. The question whether changes in cultural practices can improve the juice quality of fruit, particularly those grown on sweet orange and rough lemon rootstock, is under investigation.

In a trial at Gayndah, 2,4,5-T sprays with supplementary urea effectively thinned the crop in the mandarin variety Glen Retreat, which is subject to overbearing. The data indicate that the degree of thinning achieved is influenced by the moisture status of the tree at the time of treatment.

Strawberries.—The strawberry canning industry in Queensland is based largely on the Phenomenal variety, which was developed mainly for the fresh fruit market. Varietal trials carried out with the Majestic variety have shown it to have a firmer texture and a higher drained weight than Phenomenal, but the latter has the preferred size range as well as the better flavour when canned.

Vegetables.—Promising tomato progenies are under test. Lines with acceptable fruit quality and yield and having some resistance to Fusarium wilt and tolerance to mosaic virus have been sorted out.

The first step has been taken towards producing a composite line of Grosse Lisse tomato in which both yield and fruit quality are satisfactory. Present variations among commercial strains are an embarrassment to the industry.

Recent research into the canning and freezing of Queensland-grown peas has culminated in the establishment of a pea processing industry in the State.

A big increase in the production of canned beetroot has necessitated a number of variety trials over a wide range of growing conditions. Quality testing of standard potato varieties and promising introductions for various utilisation purposes is being carried out.

The appearance of a new race of bean rust, which attacked the State's resistant varieties, sparked off further investigations, involving the testing of fungicides and the screening of a large number of varieties for resistance.

In onion crops, the broad spectrum herbicides—simazine, monuron and diuron—provided the most effective weed control within the limits of crop tolerance.

Ginger.—In view of the increased interest in the growing and processing of ginger in Queensland, an intensive research programme on methods of brining, mechanisation and quick-syruping is under way, as well as investigations into the manufacture of ginger flavouring concentrates.

SOIL CONSERVATION

The 37 soil conservation extension officers made 7,650 farm visits during the year. As a result, intensive measures were applied to 71,500 acres of eroded land, an increase of 45 per cent. on the figure for the previous year. Surveys for contour farming were conducted on a further 29,151 acres making a total of over 100,000 acres treated with soil conservation measures during the year. The year's work involved a quarter of a million chains of site surveys.



Soil conservation officers made over 3,000 miles of farm surveys in 1964-65.

Soil conservation plans were prepared for 108,000 acres, making a total of 1,029,000 acres now planned.

A new approach to soil conservation extension was developed on the Darling Downs. This involves full participation by local groups of farmers in the evaluation of their erosion problems and development of joint plans acceptable to the farmers in a common drainage area.

MARKETING

A survey of production and marketing of North Queensland primary products was begun during the year. The object is to obtain data to assist northern primary producers to overcome the disadvantages associated with distance from the main centres of population. A considerable amount of field work was carried out in all major coastal centres from Mackay north and on the Atherton Tableland. The matters examined were the supply and consumption of meats, dairy products, grains, fruit and vegetables, as well as population trends.

Another major survey—that of retail price margins for fruit and vegetables—has been discussed earlier.

Crop reports and crop forecasts published totalled 54. Circulation was 35,000. A new publication—"Potato and Onion Situation Report"—covering production in the eastern States, was issued monthly from September 1964.

CO-OPERATIVE ASSOCIATIONS

Six new co-operative associations were registered during the year under "The Primary Producers' Co-operative Associations Acts, 1927 to 1962." Four of these associations were concerned with artificial breeding.

The United Milk Producers' Co-operative Association Limited, formed in the Samford district to organise the cartage of farm milk in bulk, marked a new development in the dairying industry.

Another association formed was the Bean Growers' Co-operative Association Limited at Kingaroy. This association will work in close co-operation with The Navy Bean Marketing Board in the grading of navy beans, and it will also provide modern facilities, including electronic colour sorting machines for the grading of other beans and seeds of its members.

FARM MANAGEMENT

Activities in this field have been increased greatly during the year. Farm management services were made available to primary producers in North Queensland by the appointment of an Agricultural Economist to Atherton. It is hoped that the coming year will see these services extended to other country centres. The scope of farm management training was also enlarged, and district schools for producers have become an accepted departmental function.

The farm management accounting scheme has been expanded and new farmer groups have been formed. More than twice as many farmers are now serviced under this scheme than were last year. The joint committee on Farm Management Accounting, which consists of representatives from the accounting profession, the University of Queensland and this Department, has progressed to the stage where a report on findings is in course of preparation.

FAUNA

Research projects covering detailed studies of marsupials, waterfowl, broilgas and other bird species, and district fauna surveys, have progressed satisfactorily. In some instances, attempts are being made to apply the acquired detail to the much more difficult, costly and wider aspects of species conservation.

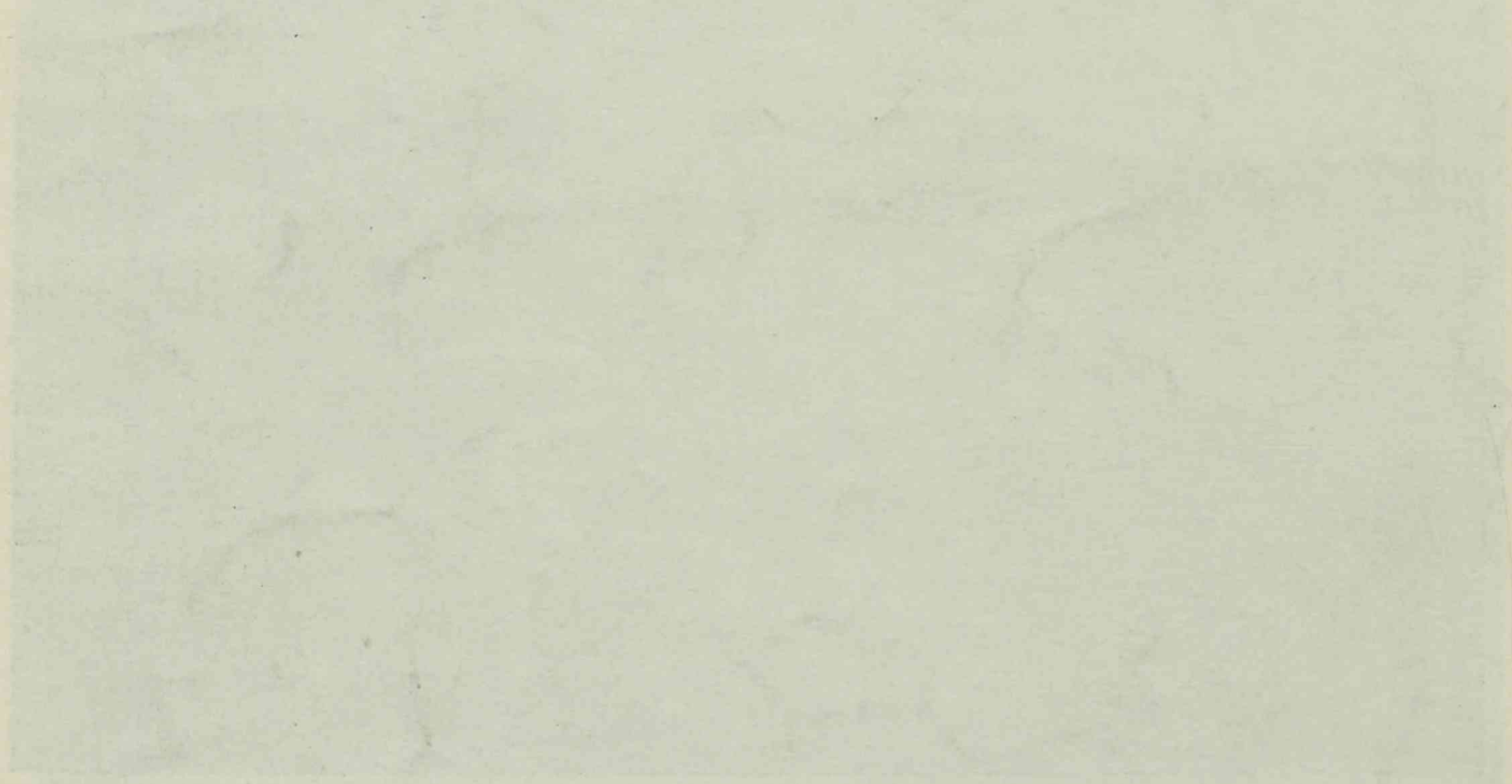
LEGISLATION

Reference has been made to two major pieces of legislation which came into operation in 1965, namely the Meat Industry Act and the Soil Conservation Act.

A new Farm Produce Agents Act was brought into operation in 1965 to ensure more adequate protection to producers selling through licensed agents.

The Fruit Marketing Organisation Acts were amended to empower the Committee of Direction of Fruit Marketing to trade in heavy vegetables; also to transfer certain jurisdiction as between Sectional Group Committees.

The Primary Producers' Organisation and Marketing Acts were amended to restrict the area of operation of the Grain Sorghum Marketing Board to Central Queensland. Amendment of the Peanut Industry Protection and Preservation Acts suspended the provisions requiring the Peanut Marketing Board to determine quotas for growers in accordance with Australian edible nut requirements.



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ANNEX I

The first management committee was set up in 1951. It was composed of representatives from the various departments of the University of Cambridge. The committee's main task was to coordinate the work of the various departments and to ensure that the University's resources were used to the best advantage.

The committee's work was carried out through a series of committees and sub-committees. These included the Finance Committee, the Buildings Committee, the Staff Committee, and the Students' Representative Council. Each of these committees was responsible for a specific area of the University's work, and they met regularly to discuss and report on their activities.

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