THE SOUTH AUSTRALIAN DAIRYMEN'S . . . Journal

The Official Publication of the SOUTH AUSTRALIAN DAIRYMEN'S ASSOCIATION INCORPORATED

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ALEXANDRA MARION VHC
Elite Register of Merit on Lifetime Production
Owned by G. O'H. GILES—LANAC—MT. COMPASS

PRICE
2/-

The South Australian Dairymen's Association Incorporated was formed in 1936 to provide dairyfarmers with mutual protection through organisation, to form a united front against the prices that were then being offered for their produce, and to introduce orderly marketing to the metropolitan milk supply. These aims have been achieved, but as one problem is overcome another takes its place, and the Association continues its endeavours to gain for all dairyfarmers a fair return for their effort and investment, and a level of prosperity in line with the rest of the community.

The Association is joined in common cause with dairyfarmers throughout Australia as a constituent member of the Australian Dairy Farmers Federation and of the Milk Producers' Association of Australia, and with all other classes of primary producers through its membership of the National Farmers' Union of Australia. It is able, also, through its nominated representation on Government and industry boards and committees to act in protection of the interests of dairyfarmers.

Membership of the Association is open to all bona fide dairyfarmers in South Australia, for an annual subscription of £1/1/0d. (which includes the subscription to this Journal) plus a local district fee of from 5/- to 29/-. Subscriptions, which become due each year on the anniversary of the date of joining, may be paid by cash, by bank authority, or through a dairy factory. An application form for membership will be forwarded on request.

OUR COVER PICTURE

ALEXANDRA MARION V.H.C., still milking at 14 years of age and calving regularly, has one daughter, LANAC MARION, about to qualify for the Elite Register, many granddaughters producing over 500 lbs. of butterfat, and great-granddaughters now in milk.

THE SOUTH AUSTRALIAN DAIRYMEN'S JOURNAL

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Advertising Rates on application

With this issue we commence the publication of a Journal devoted to the interests of the South Australian Dairymen's Association and of dairyfarmers in South Australia generally. The main purpose of the Journal is to keep its readers informed concerning the industrial aspects of dairying; that is to say, costs and prices, marketing, production and sales, Government intervention and support, new legislation, and all the other factors which affect the dairyfarmer as an economic unit, and to report the decisions made and action taken by the Central Council and the Executive Committee of the Association and by the organisations with which we are affiliated, the Australian Dairy Farmers' Federation, the Milk Producers' Association of Australia, the South Australian Branch of the National Farmers' Union of Australia, and the National Farmers' Union itself.

By this means we hope that our readers will be informed concerning the external influences which regulate their operations, and that the members of the Association may, with a more exact knowledge of the issues involved, be better able to advise and direct, through their District and Branch organisations, the Central Council or the Executive Committee.

It is not the function of an Association such as ours to teach its members how to farm; its task is purely industrial. Nevertheless, we recognise the difficulty that the practical dairyfarmer has in keeping abreast of, or even learning about, technical developments which he may profitably adopt, and we will endeavour, insofar as time and space permit, to publish, in as brief a form as possible, consistent with understanding, details of new developments in dairy farming techniques which may increase production or reduce costs **and which are applicable to our conditions.** These summarised items may be sufficient for the reader to decide whether they have any application on his farm or not, but where further details are required the reader will be able to refer to the full text of the original source.

And now, concerning our advertisers; they are the organisations which make it possible for this Journal to be published at all. Despite his struggle to keep costs to a minimum, there are some things a farmer must still buy, to maintain or improve his farm as a working unit, to replace equipment as it wears out, or for the health and welfare of his livestock. We believe that the products and services advertised in this Journal are of a quality which will satisfactorily and economically meet these requirements, and we ask our readers to give to these advertisers the support and encouragement that they have given us.

When enquiring about advertised goods and services, say you read it in the Dairymen's Journal.

Reduction in Sweet Cream Prices

The price of sweet cream (i.e., table cream for household use) was reduced from 5/6 per lb. to 4/- per lb. from April 22, 1962. Naturally the producer will want to know why the price was reduced and what result will it have on his income, so let's look firstly at the "why".

Despite a continually increasing population, sales of sweet cream have fallen steadily over the last few years, and the daily average sales of 2,783 lbs. over the last 12 months are only ⅓rds. of those five years ago, and probably the lowest since the ban on cream sales was lifted in May, 1950.

The cause of the decline is difficult to assess. It may be due to price, which, has, however, not been altered since May, 1957, or to changes in dietary habits and preferences. There is also an unknown but considerable quantity of lower-grade cream coming in from Victoria under the protection of Section 92 of the Federal Constitution, and replacing local sales. But whatever the cause, the result is the same; a steady reduction in revenue from cream sales and an increasing amount of cream to be made into butter, which carries a much lower basic price than cheese.

Despite the fact that the price has not risen in five years, the question has, of course, often been asked "would the public buy more if the price was lower". The answer, obviously is "Yes", but there are a number of qualifications. In the language of economics the extent to which consumption varies in response to a price movement is called "the price elasticity of demand". With staple foodstuffs such as milk, butter, red meat and so on, the elasticity is low, as the degree of response is less than the price movement. For example if the price of milk were reduced by 10 per cent sales might increase by about 3 per cent, and alternatively a price rise of 10 per cent might reduce sales by 3 per cent or so. The financial result is that if prices are reduced, although sales increase, **total revenue falls,** and conversely, if prices rise, sales fall, but **total revenue increases.**

This is not so in the case of luxuries, which we must regard cream as being; for these the elasticity is high, the proportion rise or fall in consumption will be greater than the corresponding price fall or rise, and a price fall will produce a greater total revenue. The validity of this theory when applied to cream can be seen from the following table, which list the consumption per head and price per pint in four capital cities in 1958/59,

Melbourne	4.45 pints per head	4/8 per pint
Perth	2.12 pints per head	6/- per pint
Adelaide	1.69 pints per head	6/10 per pint
Sydney	1.13 pints per head	7/2 per pint

where the correlation between price and consumption can be clearly seen.

Until October, 1960, sales by the N.S.W. Milk Board had been climbing steadily to about 84,000 lbs. per week, when the introduction of "cream mixture" from Victoria at a considerably lower price caused local sales to fall to 43,000 lbs. The N.S.W. Milk Board immediately reduced the price from 3/6½ to 2/5½ per half pint, causing an immediate increase in sales to over 120,000 lbs. per week. It should be noted however that the 1/1 per half pint reduction in price came **solely out of the dairymen's return,** and in addition a further 2d. per pint was taken from the dairy-

men's return and added to the retail vendors' margin. The result was that although cream sales increased to 150 per cent of the original quantity and consequently gross revenues to the merchants and to the vendors increased by the same proportion, the dairymen's premium (i.e., value of cream sales over basic price) **fell from about £8,500 per week to £1,200.**

Proposals for similar action in South Australia had been examined several times since 1959 but always rejected because of the reduced return to dairyfarmers, but late in 1961 a recommendation was made that the retail price of cream be lowered by reducing the margins of each section of the industry. Several meetings were convened by the Milk Board and a proposition submitted that the price structure be revised as follows:—

	Old Price	Proposed Price
Price to producer	2/10	2/3
Merchants' margin	1/4½	10d.
Vendors' margin	1/3½	11d.
Retail price (per lb.)	5/6	4/–

This proposal was accepted by the Association "with reluctance" with the further proviso that a reappraisal of the position be made as soon as it is possible to make a reliable evaluation of the position, and the revised price became effective on April 22, 1962.

The new price of 4/- lb. is now almost equal to the Melbourne price of 3/10¾ lb. or 4/10 pint and if the public response to the price brings our consumption near to Melbourne consumption the excess fat now made into butter will be insufficient to meet the demand. However the high Melbourne consumption is a habit of many years standing and the immediate response here is not likely to be as great. In addition, although the minimum fat content of sweet cream in Adelaide is 40 per cent it has been the practice to use as high as 60 per cent in an attempt to provide a heavy bodied cream which the customer apparently requires, as the pasteurising process tends to reduce viscosity.

It is to be hoped that immediate investigation will be taken into the techniques required to produce a heavier bodied pasteurised cream without the adulteration with thickeners that is legalised in Victoria, simultaneously with promotion to educate the public into better ways of using cream and the acceptance of a low viscosity. Successful action on these lines would allow a reduction in fat content to nearer the legal minimum, thus increasing the amount of sweet cream available for sale. Nevertheless it must be realised that even if cream sales are doubled the return to the producers will not increase above the present level. The most we can hope for in the near future is to maintain the present level, but even this is preferable to the alternative which we would have faced if no price action had been taken, namely continually declining sweet cream sales, greater quantities of cream going into butter at ever decreasing prices, and an increase in our unsalable stock of butter which at present is approaching 30,000 tons. The trend of sales is, of course, being watched very closely, in the meantime we are still faced with the problem of competition from interstate cream which is not only of a lower butterfat content but which is not produced under the conditions of the Metropolitan Milk Supply Act, which prohibits the use of adulterants and requires strict supervision of dairy premises.

Cream Sales Statistics

Although cream sales have been declining in recent years, the decline is a trend which can only be seen from a distance, as the sales vary month by month depending on the daily temperature, festive occasions, and so on. It will, therefore, be very difficult to determine what influence the new price has upon sales volume, as valid conclusions cannot be drawn from comparisons between say April and March, or between April 1962 and April 1961, and we will need several months' figures to determine any change. The most satisfactory method is to use a moving average, whereby we calculate the average of a consecutive number of quantities, and as each additional monthly quantity becomes available, the first quantity in the series is erased, the new quantity is added to the end of the series, and a new average calculated. If the moving average is taken on a 12 months' base it can be seen that as the next month's figure is added, the figure relating to the same month last year is taken off, and hence the seasonal effect cancels out.

The figures below show the daily average consumption for each 12 periods ended January 31, February 28 and March 31, 1962. In each of the periods ended January 31, February 28 and March 31, 1962. In each subsequent month these two series will be moved up one month.

SALES OF SWEET CREAM IN LBS. PER DAY, 12-MONTHLY MOVING AVERAGES

For the 12 Months Ending March 31 in Each Year

1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
2722	2719	3280	3658	3819	3877	3826	3644	3307	3154	2789

For the 12 Months Ending

Jan. 31, 1962	Feb. 28, 1962	Mar. 31, 1962
2813	2809	2789

SITUATIONS WANTED

Enquires have been received for positions on a dairyfarm from several boys. These boys were interviewed by one of our members who required a lad, and after making his selection, he advised that he considered they were good satisfactory types.

An experienced dairy farmer with a small herd is seeking a share farming position. He is very highly spoken of in the district.

Also young man, 22, single, experienced in dairy farming.

Please contact this office concerning any of these.

The Price Position

For the first time for many years we have come through into April with the basic price unchanged from the July figure. The reason is quite simply that the overseas position does not allow an increase in the return. A meeting of the Commonwealth Equalisation Committee will be held in Hobart early in May to re-examine finances, but it is not expected that any step-up in price will be announced. However a figure of approximately 5¼d. per lb. fat (equalised at approximately 2-9/16d.) has been determined for the final wind-up of 1960-61 and although normally this final retrospective is not paid until early in August of the following year it is hoped that the financial position may allow this payment for 1960-61 to be made early in July.

"The Good Old Days"

Although the decreasing basic price for the last two years has had a depressing effect on the equalised price, the price to producers for city milk of 3/6¼d. gallon is the highest ever in this State and there is a tendency to believe that the dairy-farmer has "never had it so good". Unfortunately a record high price to the producer carries with it a record high price to the consumer, and at 9¼d. pint the decline in consumption per head shows clearly how the consumer feels about the matter, and the opinion is often expressed *even among dairyfarmers* that we should try and get back to a price more in line with pre-war.

Therefore it was with interest that I received from Messrs. Sabine and Gill, Chartered Accountants, the minute books of the Adelaide and Suburban Dairymen's Association, from its formation in 1907 through to its winding up in 1926.

Even in those days the matter of price was frequently on the agenda, and in fact the establishing of an agreed price was one of the reasons underlying the formation of the Association, and one of the Association's first actions was to set the retail price at 6d. per quart. *This was in the same year that Mr. Justice Higgins determined the first "Basic Wage" (the "Harvester Award") of 7/- per day or £2/2/0d. per week.* Thus in 54 years milk prices have increased by 308 per cent from 3d. pint, whilst the Basic Wage has increased by 674 per cent from £2/2/0 to £14/3/0. Why then, is milk consumption falling? A plausible reason is that milk is, in the economist's term, an "inferior good", one which consumers buy in lesser quantities as their income rises.

Is there a solution to the problem? If the consumer has decided that the commodity is an "inferior good", *reducing the price will not help, and in fact an increase in price for a commodity such as milk will always increase gross receipts,* even if reduced consumption results.

The answer seems to lie in lifting milk out of the "inferior good" category by promotional means. It can be done and has been done elsewhere.

A more vigorous approach by *all* sections of the industry including those responsible for processing and selling would appear to be the most successful way. Much can be done toward making milk more attractive, both as a product and in its packing and presentation. Homogenisation, multigrade milks (high-fat and low-fat), new package types, flavoured milks, pre-mixed formulas, and other methods are used elsewhere. This is a change which will not come about by evolution, it must be done by exertion and enterprise.

Mr. Sheidow asked whether the Secretary had any knowledge of indefinite suspensions which he believed were in force in several cases in his area. The Secretary replied that he had no knowledge of indefinite suspensions, nevertheless the Act stated "for such period as it thinks fit".

Mr. Spicer then, on behalf of Meadows District, agreed that no further action be taken concerning this resolution.

Mr. Harper said that he could not criticise Mr. Zelling's interpretation of the Act as it stood, but he felt that the onerous provisions of the Act should perhaps be brought to the attention of the Law Society then, which, if it agreed with us, might see fit to bring the subject before Parliament.

The mover of the original resolution at Meadows was not only concerned with the apparent unfairness of the Act but also he believed there was no right of appeal. It was gratifying to learn that Section 35 of the Act did give the right of appeal to the Courts.

27/3/62

The Secretary reported that, following a deputation by the President and himself, the Board had agreed to supply in confidence, details of the number of licences suspended each month since the new formula was introduced. The figures up to January-February had been lower than in previous years, but were approximately 180 for that month, being the highest ever recorded. A press statement had quoted the Minister of Agriculture as saying that he had requested the Milk Board to lift the suspensions and expressing his opinion that tests carried out under extreme conditions should be re-examined by the Board.

The Executive Committee had considered the position relating to the number of suspensions and the Minister's action and resolved "that the Secretary write to the Milk Board asking it to give consideration to a temperature compensated standard for methylene blue tests, drawing its attention to the dangers involved in excessive transport distances, and that the Secretary also write to the Minister acquainting him with the action taken".

A copy of this letter had been distributed to each delegate, and a reply had this day been received from the Board stating only that the Board was unable to reconcile paragraphs 1 and 2 and requesting further explanation.

The Secretary stated that in his view the two paragraphs were not contradictory because he believed the present formula was not a satisfactory way of increasing quality.

Mr. Bennett said that he felt some action was necessary to bring unsatisfactory suppliers up to the mark and we should be careful not to demand anything that would completely undo the Milk Board's work.

Mr. McIntosh said that as a representative of a new district, he believed that it would be wrong to undermine the Board's authority, and we should try to alter the system, not do away with it. If we are going to raise the standard of milk we must submit concrete, worthwhile propositions.

Mr. Turner said that the matter was not one of absolute quality, but one in which a definite disadvantage was suffered by a supplier on a late pick up over which he had no control.

Mr. Faggotter said that the Board was merely asking us to make up our minds whether we wanted quality or not. He believed the standard should be the highest quality we could produce as this was the best form of sales promotion we could possibily have, and as an industry we would probably be better without those who are lagging behind and dragging our quality down.

Mr. Barclay said that every licensed dairyfarmer knew the conditions under which his licence was granted and the standards to which he must conform, but a number of farmers were always trying to avoid these obligations and he was very disappointed that this Association was trying to lower the standard of the milk. In the one instance we approach the Minister and the Board for a rise in price, and the next day we go along and say the standard is too high.

The conditions of pick-up had no influence, as he had proved from his own experience. If we want the best price for our product we must deliver to the factory the best quality milk available. If a man can't make the grade we are better without him.

The Chairman pointed out that we should not attempt to solve the problem today; we were nearly through the hot weather and we should spend the next few months in serious thought as to what action we should take next season, on the basis of the recent results. The present question related solely to the correspondence from the Board, which required a reply.

Mr. Spicer explained that the Executive directed that a letter be sent to the Board, for two reasons, firstly because of the direction from the Central Council to take such action as was thought appropriate when the time arose. The Executive thought the time had arisen when it was reported that the Minister had made an approach to the Board. Although the Minister's approach was not connected with this Association, the Executive thought that some simultaneous action by the Association was appropriate, and it believed that the suggestion concerning a temperature compensated standard would indicate our attitude without necessarily condoning the Minister's action.

In answer to a question by Mr. Gormlie the Secretary replied that before this month under discussion the greatest number of producers eligible for suspension, to his knowledge, was 215 in December, 1961, of whom 50 had actually been suspended, but there had been occasions when as many as 1,500 producers on one testing day failed the methylene blue test.

Mr. Gormlie then commented that the figures available indicated that, during a period of very hot weather, as many as 25 per cent of producers could have their licence suspended. He certainly did not favour lowering the quality of milk, but, taking a broad view, a scheme such as that requested by the Executive would be a practical approach to the otherwise disastrous results of an unusual set of circumstances.

Mr. Temby moved, and Mr. Turner seconded: "that this meeting endorses the Executive's action".

Mr. Faggotter said that the Secretary had endeavoured to write a letter which sat on both sides of the fence, and he believed that this Association should make up its mind on which side of the fence we were. We should not forget that at the other end of the stick were the customers, including the children who required very little to set them against milk.

Mr. Harper expressed the opinion that nothing the Association had done could be expressed as indicating any desire to reduce quality, but it was obvious that farms at the end of a long pick-up, where the milk was, of necessity, carried during the hotter part of the day, were at a disadvantage, which was proven by the results of the Queenlsand study quoted by the Secretary.

The Secretary stated that quality milk had no greater supporter than he, as selling milk was at least as important as producing it, but he had had no qualms in writing the letter to the Board. In his opinion it was not self contradictory, because he believed that the Board's present method of suspension was not an effective measure for the improvement of quality. The scheme he had proposed was, he believed, far more fair and equitable, but certainly not more lenient, as its effect would not involve the complete suspension of the licences of a small quantity of producers but would administer a small financial rebuke to almost every producer from time to time. Nevertheless, even this scheme required, at present, a modified approach to quality on abnormally hot days and he believed that in any circumstances a temperature compensated standard was a practical approach. If provisions similar to the draft regulations for the Dairy Industry Act were introduced in the Milk Board Area there would be a number of days on which, without temperature compensation, the city supply would be less than half the requirements. The motion was then carried.

In closing the debate Mr. Temby said that the 1,500 dairyfarmers failing to achieve stndard on a very hot day could not all be "no hopers" and although such occasions had occurred infrequently, they indicated that the rate of failure was indisputably tied up with temperature.

Mr. Turner moved and Mr. Temby seconded: "that this meeting endorses the text of the letter written by the Secretary".

The Secretary pointed out that the Board's attitude was understandable in that any alteration to the standard should be by amending legislation, which would

not be politically acceptable, but the underlying thought of the letter was that the adjustment be made by tacit agreement, as had been the practice until last April.

Mr Turvey said that all the letter sought to do was to eliminate the factor of chance from the suspension procedure. Whilst it was all very well to criticise the suspended producers it was obvious that the farmer whose milk was tipped late was up against it. He supported the Secretary's proposal concerning quality, but believed that we would have to educate the producers first.

This motion was also carried.

Mr. Ballard then moved, and Mr. Gormlie seconded a motion: "that the matter of a reply to the Milk Board's letter be left to the Executive", which was carried.

19/12/61—EXTENSION OF MILK SUPPLY AREA

The Secretary had reported to the Executive that following a news item broadcast over the ABC which had stated that the Chairman of the Milk Board believed that the Board would have to go much further afield for its supplies, he had broadcast over the ABC Country Hour the Association's view of the position. The Executive had directed the President and the Secretary to meet the Milk Board and the Minister of Agriculture to present a case on behalf of licensed dairyfarmers opposing any extension of the licensed area until the limit of supply from the present area was approached up to a reasonable safety margin.

The Board had expressed their regret that we should think the Board had broken faith with the Association and stated that the Board had no intention of departing from its previous policy, namely to confer with the Association before any farther extension of the licensed area.

On October 12 the Minister of Agriculture had replied to a question by Mr. Bywaters in a manner indicating that he is completely aware of the Association's feelings on the subject and a subsequent written reply by the Board to the same question was of a reassuring natute.

The Secretary believed that the Board would, in future, be most circumspect in its statements on this subject. As to the need for extending the area, the quota for 1961 would be approximately 48.7 per cent, the lowest for many years.

The Chairman explained that the nature of the Board's reply and the Minister's obvious acquaintance with our views had made an approach to the Minister unnecessary.

Mr. Harper expressed the view that we should maintain an alert attitude to the possibility of amending the Act to require the alteration of the licensed area by regulation instead of proclaimation.

Mr. Warwick said that the most unfortunate aspect was that although we had received the Board's belated reassurances concerning their intentions, dairyfarmers as far away as Bordertown now had the impression that they had only to form a vigorous progress committee in order to get into the Milk Board area in the not distant future. We need to make some statement, or to induce the Board to make a statement to clear the matter up.

The Secretary replied that an unfortunate aspect was that only one side of the story ever received publicity; for example neither the Minister's nor the Board's reply to Mr. Bywaters was published in the press. It was inevitable that a too vigorous protestation by this Association would brand us, in the eyes of the outside areas as a lot of greedy "dogs in the manger", and he believed that now we had received satisfactory assurances it was case of "least said, soonest mended". He believed that rather than make an issue of the matter now it would be wiser to wait until the crucial period in April and base an irrefutable case on our achievements then, which he believed would yield the highest April surplus ever.

Mr. Loechel said that it was inevitable that additional areas would be admitted when the need became evident and a too vigorous opposition by the Association at this time could be to our detriment in the years to come.

Mr. Turner moved: "that this Association accept the reassurance of the Minister as expressed in his reply to Mr. Bywaters, and direct the Executive Committee to keep close watch on the position and take whatever action is necessary should the occasion arise", which was seconded by Mr. Gormlie and carried.

It was noted that the Secretary would write to the Minister expressing the Association's pleasure at the substance of his reply to Mr. Bywaters as being indicative of his sympathetic assessment of the position.

Mr. Spicer then moved: "that the text of the Secretary's broadcast be published", which was seconded by Mr. Easton and carried.

27/3/62

The Secretary reported that production for both the financial year and the calendar year continued at a record high level, being 16 per cent above the previous record level of last year and 48 per cent higher than five years ago, and consequently the Executive, who were keeping a close watch on the seasons' progress, had agreed that no action was at present necessary.

19/12/61—ARTIFICIAL BREEDING ACT

The Secretary reported that he had interviewed the Minister of Agriculture with a request that a representative of this Association be appointed to the Artificial Breeding Board, from a panel of names submitted.

A reply had been received from the Minister stating that he would treat our representations sympathetically but pointing out that whilst direct representation was particularly suited for Advisory Committees it was not necessarily appropriate for Executive Committees and in particular it must be borne in mind that the Artificial Breeding Board would be a major business organisation. The Minister would be happy to receive any opinions which the Association cared to furnish in respect to appointments, and the guiding principle would be to see that a Board is selected that will carry out this work to the general benefit of the State.

Mr. Turvey moved: "that this Association continue its efforts to obtain direct representation on the Artificial Breeding Board"; which was seconded by Mr. Warwick and carried.

27/3/62

The Secretary reported that following the Council's resolution that the Association continue its efforts to obtain direct representation on the Artificial Breeding Board, the Executive had examined the provisions of the Act and the Minister's reply to our original representations and had resolved "that the Secretary reply to the Minister of Agriculture thanking him for his assurances concerning the composition of the Board and expressing our confidence that he will appoint as a representative of raisers of livestock a person who is fully acquainted with the requirements of the commercial dairy farmer".

Mr. Harper then formally moved a resolution from the Meadows District, seconded by Mr. Sheidow: "that it would be in the best interest of this Association if a member of the Association were elected to the Artificial Breeding Board".

Mr. Harper explained that from the Minister's letter it was apparent that the chief qualification required of the members of the Board was that they be businessmen. The successful operation of the Board demanded members who were personally acquainted with the needs, problems and techniques of the industry, and it was in the membership of this Association that such men were to be found.

The Secretary explained that the Minister had stressed in his letter the fact that the scope of the Board was not limited to dairy cattle, and he had pointed out to the Minister that this was one feature causing us concern, as the initial emphasis on the Board's activities would be on dairy cattle and we believed our interests would not be best served if persons were appointed who, even though they were bona fide stock raisers, were not dairy farmers.

Mr. Sheidow explained that the intention of the resolution derived from a fear that the members of the Advisory Committee who had brought the Artificial Breeding Act to this stage were now to be abandoned in favour of a completely unknown Board.

Mr. Ballard then moved and Mr. Gormlie seconded the amendment: "that in view of the Secretary's assurances, it be left to the Executive Committee to watch the Association's interests in this matter"; which was carried.

19/12/61—SWEET CREAM MARKETING

The Secretary circulated a report concerning the present state of the sweet cream market and stated that it had been proposed that the retail price of cream be reduced. It had also been proposed that a more satisfactory return could be obtained by the merchants establishing a single cream processing depot. The price recommendation was for a retail price of 48d. lb., made up of 27d. to the producer, 10d. to the merchant and 11d. to the retail vendor. On purely theoretical economic grounds this could result in cream consumption rising to an amount which absorbed all the excess butterfat now resulting from the standardisation of milk for city milk and cheese manufacture, including that derived from the difference between the 3.8 per cent standard and the nominal 4 per cent on which returns were calculated, the total being something over twice the present quantity sold as sweet cream. This amount, if achieved, would yield to the producer a gross return approximately equal to that now received for sweet cream and excess butterfat together, the merchants would receive more than their present total, and the retail vendor would also receive increased revenue. His recommendation was that the Association should accept the proposition, subject to the other sections of the industry accepting their figure unconditionally and with the proviso that there be a reappraisal of the position as soon as authoritative figures were obtainable. At the same time the butterfat content of cream should be brought down from the present 50-60 per cent to just above the legal minimum 40 per cent as N.S.W. had proved that it was possible to market a satisfactorily bodied cream at 35 per cent without artificial thickening and also that the public would not buy artificially thickened cream if pure cream was available at the same price. He also personally supported the use of glass bottles rather than cartons, in line with the recommendation of the "Unisearch" market survey.

Mr. Warwick asked whether this proposition meant that if after the price was reduced, consumption doubled, we would gain as much revenue as at present whereas if consumption did not double we would be worse off than at present.

The Secretary replied that the accelerating decline in sales showed that we would inevitably be worse off than at present any way, and he believed that vigorous action such as this proposal promised to be a better solution than a policy of "wait and see".

The Chairman pointed out that although some of the decline of our market was due to the selling of an unknown quantity of Victorian cream, there was a probability that, if we took no action, a major move would be made by Victorian interests which could obliterate our market entirely.

Mr. Harper asked whether our representatives on the Equalisation Committee were convinced that the price alteration was a better alternative than obtaining amended legislation to permit artificial thickening.

The Secretary replied that these alternatives had not been resolved by the Executive Committee, and as the matter was really one for each section of the industry to decide, it had not been discussed by the Equalisation Committee. He had recently met the manager of Dairy Farmers Ltd. of N.S.W. who told him that when N.S.W. sweet cream at 68d. lb. had been threatened by the lower priced Victorian "cream mixture" his own company had put a "cream mixture" on the market at the same price as the Victorian product and had sold considerable quantities. Since the price of sweet cream had been reduced to that of "cream mixture" their "cream mixture" sales had practicially vanished, thus indicating that when prices are comparable, the customer will buy sweet cream in preference to adulterated cream.

Mr. Warwick then moved: "that this Association reluctantly accept the recommendation submitted to this meeting provided that the price structure as submitted is adopted without alteration and that a re-appraisal of the position be taken immediately any reliable trend in sales can be gauged and that if anything unforseen happens before this price is ratified, the support of the Association be withdrawn without reference to the Central Council"; which was seconded by Mr. Easton and carried.

Mr. Turvey expressed the opinion that any alteration in the price structure should be simultaneously matched by a vigorous promotion campaign in order to maximise favourable consumer reaction. The type, timing and financing of publicity should receive proper study beforehand.

Mr. Loechel then moved: "that this Association support the principle of a single cream processing plant in the interests of economic operation"; which was seconded by Mr. Allingham and carried.

Mr. Spicer said that not only was this Association not in a position to pass judgment on a technological question such as this, but there was apparently no unanimity among the merchants as to the desirability of such a move.

The Chairman replied that whilst the Association was not in a position to pass expert opinion on technological problems, it had a duty to express its point of view on controversial subjects in order to expedite progress which, if left to the merchants themselves, would never be put into effect; he was thinking not only of this problem, but also of bottling versus cartoning cream and in particular homogenisation of milk.

27/3/62

The Secretary reported that, following the meeting on January 4, 1962, the Milk Board had stated that it would submit a proposal to the Minister of Agriculture concerning sweet cream prices. Advice had been received that a proposal had been placed before the Minister, but as no action had taken place, the Executive Committee believed that the Minister's delay in acting on the Board's recommendation might be due to his uncertainty as to whether the recommendation was supported by the producers, and resolved "that the Secretary interview the Minister advising him that this Association supports the proposed price structure".

The Secretary had interviewed the Minister, who had subsequently approved the Board's proposal, and a further meeting of representatives of the industry had been called by the Board.

The prices as proposed were in line with those reluctantly accepted by the Central Council, and would shortly be gazetted. Meadows District had drawn attention to this definite possibility of adulteration of loose cream by the addition of milk. There was a widely held belief that South Australian consumers demanded a heavy bodied cream, to satisfy which the merchants put in between 48 per cent and 60 per cent butterfat which was 10 per cent to 22 per cent higher than that in the other States. One of the Meadows' members who had experience in the trade had pointed out the definite possibility that cream was being diluted with milk in the shops, and the South Australian preference for thick cream may arise from the fact that they will not buy the "milked-down" cream available over the counter. It had been suggested that the County Board take more vigorous action in policing the sale of loose cream in shops. It was the Milk Board's aim to have all bottled or cartoned cream eventually, but in the meantime this problem would still be with us.

In reply to Mr. Spicer's query as to whether the Secretary would approach the County Board on this matter, the Chairman said that this action would be taken, together with an enquiry as to whether the County Board would take action in respect of cream below the Milk Board's standard of 40 per cent but above the Food & Drugs Act standard of 35 per cent.

19/12/61—USE OF THE WORD "BUTTER"

The Secretary reported that following a request from the Queensland Dairyman's Organisation the A.D.F.F. decided it would be advisable to adopt an Australia-wide policy on the use of the word "butter" as either the name of a product or to describe a product, and had accordingly recommended to constituent organisations that the following be adopted as Federation policy—"that it be a recommendation to the Australian Agricultural Council and to State Governments, that action be taken to prohibit the use of the word "butter" as a noun in connection with any foodstuff except that containing at least 80 per cent milk fat and designated "butter" under State Health Acts or Regulations, and that the word "butter" as an adjective or any composite word calculated to lead the buyer to suppose he is buying a product containing butter, be permitted only in connection with a product where all of the fat contained therein is "butter" as defined in State Health Acts and Regulations".

The Executive Committee had resolved that this action be supported at the recent A.D.F.F. meeting.

Mr. Easton moved: "that this Association support A.D.F.F. policy in this matter and take such action as may be considered appropriate"; which was seconded by Mr. Hannam and carried.

19/12/61—STATE LAND TAX

The Meadows District had submitted a resolution asking that the Association support other primary organisations in protest against the higher State Land Tax.

The Secretary reported that since that resolution was received the Act had been amended as a result of pressure from primary producers' organisations, including the S.A. Branch of the N.F.U. of which the Association was a constituent member.

The South Australian Branch of the N.F.U. had now constituted a Committee of Enquiry into State Land Tax Assessments and Council Ratings, and the Secretary of this Association had been appointed as a member of the Committee.

27/3/62—STATE LAND TAX

It was noted that the Secretary had reported to the Executive that he had been advised by the Commissioner for Land Tax that primary producers who were eligible for exemption were not claiming it. The Secretary had tabled a report on the effect of the amendments on primary producing properties up to a total unimproved value of £6,250, and the Executive had resolved that the Secretary's report be published.

19/12/61—SALES TAX ON ICE CREAM

It was noted that in reply to a question on this subject asked by Mr. Jenkins, M.P., the following reply had been received from the Federal Treasurer:

> "I acknowledge your representations of August 10, 1961, requesting that ice cream be removed from the field of goods subject to the general rate of sales tax. Several similar requests were considered by the Government prior to the introduction of the Budget but in view of its general budgetary position the Government decided that taxation concessions should be limited to those which were announced in the Budget speech. Your representations have been noted, however, in order that the matter may be considered again when any further amendments of the law are contemplated".

The Secretary suggested that it would now be appropriate to consider our policy on this matter, as the action now supported in relation to sweet cream sales could perhaps be negatived by any move which increased the sales of ice cream at the expense of sweet cream.

LOSS OF STAFF FROM THE DEPARTMENT OF AGRICULTURE

The Upper Torrens Valley had submitted a resolution deploring the fact that senior officers were leaving the Department of Agriculture. On October 12, the Hon. A. C. Hookings in the Budget debate spoke in the same vein, concluding "if something is not done shortly to prevent the loss of these men our agricultural advisory service will be reduced to a level which will not give the maximum advantage to the producers of this State".

The Secretary had asked Mr. Hookings whether he has received any indication of Government action since making that speech. Mr. Hookings had replied that nothing has come to his notice, but he does not intend to let the matter rest and he believed his hand would be strengthened by a declaration of support from this Association.

Mr. Loechel then formally moved: "that this Association deplores the loss of senior officers from the Department of Agriculture"; which was seconded by Mr. Hannam and carried.

27/3/62—HERD TESTING

The Secretary reported that a proposal concerning centralised testing of milk samples taken by the individual farmers had been submitted. The Executive had resolved "that the matter be deferred for further consideration".

Mr. Easton said that he believed a large number of producers would be interested in such a scheme.

Mr. Hannam explained that the scheme would not supplant organised herd testing, as the purpose of such a scheme would be purely to supply figures for the farmer's own use for the improvement of his herd. The scheme would enable a tester to test 300 samples per day, or 1,500 a week, which, at a salary of £30 per week, plus incidental expenses, would cost about 1/- per cow per month (present cost to farmer for grade herd testing is 16/- per annum) and if one factory would start such a scheme as a service, the other factories would follow suit. Otherwise if the tester had to drive around to pick up the samples it would increase the cost somewhat. It would save all the trouble that is involved in supplying board for the tester and the incidental troubles that seem to attach to grade herd testing.

Mr. Faggotter said that although the scheme appeared attractive, dairymen should not kid themselves, as they would not go to the trouble of taking the daily weights per cow.

The Chairman said that the subject would be further discussed by the Executive Committee.

It was noted that Mr. Hannam would be prepared to attend a meeting of the Executive in order to explain the proposal.

LIBERATION OF PHEASANTS

It was noted that the Executive Committee had considered the fact that the action of the Upland Game Association in liberating pheasants in the Adelaide Hills was deplored by certain authorities on wild life and had resolved "that this Association oppose the liberation of pheasants in Australia". It was further noted that no action was contemplated at the moment and the result of the S.A. Branch of the N.F.U.'s request to the Wild Life Section of C.S.I.R.O. is awaited before further decisions as to action are made.

Mr. Spicer moved and Mr. Faggotter seconded: "that the Executive's action be endorsed"; the motion was carried.

AGRICULTURAL AIRCRAFT

The Secretary reported that he had referred to the Executive a question from the Department of Agriculture as to whether any complaints had been received concerning the effect on dairy cattle of low flying aircraft engaged on agricultural work. The Executive had resolved "that no action be taken until specific complaints are received."

The inclusion of this decision in the agenda notes for this meeting had resulted in the matter being raised at the Meadows District meeting by the farmer concerned in the case which was originally taken up with the Department of Agriculture, and which led to the District's original query to us. The farmer had incurred quite substantial veterinary fees and inconvenience when his herd stampeded during milking time as a result of an aircraft engaged in crop dusting over an adjoining farm flying low over his dairy.

The Secretary then read the reply which the Minister of Agriculture had sent to the farmer concerned, which explained that the matter had been taken up with the Department of Civil Aviation, who had assured the Minister that all pilots were instructed to take adequate precautions, and gave some elementary facts concerning cow behaviour.

Mr. Spicer then formally moved and Mr. Harper seconded, the resolution from the Meadows District: "that the Council consider taking up with the appropriate authority any complaint received of nuisance caused to stock and property by aircraft engaged in agricultural work".

The motion was not put to the vote, it being noted that the Secretary would write to the Department of Civil Aviation pointing out the dangers inherent in low flying over dairy cattle and requesting that pilots be asked to exercise every care, particularly at times normally associated with milking schedules.

The Extension of the Milk Supply Area

Late last year the following item was broadcast on the ABC News Service:

> *"The Chairman of the Adelaide Metropolitan Milk Board, Mr. Gale, believes that the Board will have to go much further afield for its supplies. Mr. Gale expressed this belief recently on referring to an increase of nearly 1,600 gallons a day in milk sales licensed by the Board in 1960-61. He said that at present supplies came from areas up to 60 or 70 miles from the City. After the effects of licensing dairies in the Meningie/Narrung area had been gauged the Board would consider applications from dairymen in places as far distant as Bordertown in the South East of South Australia."*

On the following day the "Countryman's Session" on 5CL contained the following discussion between the Rural Supervisor of the ABC (Mr. Peter Dell) and the General Secretary of the Association.

Dell: Do you believe that we are threatened with the shortage of milk in the near future?

Higbed: No. Since the inception of the Milk Board in 1946 annual production has increased from 18 million to 34 million gallons, and this will be enhanced as from January, 1962, by the supply from Meningie/Narrung which could be initially as high as 1½ million p.a. giving a total of well over 35 million. During the same period consumption has increased from about 8 million gallons to last year's record level of approximately 18 million. This next year we will consume about 18½ million gallons out of a total production of 35 million.

Dell: That would hardly indicate any immediate necessity to increase the number of suppliers?

Higbed: No, although it must be pointed out that the limiting factor is not the annual production but the lean period production during Autumn. Up until some years ago we always approached the Autumn with some misgivings, but within the last four or five years a revolution has taken place in dairying husbandry practices in this respect. The practice is now to have the cows calving in the early Autumn and to feed them at a far heavier rate than previously, both with conserved fodders and grains and also on irrigated pastures. There has been about a 300 per cent expansion in irrigation during recent years, and the result has been a twofold increase, firstly in Autumn production, and secondly in total production. April production this year was in excess of two million gallons, which is almost exactly twice that of say ten years ago, and gave us an average daily surplus over sales of 19,000 gallons.

Dell: Then you feel that until that surplus is considerably reduced by the increase in sales, there is no need to extend the area from which city milk is drawn?

Higbed: True—it is probable that the minimum daily surplus during April was less than 19,000 gallons, but even so, an anuual increase of 1,600 gallons per day is going to take some time to absorb, and that is *assuming there is no further increase in Autumn production*, whereas in fact the tremendous upsurge in Autumn production is the outstanding feature of the metropolitan supply area in recent years.

Dell: Perhaps the suggested expansion of the licensed area is a form of insurance against a failure in Autumn supply?

Higbed: If so, it is very expensive insurance. One of the peculiar features of Australian dairying is the high ratio between lean and flush production. The seasonal cycle virtually demands that cows be brought in when feed is plentiful. The result is that in some dairying districts the ratio between flush and lean is as high as 9 to 1, and this is the pattern that exists anywhere outside a city milk area. It is only in a city milk area that a farmer must face up to the problem of producing an even output. Outside a city milk area the seasonal cycle prevails and the introduction of additional areas will make virtually no contribution during the Autumn months.

Dell: Nevertheless, the attraction of supplying milk to the city is the higher price received. Do you consider it fair that there should be a differential in payment between city suppliers and other dairyfarmers?

Higbed: The attraction is not actually the higher price for city milk but the higher price resulting from the Equalisation system whereby every licensed producer receives the same amount for his milk no matter how far he is from the city. In the absence of equalisation, the city supply would not be attractive to the outlying producer as the cost of refrigerated transport over the long distances involved would practically consume the premium he received for his milk.

In such a case it is hardly equitable for farmers in outlying areas to seek to come in to an equalisation system whilst there is still surplus milk available from the equalising producers as the inevitable result is that the premium price for city milk is diluted to vanishing point for everyone concerned.

Compulsory Disease Control

The Austrailan Dairy Farmers Federation recently received a letter from the Department of Trade stating that as new markets for dairy produce were developed, the industry would have to face the possibility of being required by some countries, to supply certification of all dairy produce as being produced from herds free of diseases including tuberculosis and contagious abortion (brucellosis).

TUBERCULOSIS

The position was examined by the Executive Committee and it was decided that the Secretary confer with the Chief Inspector of Stock regarding the possibility of extending to all dairy herds the compulsory testing for T.B. as now applies to licensed herds, and that particular attention be drawn to the presence of uncertified cattle in unlicensed herds within the Metropolitan Milk Supply Area. A resolution on similar lines was also received from the Meadows District.

The Secretary had interviewed the Chief Inspector of Stock and received the following report:

"Compulstory testing of licensed herds for T.B. has been operating since 1954 under the Milk Supply Act during which time all herds have been tested twice, and the third test is well under way. The success of this programme is indicated by the fact that there has only been one reactor in the last 20,000 cattle tested.

"T.B. testing is also compulsory in the South Eastern area, (Tintinara—Keith—Victorian Border—Mt. Gambier) under the Stock Diseases Act, and in this area 10 reactors have been found in the last 12,000 cattle. Other tests in the South East outside this area have also been made in recent years, with two reactors from 4,000 cattle.

"Results from recent tests on near-Northern farms are less than 0.1 per cent. The Government has adequate powers to enforce compulsory testing in any areas required and would do so immediately if there was urgent need. Government policy at present is a gradual extension of compulstory testing and the areas supplying Golden North will be included in the near future.

"In view of the extremely low incidence of reactors the Government does not consider there is any danger either from outside cattle or from unlicensed dairies within the licensed area. As far as certification of dairy produce is concerned, the U.S. standard for classification as 'T.B. free' is 'not more than 0.5 per cent reactors'. The licensed area record is 0.005 per cent and the South East is 0.07 per cent. The Department would have no hesitation in certifying any dairy produce produced in S.A. as 'T.B. free'."

At a subsequent Central Council meeting it was resolved that the Chief Inspector's assessment of the matter be accepted.

However the question had since been asked whether action could be taken to co-ordinate compulsory testing under the Act with testing for certification as required by breed societies. The Secretary had ascertained that a certificate obtained under the Act would be accepted within a reasonable time for certification for breed purposes, and vice versa.

BRUCELLOSIS

A request has been received from the Milk Producers' Association of Australia asking for our support in having the whey agglutination test accepted in place of blood tests for brucellosis. We have replied stating that in South Australia the whey agglutination test is accepted and that we would support any move for its Australia-wide adoption.

The South Eastern Dairymen's Association has also requested our support for the introduction of compulsory vaccination with Strain 19. This is a different matter from other cattle diseases such as T.B. and pleuro-pheumonia, and the S.E.D.A. has been asked to supply reasons for the request before we will consider supporting the request.

For a city milk supply, compulsory vaccination is a protection to the consumer, particularly whilst the sales of raw milk are still permitted, but State wide compulsion is a different matter. The individual farmer can protect his own herd by low cost vaccination and by ensuring that all incoming stock is vaccinated before coming into his herd. Compulsory vaccination would have to include all cattle including beef herds, and as in South Australia the disease is of quite negligible importance, further additions to our legislative burden should be made only after the most careful thought.

State Land Tax Exemptions

The State Land Tax Department re-assess all property values on an unimproved land value basis at five yearly intervals in order to bring assessments into line with the current market value for unimproved land. The 1961 re-assessment revealed a substantial rise in unimproved values due partly to the declining purchasing power of money induced by the present inflationary trend, and further increased by the continued demand for rural and subdivisional property as a source of tax-free capital gains, and the rise in values resulting from the use of scientific methods such as trace elements in what was hitherto almost valueless land.

The sharp increase in tax which would have resulted from the application of the existing rates to the new assessments was vigorously opposed by primary producer organisations, and in deference to this opposition the State Government introduced an amending Act for the purpose of reducing the severity of this increase in three ways, firstly by reducing the rate of the tax applicable to each range of values (except the first £5,000), secondly by granting full exemption for primary producing land up to a total unimproved valuation of £2,500 and a proportional exemption up to £6,250, and thirdly by allowing relief from rating at subdivisional values for primary producers in areas where urban development was taking place.

The amending Act became law in October, 1961, and those primary producers eligible for exemption were advised by the Commissioner of Land Tax to apply for exemption by November 15. However, in view of the short interval between the passing of the Act and the closing date for application, the Commissioner extended the time for application to the date shown as the time for payment on each account. Nevertheless it appears that relatively few eligible producers are claiming their exemptions.

The basis for exemption is as follows:—

1. Where the unimproved value (as shown on the original notice of assessment in 1961) of all land owned by the taxpayer is £2,500 or less, he will not be taxed at all on the land used for primary production.

   Example 1. Smith owns farm assessed at £2,400.
   Tax payable—nil.

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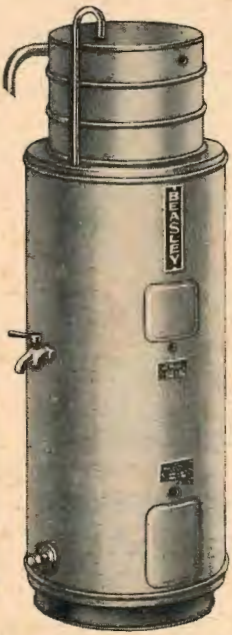

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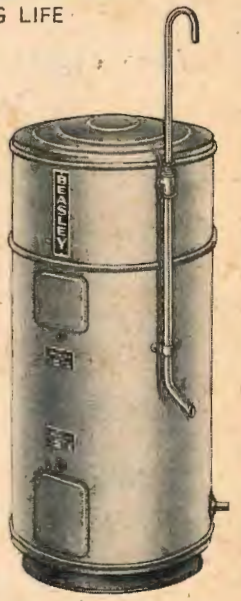

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Example 2. Jones owns farm assessed at £1,800, plus house in township assessed at £600, total £2,400.
Tax payable—on farm—nil; on house 37/6d.

2. Where the unimproved value of all land owned by the taxpayer is between £2,500 and £6,250, and it is **all** used for primary production the exemption from tax applies to the amount of £2,500 less two-thirds of the difference between £2,500 and the assessed value.
Example 1. Green owns farm assessed at £4,300.
Exemption will be £2,500 minus two-thirds of £1,800 (i.e., £4,300 minus £2,500) namely £2,500 minus £1,200, which is £1,300.
Therefore tax will be payable on £3,000 (i.e., £4,300 minus £1,300).
Actual amount of tax £9 7/6.
Example 2. Brown owns farm assessed at £6,100.
Exemption will be £2,500 minus two-thirds of £3,600 (i.e., £6,100 minus £2,500) namely £2,500 minus £2,400 which is £100.
Therefore tax will be payable on £6,000 (i.e., £6,100 minus £100).
Actual amount of tax £19 15/10.

3. Where the unimproved value of all land owned by the taxpayer is between £2,500 and £6,250, and **part** only is used for primary production the exemption from tax is that proportion of the exemption which would have applied if **all** the land were used for primary production as the value of the land used for primary production varies to the total land owned by the taxpayer.
Example. Black owns property assesesd at £6,100, being a farm assessed at £4,200 and city property assessed at £1,900.
Exemption will be 42/61 of the result of taking two-thirds of the difference between £6,100 and £2,500 from £2,500, i.e., 42/61 [£2,500 minus two-thirds (£6,100 minus £2,500)] equals £68.
Therefore tax will be payable on £6,032 (i.e., £6,100 minus £68).
Actual amount of tax £19 18/6.

Note: The above calculations are carried out exactly in accordance with the wording of the Act. A simpler method of obtaining the correct answer is:
Exemption is two-thirds (£6,250 minus assessed value).
In the case of Green. exemption equals two-thirds (£6,250 minus £4,300) equals **£1,300.**

Taxpayers claiming full or partial exemption under this provision must apply on forms available at post offices or from the State Land Tax Department. The exemption thus granted will remain in force until the next assessment, or until the property is sold, or until a change is made in the use to which the land is put, or until the taxpayer purchases additional land, hence increasing the total value of his holding.

It may be asked why the Department sends accounts to exempt persons, but the reason is that exemption applies **only** to primary producers, and the Department is not always aware of the use to which the land is being put.

The other provision, relating to properties adjacent to areas of urban development applies only to certain proclaimed areas in the hundreds of Adelaide, Yatala, Munno Para, Noarlunga and Willunga. The Department will advise taxpayers on request whether their holdings are included within the proclaimed area.

Technical Digest

DAIRY ECONOMICS

THE AUSTRALIAN DAIRY INDUSTRY IN A CHANGING WORLD.

(Prof. K. Campbell, University of Sydney—Office File)

What positive steps can the industry take to consolidate or expand its position with the ECM, falling overseas prices generally, the end of the Stabilisation Scheme, and the D.I.C.E. Report all imminent. Prof. Campbell offers some challenging thoughts.

AN ECONOMIST DISCUSSES THE AUSTRALIAN DAIRY INDUSTRY.

(F. Gruen, Australian J. Dairy Tech. July-September, 1961)

With overseas markets closing, additional production reduces everyone's return under Equalisation. Suggestion that each farm be given quota based on average production, for which home price is paid, remainder at export price. Whilst production remains constant returns will be same as equalisation, but all increased production will receive only export price.

MORE SPILT MILK (H. R. Edwards and N. T. Drane. Economic Record)

Some aspects of Gruen (above) criticised, and modifications to the quota scheme.

PASTURE MANAGEMENT

SPACING OF PHALARIS (Australian Journal Agricultural Res. Vol. II, pp. 686)

Oversowing of phalaris at 35 inch spacing of rows on clover dominant pasture resulted in greater yield of total herbage and also of phalaris than when sown at 7 inch spacing. Similar effect may apply to sowing on prepared seed beds.

PROTECTING YOUR PASTURE (Rural Res. in C.S.I.R.O. Dec., 1961)

Defence against insect and mite attacks on young pasture is provided by systemic insecticides ("Sayfos", "Roger", "Metasystox", etc.) applied to seed before sowing. Maximum loss is on newly germinated pasture, which is controlled by this method.

SUMMER OR AUTUMN TOP DRESSING (Rural Res. in C.S.I.R.O. March, 1962)

Experiments indicate superiority of summer topdressing for first year pasture; in developed pasture summer dressing favours clovers, autumn dressing favours grasses.

ROCK PHOSPHATE—A RE-APPRAISAL (Rural Res. in C.S.I.R.O., June, 1961)

Previously indicated superiority of superphosphate over rock phosphate may have been due to sulphur deficiency. Seven year trial just completed indicate that on **acid-soils** in **high rainfall** areas rock phosphate gives results comparable to superphosphate, and may even depress cape-weed growth in favour of clover.

LIVESTOCK MANAGEMENT

MUCOSAL DISEASE: INFECTIOUS BOVINE DIARRHOEA (S.A. Journal of Agriculture. July, 1961)

Two virus diseases of cattle increasingly diagnosed in S.A. involve diarrhoea but differ in other ways. Distinguishing features are described.

MILK HANDLING AND MILKING TECHNIQUES

TEMPERATURE OF WATER USED IN SANITISING MILKING MACHINES (W. Whittlestone. Aust. J. Dairy Tech. Oct.-Dec., 1961, p. 234 [4])

Temperature sensitive paper strips allowed temperature of water to be tested to all points in machine. High vacuum reduces boiling point to 179°F. Tests indicate other factors which are more important than water temperature.

PLASTICS ON THE MILKING MACHINE (1) (W. Whittlestone. Aust. J. Dairy Tech. Oct.-Dec., 1961, p. 237 [6])

Tests on various plastic tubings indicate satisfactory performance only for air lines. Cracking, crazing and loss of transparency when used for milk droppers.

WELDED STAINLESS STEEL TUBING FOR MILKING MACHINES (W. Whittlestone. Aust. J. Dairy Tech. Jan.-March, 1962, p. 41 [2])

Welded stainless tube in "as welded" condition at less than half cost of polished tube proved superior to polished in resisting collection of milkstone. In view of low cost of this tubing, plated brass should no longer be used in new machines.

THE SOUTH AUSTRALIAN DAIRYMEN'S . . . Journal

The Official Publication of the SOUTH AUSTRALIAN DAIRYMEN'S ASSOCIATION INCORPORATED

Published Bi-monthly

Volume 1, Number 2 Adelaide, JUNE, 1962

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DAIRY PRODUCE CONSUMPTION UP

The latest bulletin on food consumption per head in Australia shows an increase in dairy produce consumption generally, apparently at the expense of meat.

	(lbs. per head)					
	Butter	Margarine	Cheese	Milk	Total Dairy*	Meat
1958-59	25.0	3.5	5.2	290.5	48.4	244.9
1959-60	26.2	3.5	6.3	294.6	51.0	237.5
1960-61	25.1	3.5	6.4	295.6	51.4	224.1

* excluding butter; expressed as total milk solids.

THE SOUTH AUSTRALIAN DAIRYMEN'S JOURNAL

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11 Leigh Chambers, 20 Leigh Street, Adelaide. 51 3034

General President: I. R. ELLIOTT
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THE OLD REFRAIN . . .

The most frequently repeated piece of advice that the industry receives is that if prices were reduced the consumers would buy more. This is quite obviously true, and each year the Dairy Industry Council expresses its fears on the subject as it weighs the increased cost of production for the last 12 months against the reduced consumption that will follow a price rise. (It was with this in mind that the industry accepted the Milk Board's recent reduction in sweet cream prices, having before it the example in New South Wales, prices down—consumption up.)

This theory had an airing recently in the Federal Parliament's debate on the new dairy stabilisation legislation and was taken up again in a broadcast on June 18 by the late Professor Leicester Webb, whose untimely death by accident is a loss to the nation which we must all deplore despite his frequent role as a trenchant critic of the dairying industry.

Professor Webb quoted Mr. Kelly, M.H.R., who had claimed that the high price of dairy products in Australia limited demand, and went on to show that in New Zealand where the price of butter is about 2/- lb., consumption is 43.3 lbs. per head, compared with 25.1 lbs. per head in Australia where the price is about 5/- lb.

But the theory, however soundly based statisically, overlooks the final aim of a dairyfarmer's activity, which is not production but income.

A measure used by economists is the "price elasticity of demand"—the proportion by which sales will increase in response to a small decrease in price—and broadly it may be said that staple foodstuffs and necessities, as a class, are "inelastic", which is to say that the increase in sales will not be as great as the fall in price, so that revenue will decrease. (In the case of cream there is evidence that cream sales behave similarly to those of luxury items; that is, that the elasticity of demand is high, and a small price fall will bring a larger sales rise).

Quite clearly in New Zealand the revenue per head from butter sales is 86.6/-, in Australia 125.5/-. However much we may deplore the fact that Australian consumers cannot afford to buy more butter per head, there is no scrap of evidence that if the price was reduced the Australian consumer would **spend more** on butter, which is the important thing to us. And the same applies to cheese and liquid milk.

The only way in which the advantages of increased consumption through lower prices can be combined with maximising farm revenue is by means of a consumer subsidy such as the present £13½ million stabilisation scheme.

When enquiring about advertised goods and services, say you read it in the Dairymen's Journal.

Dairy Industry Stabilisation

THE NEW LEGISLATION

The recent history of financial assistance to the industry dates from World War II, when, in order to encourage expansion of the output of dairy produce, the Federal Government introduced a scheme whereby the farmer was guaranteed a price based on production costs for all milk used in manufacture.

In 1947 this system, which was achieved by way of subsidies and price control, was extended for five years. From July 1, 1952, a new five-year plan for stabilisation of the dairy industry came into operation by agreement with the industry itself and with the State Governments, all of which subsequently passed the legislation necessary to give effect to the plan. (The Federal Government has no power, outside of its war-time powers, to regulate an industry over the whole Commonwealth, hence it must rely on the passing of legislation by every State Government. The parliamentary Sub-committee of Constitutional Reform has recommended that full control over the marketing of primary production be given to the Federal Government through amendment to the Constitution.)

The main features of the scheme were:

(a) the price guarantee to producers would return the assessed cost of production on all butter and cheese sold for home consumption, plus a quantity of exports equal to 20 per cent of home consumption.

(b) the guaranteed price would be determined each year after enquiry into the costs of production by an independent authority.

(c) the Federal Government would determine the ex-factory price of butter and cheese.

This scheme was extended for a further five years from July 1, 1957, except that the subsidy no longer bridged the gap between costs and returns on "home consumption plus 20 per cent" but was determined by the Government annually, with a **maximum of** £13½m. Early in 1958-59 in view of the falling export prices the Government decided to further guarantee an average return of 40d. lb. commercial butter (approx. 48⅝d. lb. b.f.), although prices have never yet fallen to a level which required the Government to fulfil its pledge.

The present scheme will expire on June 30, 1962, and the Federal Government has now passed legislation renewing for the next five years the stabilisation scheme and the underwriting pledge, with the difference that the level of assistance is now **fixed** at £13½m. for each of the next five years, instead of being determined each year.

When introducing the legislation to the Federal Parliament the Minister for Primary Industries said that the Government had taken this action in the belief that the industry is in need of assurance, because of the serious adverse developments in the local and overseas markets, such as the down turn in home consumption per head, the threat of the E.C.M., and the building up of stocks of unsaleable butter and cheese.

In these circumstances the Government believes that it is essential that the industry be assisted, with the assurance that the level of bounty will not be reduced during the next five years. In so doing the Government **had not accepted** the recommendation of the Dairy Industry Committee of Enquiry, that the bounty be eliminated over a ten year

period, as the Government recognised that the market developments overseas were not evident and could not be foreseen at the time when the Committee made its recommendation.

Mr. Adermann went on to say that the Report of the Committee had been studied in the last 18 months by State Ministers for Agriculture and discussed in the Australian Agricultural Council, as the constitutional power to carry out reconstruction of the industry lay with the States, and any plan for rehabilitation would need to be co-ordinated nationally.

The Government will continue for the next five years the principle of underwriting equalisation values at levels which will enable the Commonwealth Equalisation Committee to set its interim prices higher than would be practicable on purely conservative estimates of returns for the year ahead. For the first year of the new plan (1962/63) the under-written value would continue at 40d. lb. c.b., the same rate as for the past four years. Thereafter the level will be reviewed before the commencement of each season.

A change in the new plan is that domestic prices for butter and cheese will be set by the industry itself, instead of by the Commonwealth Government by arrangement with the States (although for all practical purposes the Commonwealth Government's price has always been set at the figure determined by the industry).

The Government also included in the new Act the provision that subsidy be paid on butterfat products produced under new processes whereby the fat is not first made into butter, and which would, therefore, not have been eligible for subsidy previously.

Simultaneous legislation was also introduced for the payment in 1962/63 of a bounty on exports of processed milk products (at a rate equivalent on a butterfat basis to the final butter subsidy for the year) in order to assist the manufacturers of processed milk products (e.g., condensed milk, powdered milk, etc.) who have hitherto been operating at a disadvantage in competing with overseas processors, who are frequently heavily subsidised in their own countries. The amount of the bounty is £350,000 and is additional to the £13½m. butter and cheese subsidy.

The Dairy Produce Export Charge Bill has also been amended, to raise the **maximum** charges which may be imposed on exported butter and cheese to meet the administration expenses of the Australian Dairy Produce Board; initially from ¼d. per lb. butter and 1/16d. per lb. cheese to ½d. and ¼d. respectively for 1962/63 and to ½d. and ½d. respectively from July 1, 1963.

The original charges had been unchanged since 1924, the result being that in recent years the Board's expenses have had to be met partly out of reserve funds.

Statistics

PRODUCTION (000 gallons)

	Month		Total since July 1		Total since Jan. 1	
	1961	1962	1960/61	1961/62	1961	1962
April	2,065	2,323	29,109	33,620	9,417	10,920
May	2,456	2,370	31,565	35,990	11,873	13,290

	SALES (000 gallons) Month		Total since July 1		QUOTA %		C.M.B.	
	1961	1962	1960/61	1961/62	1961	1962	1961	1962
April	1,499	1,531	15,113	15,264	73	66	3/3½	3/1½
May	1,536	1,585	16,649	16,849	63	67	2/10	3/1½

INTERIM PRICES

(All prices are Interim only and subject to adjustment by retrospective payment.)

1962	Basic (per lb. butter fat)	C.M.B.	Total	3%	3.5%	4% (per gallon)	4.5%	5%
April	3/3	3/1¾	6/4¾	1/11¾	2/3¾	2/7¾	2/11¾	3/3¾
May	3/3	3/1½	6/4½	1/11¾	2/3½	2/7½	2/11¼	3/3¾
June	3/3	—	—	—	—	—	—	—

Final Payment, 1960/61

A final retrospective payment of 7.18d. per lb. butterfat has been declared for 1960-61, which will be paid to licensed producers at the rate of 3-3/16d. equalised on ALL production from June 1, 1960, to July 31, 1961, and will be included in the cheques received during July.

The final prices for 1960-61 and the previous four years are:

	Basic (pence per lb. butterfat)	Equalised	% City Milk
1956-57	53.04	73.44	50.3
1957-58	55.86	76.31	56.4
1958-59	63.52	78.63	55.0
1959-60	54.60	76.94	57.4
1960-61	55.71	77.50	53.2
1961-62	—	— (estimated)	48.4

CREAM SALES

The reduction in the retail price of sweet cream became effective on April 22, 1962, and an increase in consumption became immediately apparent. Nevertheless a seasonal upturn in consumption always occurs with the onset of the colder months and it was not possible to determine the extent of the trend on nine days' sales only. However, the trend has now continued through May and the increase in May consumption is equivalent to 24 per cent of the average daily sales earlier in the year, and, although only 5.3 per cent above that of the same period last year is a welcome contrast to the 14 per cent decline of May, 1961, below the years before. The long term trend in sales is shown in the following table.

SALES OF SWEET CREAM IN LBS. PER DAY, 12-MONTHLY MOVING AVERAGES

For the 12 Months Ending April 30 (Upper) and May 31 (Lower)

1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
2727	2741	3344	3669	3834	3876	3808	3620	3317	3133	2749
2735	2791	3399	3664	3825	3897	3799	3596	3304	3094	2761

For the 12 Months Ending

Feb. 28, 1962	Mar. 31, 1962	April 30, 1962	May 31, 1962
2809	2789	2749	2761

Average Daily Sales		Highest Recorded Since 1950	
April, 1962	2573	April, 1956	3705
May, 1962	3030	May, 1957	3894

When enquiring about advertised goods and services, say you read it in the Dairymen's Journal.

PENICILLIN IN MILK

Although investigations in the U.S.A. have indicated the existence of a health problem arising from the presence of minute quantities of residual penicillin in milk, there appears to be no evidence that a problem of similar magnitude exists in this State, and authorities in the Department of Agriculture and the Department of Public Health have recently given assurances concerning the quality of Adelaide milk, much of the credit for which must be given to the prohibition in this State of the use, other than under veterinary supervision, of penicillin for udder infusion in excess of 100,000 units, and to the fact that the surplus milk is made into cheese, as the inhibiting effect of penicillin in cheese starters has resulted in recent years in a vigorous educational campaign by factory managers towards greater care in the use of antibiotics and the necessity for discarding treated milk until all traces have disappeared.

These assurances should confirm our own faith in the quality of our milk, and maintain the confidence of the public.

Nevertheless allegations can never be satisfactorily countered by assurances alone, and licensed producers are advised that the Metropolitan Milk Board has indicated that it will not hesitate to suspend the licence of any producer whose milk shows evidence of penicillin.

It is unlikely that the Board will need to use this penalty as dairyfarmers are aware of the necessity to exercise constant care in ensuring that treated milk is discarded for 72 hours after treatment.

However, as, in most cases only one quarter is infected, one method of reducing the amount of milk to be discarded is to discard only the milk from the infected quarter, which can be done by means of a simple apparatus now available and advertised in this issue of our Journal and which has been fully approved by veterinary and Board authorities.

Not only does this allow the isolation of milk from one quarter, and hence may be used also when damage to a quarter is yielding blood-stained milk, but it also prevents the spread of infection which can result from hand-milking of infected quarters, and, as the cessation of milk flow is visible in the container a stopper can be inserted in the teat cup when milk flow from the infected quarter ceases, thus eliminating further tissue damage from the continued action of the machine whilst the remainder of the udder is being milked.

However it should be realised that when doses in excess of 100,000 units are given under veterinary supervision may result in traces of penicillin being found in quarters other than the one treated, and in this case all the milk should be discarded.

The Victorian Government has recently passed legislation, which has the support of the Victorian Dairyfarmers' Association, restricting dosage to 100,000 units maximum and making compulsory the addition of a brilliant blue die marker to all penicillin for udder infusion. The blue dye marker which has recently been developed at the School of Dairy Technology, Werribee, Victoria, after several years of research both in Australia and overseas, has no irritant effect on the udder tissue or on the potency of the penicillin, and is excreted with the milk at a rate closely approximating that of the penicillin, so that the absence of blue

colour, which occurs at about 0.05 IU/ml. penicillin content can be taken as indicating that virtually no penicillin remains.

The Australian Agricultural Council (comprising the Minister for Primary Industries and the Ministers and Directors of Agriculture from each State), at a meeting early this years considered whether the use of a blue dye marker should be made compulsory throughout the Commonwealth by means of uniform legislation in each State, but it is believed that the Council's decision was that each State should examine its own position and decide accordingly, and indications are that no such legislation is being considered in South Australia. The Agricultural Council will, however, further discuss the question of anibiotics generally at its July meeting.

Naturally the farmer wants to know what is behind such moves and particularly the reason for the recent alarming statements and widespread publicity given to the problem. Whilst the conscientious dairyman has always accepted with good grace the financial loss involved in discarding for 72 hours substantial quantities of what appear to be satisfactory milk, knowing that this is part of the price he pays for having, in antibiotics, the most satisfactory remedy for mastitis yet developed, he must be concerned at the damage this "panic publicity" may be doing to milk sales.

The problem is, of course, not of local origin. The International Dairy Federation in a circular issued in December, 1960, stressed both the danger for the dairy industry in the continued presence of traces of antibiotics in milk and the need to develop a rapid simple method of detecting them.

In particular, it recommended use of marker dyes in veterinary antibiotic preparations and suggested that National Committees of I.D.F. (in Australia the Department of Primary Industry fulfils this function) should seek appropriate legislative action by government authorities.

The problem of penicillin sensitivity has been increasing in recent years. A reaction rate of 2 per cent was revealed by a World Health Organisation survey in 1958, and it has been estimated that 10 per cent of the population of the U.S.A. may react to contact with antibiotics at some time in their lives. The reaction is not to substances such as milk but to large doses given by Doctors as treatment for infection. The sensitisation is believed to occur from the repeated ingestion of traces of penicillin and other antibiotics in food, especially dairy products. In most cases the person affected is unaware of his sensitised state until a large dose of antibiotics is given as a curative treatment, resulting in a severe reaction which may last for many months (several cases of the reverse process, whereby medical treatment with antibiotics has resulted in the patients becoming allergic to milk, presumably because the milk contains traces of antibiotic, have been cited recently, but no medical proof of these has been obtained. Nevertheless, in view of the frequency with which antibiotics are prescribed, such cases of reaction to milk could have a very damaging effect on the milk consumption).

As a result of the increasing incidence of such reactions surveys were carried out in the U.S.A. and a substantial proportion of city milk was found to contain penicillin in varying amounts. One particular survey was that undertaken in 1959 in Rochester, Minnesota, following a single case of skin eruption. This work was carried out by Dr. Rosanove, a dermatologist then attached to the Mayo Clinic, Rochester, but now practising in Melbourne. As a result of the survey a combined inspec

tion and educational programme was instituted and eventually a total of 1,169 tests taken over six months failed to show even minute traces of antibiotics. Authorities in Rochester believe that the educational programme has had a twofold effect; not only has it resulted in the elimination of pencillin from the city milk supply but the improvement in hard management which took place when it was realised that the cost of treating mastitis was not only the cost of the antibiotic but included the greater financial losses from discarded milk and the reduced productivity of the affected cows.

Legislation in the U.S.A. has now been very much tightened up by the Federal Food and Drugs Administration whose officers have power to stop milk tankers, test the milk, and if penicillin is found, to empty the tanker.

When enquiring about advertised goods and services, say you read it in the Dairymen's Journal.

THE CALIFORNIA MASTITIS TEST

This test for diagnosing mastitis was developed in U.S.A. in 1957. Initial enquiries by this Association to the Dept. of Agriculture brought the reply that the test would be of little use to dairy farmers who already had techniques for diagnosing mastitis which they did not fully use. However, in 1961, Dr. Rosanove, a dermatologist who had been working at the Mayo Clinic in U.S.A., returned to Australia and spoke very highly of the C.M.T., which he had encountered in his studies in penicillin allergy. The Association then imported several sets of the C.M.T. apparatus, one of which was supplied to Mr. Tim Warwick, of Inman Valley, who had first drawn attention to the method.

Mr. Warwick has now submitted the following report on his experience with the C.M.T., a report which we commend to our readers in view of the Milk Board's intention, reported elsewhere in this issue, to suspend the licenses of any producers whose milk shows traces of penicillin.

June 17, 1962

"This kit, obtained by the S.A.D.A., has been in use in my dairy for the past ten months, and I have found it of great value in the detection and treatment of mastitis. The test is very simple and quick to make, the reaction is obvious and easy to interpret. The test will not tell you what type of bacteria is causing the trouble in the quarter; what it does give is an indication of the number of body cells (leucocytes) in the milk and hence tells how much irritation of the mammary tissue is taking place. This enables infected quarters to be treated before the stage of clotting and discolored milk is reached. Milk which appears normal in the strip cup can show a strongly positive reaction to the CMT. This permits early treatment and can save many quarters which might otherwise go dry or require big doses of anti-biotics to cure.

"Apart from use as a routine test and as a check on any suspect quarters, the CMT also has great value as a final check on udders before cows are turned out on completion of a lactation. Any quarters showing a visible reaction can then be treated with anti-biotics during the dry period. Some dairymen treat all quarters with anti-biotics as a routine measure when cows are dried off. The use of the CMT kit will enable them to carry out treatment with greater precision and economy.

"Another valuable use for the CMT kit is in checking stale cows whose milk is suspect. Many methylene-blue troubles arise from the milking of stale cows and it is often difficult to determine which particular animals are at fault. Excessively alkaline or acid milk can readily be detected by the change in colour of the purple dye used in the test.

"Kits may be obtained at a cost of £2/15/0 by arrangement with the General Secretary, who can also supply additional test fluid.

"We know that mastitis is one of the biggest sources of loss to the dairying industry. However the University of California, which developed the CMT, has recently investigated the actual loss from varying degrees of infection. The figures show the average loss in milk and SNF from quarters tested with the CMT. The figures are for a 24 hour period and are based on a study of Friesian cows at various stages of their lactations. All cows involved were capable of producing 50 lbs. of milk a day in their peak month of production.

	Readings on CMT			
	Trace	1	2	3
Milk Lost (lbs.)	3.0	4.75	7.2	10.6
SNF Loss (% of total SNF)	2.99	9.22	11.07	22.22

"From these figures and from my own experience with the CMT kit. I am sure that a kit would be a valuable investment for any dairyman interested in increasing production and reducing costs."

TIM WARWICK,
Inman Valley.

CENTRAL COUNCIL PROCEEDINGS

(Meeting held on June 21, 1962)

ARTIFICIAL BREEDING BOARD

The Secretary reported that the Artificial Breeding Act had been proclaimed on June 7 and the personnel of the Board had been announced on June 14. The Board was comprised of Messrs. S. B. Denton (Chairman), M. Irving (Vice-Chairman), I. R. Elliott, T. Downer and S. L. Niederer. As Messrs. Denton, Elliott and Downer were all members of the Association, and bonafide dairyfarmers, we could have every confidence in the Board.

The Semen collection centre was completed, all records had been transferred and the centre was on the way to becoming fully operational.

Mr. Gormlie said that in congratulating the Chairman on his appointment, he did so knowing that this Board would be of even greater importance to the dairymen than the Milk Board, as, whilst the Milk Board was responsible for quality standards and price selling, the whole of our production hinged on the successful operating of A.B. The greatest production problem the industry faced was that of vibriosis, to which most dairyfarmers optimistically believed that A.B. would be the solution. The experience of many farmers so far had indicated that this was not so, and the expense incurred in re-insemination and the intervening treatments by the veterinary surgeon were involving these farmers in expeditures far higher than ever anticipated, as well as the culling at beef prices of what had previously been valuable dairy cows.

In N.S.W. the Government had now removed the quarantine regulations on beef cattle designed to keep vibriosis out of dairy herds, as recent experience had proved that vibriosis was now so widely dispersed through dairy herds that continued quarantine was pointless. It was obvious that any control of vibriosis demanded a well developed recording scheme and a close study of the results, and from his personal experience he was convinced that this was not so in the River Murray A.B. area.

The Chairman replied that he believed the Board would need to be guided by advisory committees in the Zones covered. Inevitably this Association would be predominantly represented on all committees, and it would be preferable to have a central advisory sub-committee co-ordinated with zone committees.

Mr. Faggotter expressed the view that the record keeping aspect of the pilot schemes was well organised.

Mr. Temby said that his own experience on heifers only was not satisfactory, and he had abandoned A.B. in favour of natural mating, a fact which would not be revealed in the Board's records and hence could lead to misleading statistics.

He did not think we should lose any time in establishing an advisory body, as the problems were now in existence, and corrective action taken would ensure a far wider acceptance of A.B.

Mr. Green stated that from his experience and knowledge unsuccessful results were not being recorded and the severity of the infertility problem was not being shown up.

Mr. Warwick said that he believed that the pilot schemes at present in existence were adequately recorded, and as his herd was being investigated for infertility he was well acquainted with the extent and the shortcomings of the A.B. records, and he could also state that the Department of Agriculture was fully aware of these shortcomings, and were taking corrective action. It was unreasonable to expect that, so soon in the history of the scheme, the records would be perfect, particularly as the failures were due mainly to the dairy farmers' own lack of action.

Mr. Allingham said his experience with heifers had been unsatisfactory, and he believed that some of the trouble with cows was caused by delays due to insufficient staff.

Mr. Gormlie closed by saying that there was unfortunately no connection between the Department and the dairyfarmers in the River area other than through the local veterinary surgeon, and this lack of connection, particularly in relation to the farmer abandoning A.B. either in respect of his herd or of individual cows where this information was not passed on and hence not recorded, must result in inaccurate records, and, most seriously, this lack of information related to the very thing that was causing the industry the most trouble, namely infertility.

Mr. Spicer said that Mr. Gormlie's argument was based on false premise, as virtually the main economic importance of A.B. sprang from its role in the control of infertility, the aspect of production increase being only secondary. It could hardly be argued that A.B. could worsen the problem of infertility, and there should be no objection to holding our hand whilst the Board established its lines of communication. We had our own channels of communication at present in the District organisation.

Mr. Warwick said he would favour a study group so that in the event of the establishing of committees of whatever sort, we would have a pool of well informed representatives from which to draw and be able to determine the most suitable form of advisory organisation and means of bringing our views to the notice of the Board.

Mr. Ballard opposed the appointment of any type of advisory or study organisation, as he believed the normal administrative structure of the Association could maintain a satisfactory watch on progress.

Mr. Sheidow expressed the opinion that, despite symptoms of weakness in the organisation, there was no fear of lack of support for the programme, as, in his area, admission to the scheme was eagerly sought after.

Mr. Peter Schubert said that the problems of infertility on the River farms were not due to the A.B. scheme, and in any case infertility could not be due to the way records were kept. He believed that the infertility problem arose from the system of management.

Mr. Warwick moved: *That a study group be established to investigate the problems of A.B. and to report to the Central Council its findings and recommendations; which* was seconded by Mr. Spicer and carried.

The Council then appointed Messrs. Warwick, Hannam, Loechel, Gormlie, Easton, Clarke, Allingham and Nettle to form the study group.

SWEET CREAM

The Secretary reported that following the reduction in the retail price of sweet cream on April 22 sales had shown an immediate upturn of about 12½ per cent although part of this may have been due to the normal seasonal increase with the onset of colder weather. May sales were 24 per cent above the average daily sales for the earlier portion of the year, and were satisfactory insofar as they represented the first major increase for many years, compared with a steady decline of up to 17½ per cent per year, but it was not as good as the immediate increase of 50 per cent experienced in Sydney within one month of a price drop of similar proportion. It could be that the N.S.W. Milk Board had followed a more vigorous publicity campaign than our own merchants had.

Mr. Turner said he believed that there was still considerable ignorance among the consumers about the price reduction.

In reply to Mr. Gormlie's question as to whether the vendors had been supplied by the merchants with leaflets for distribution to each householder, the Secretary stated that although that had been done his own enquiries appeared to indicate that a large number of householders had either not received, or overlooked the leaflets. In addition

a large newspaper advertisement had been sponsored by the merchants jointly, and placards were now in shop windows stating that local cream was sold, but in no case did he consider that sufficient emphasis had been placed on the amount of the reduction, which was well over 33 per cent.

Mr. Turvey said he was disappointed with the publicity which after all had been one of the conditions we demanded as the price for our acceptance of the reduction. He, too, could support the allegations of inadequate consumer impact, and believed that it was not too late now to do something vigorous.

Mr. Gormlie said that it should be obvious that news items alone were not sufficient as it was easy for the reader to overlook an item of that nature.

Mr. Warwick commented that thought should be given to adopting the same procedure as with other foodstuffs, namely, to print on the carton "save 1/6".

The Secretary said he had received a reply from the County Board to the request from the previous Council meeting, but the reply was not satisfactory as the Board would not prosecute for cream below 40 per cent fat.

LIBERATION OF PHEASANTS

The Secretary reported that at the recent meeting of the Executive Committee of the S.A. Branch of the N.F.U. a reply had been received from the Officer-in-Charge of the Wild Life Section of the C.S.I.R.O. in which the liberation of pheasants in this State was viewed very seriously. The N.F.U. had now requested the Minister of Agriculture to make an investigation and advise the N.F.U. of his intended action, and had also placed the subject of the liberation of exotic species on the agenda of the Annual Meeting of the Federal body of the N.F.U.

AGRICULTURAL AIRCRAFT

It was noted that a reply had been received from the Department of Civil Aviation stating that the complaint from this Association was not the first of its type, and giving the assurance that the matters raised would be fully investigated and a report furnished.

T.B. TESTING

It was noted that in reply to the query made at the previous Council meeting the Chief Inspector of Stock had advised that T.B. certification for breed society purposes or for Milk Board requirements would be reciprocally accepted if such certification had been obtained within a reasonable period.

PUBLICITY

Mr. Spicer said that some thought should be given towards projects which would sponsor interest in the industry and its products, such as a school essay competition or some other contest which would gain the interest of the metropolitan consumer, and the prize could be something out of the ordinary and tied up with the industry. He therefore asked each delegate to give some thought to this end.

Mr. Gormlie said that whilst he was sympathetic to Mr. Spicer's views, we should try to see what could be done through the Australian Dairy Produce Board rather than drawing on our own funds. We were contributing about £400,000 annually to A.D.P.B. promotion funds, and we should surely be able to make a request of this nature.

PROMOTION OF DAIRY PRODUCE

Mr. McIntosh moved a resolution from the Lakes District: That in view of the probability of increase unsaleable surplus dairy produce, and in view of the

generally low level, by Western world standards, of consumption per head of dairy food in Australia, an immediate investigation be made into the potentialities of promoting by advertising and other means the sales of liquid milk, cream, butter and cheese in South Australia.

He said that in addition to being a dairyfarmer he was also a director of a dairy factory, a retail shopkeeper, and had an interest in a country hotel. He was therefore able to take a cross-sectional view of our problem, and he believed that our emphasis on the merchant's role in promotion was misplaced, because he wanted only to make a profit which he was doing at present, and it was only competition that would spur him into action. There were instances of marketing enterprise now in other fields, brought about only by competion. Where competition was lacking we could not artificially supply it and we should therefore bypass the wholesaler and go direct to the storekeeper and the delicatessen proprietor at the point-of-sale, to find out what they wanted to sell our products. They are willing to sell our produce, because it is profitable business to them, provided it is presented in the right way and supplied to them in a manner in which they can sell it without much perishable loss. There were numerous examples of food products attractively and conveniently presented, mainly pre-packaged in convenient sizes, and displayed to good effect on the storekeeper's shelf with a reasonable markup, against which our own produce made a very poor showing. We had gone to the wholesaler and the consumer with very little result in so far as, for example, whether cream should be cartoned, and he therefore moved the resolution, with the addition of the words:

> *"and that the Association ascertain the views of the retail storekeepers and and similar groups as to what they want to make our produce more saleable"*

The motion was seconded by Mr. P. Schubert.

Mr. Warwick supported the motion, but stated that the problem was more than local and we should enlist the support of the A.D.F.F. in getting the Australian Dairy Produce Board Research and Promotion Committee (A.D.P.B.R.P.C.) to act on these lines. One of the problems of equalisation was that it took much of the initiative out of the industry and we had to endure a great lack of uniformity and poor quality which did not commend our produce to the consumer. It would be far better if the poorer quality produce was graded out and processed as a substitute for some other commodity (such as pastry butter versus margarine) rather than stealing sales from our top quality goods and eventually turning people against dairy produce generally. In particular he would like to see action to process second grade cheese as a grated cheese.

The Chairman said he too was concerned at the impact of second grade cheese and felt that an increase in cheese consumption would be a great help to the industry particularly the South Australian dairying industry as a major cheese State, but we could not get increased consumption whilst such lack of uniformity existed, and it would be a sound move, by demanding the grading of cheese for home consumption, to simultaneously withdraw the second grade cheese from the market and re-offer it in the processed state whereby it was no longer a threat to first grade cheese.

Mr. Harper said that the Dairy Industry Committee of Enquiry had spoken very scathingly of the industry's failure to provide the same range of dairy products that were available overseas, and had dismissed the argument of "the smallness of the Australian market" with examples taken from U.S. provincial cities.

The Secretary said that constructive promotion in the extension of varieties in dairy products was the only worthwhile way. He had been a vigorous supporter of advertising for many years, but his assessment of the N.S.W. and Victorian Milk Board campaigns, the U.K. Milk Board campaign, and the A.D.P.B. work so far was that they achieved virtually

nothing for the expenditure of a great deal of dairyfarmers' money. Unfortunately the dairyfarmers in the other States seemed to see nothing wrong in a system in which the supplier of the raw material provided the whole of the finance for advertising which should come from the manufacturing and selling sections as in other industries. We must also realise that the Australian stomach was limited in size, and, by world standards, was already overfull, so that a successful campaign to increase the home consumption of cheese would only displace meat from the Australian diet. Therefore the meat industry would spend more money than we had spent, in advertising meat and we would increase our spending to advertise cheese; and so it would go on, with the advertising industry growing rich whilst two opposing primary industries drove each other into bankruptcy.

Mr. Warwick then moved an amendment *"That the Milk Promotion Sub-Committee investigate the possibility of seeking from retail storekeepers and delicatessen proprietors their views on ways of increasing sales of dairy produce over the counter and, if such views are practical and acceptable, take steps to put these recommendations into action*; which was seconded by Mr. McIntosh and carried.

Mr. Turner moved: *That the Milk Promotion Sub-Committee investigate the processing of second grade cheese for the purpose of withdrawing it from competition with higher grade cheese on the home market and of finding an alternative outlet in processed form, and that this resolution be also submitted to the Australian Dairy Farmers Federation seeking the Federation's support for the proposal as a submission to the A.D.P.B.R.P.C.*; which was seconded by Mr. Spicer and carried.

PENICILLIN IN MILK

The Secretary reported that recent press comment on this subject had arisen from a report by Dr. Murnane in Victoria, and that the publicity given to this problem could only result in unfavourable public reaction. It was admitted that there was a problem in U.S.A., but there was no evidence of any such problem in this State. However the Milk Board would not hestitate to suspend the licence of any producer whose milk contained a level of 0.03 units per ml. or greater.

Free Citrus Juice for Schools

It was recently reported in "The Advertiser" (May 18) that the Australian Citrus Growers' Federation were to ask the Commonwealth Government to supply citrus fruit juices to school children either instead of, or as well as, milk, as juices can now be distributed in sealed waxed-paper cups.

Although the free school milk scheme is of considerable financial value to the industry, we must smypathise with our fellow primary producers in their efforts to obtain similar government support. Nevertheless, it must be admitted that the free school milk scheme was not introduced because of pressure from the dairying industry, but because of the recommendation from the Commonwealth Department of Health that the milk issue was a necessary supplement to the diet of the average Australian primary school pupil, and any move to introduce citrus juices should also be viewed in the same light.

The respective nutritional values are, in grams per pint—

	Water	Protein	Fat	Carbohydrates	(Calories)
Milk	512	19.3	22.2	25.7	(379)
Orange Juice	519	4.5	1.1	69.3	(273)

and the mineral and vitamin content per pint in milligrams (or International Units for Vitamin A Value) are—

SITUATIONS — WANTED & VACANT

A sharefarming or similar position is sought by an experienced dairy worker, preferably in the Victor Harbour area—apply to this office.

Our readers' attention is also drawn to an advertisement in this issue of an employment and allied service conducted by a man who has had a life-time experience in farm management and is a practising dairy farmer, stud breeder and a member of this Association.

	Calcium	Iron	Vitamin A Value	Thiamine	Riboflavin	Niacin	Vitamin C
Milk	700	.18	1085	.233	.99	.6	5.8
Orange Juice	114	1.1	1790	.449	.17	1.1	285

It can be seen that both milk and orange juice have an advantage over each other in some compositional factors. Milk is considerably higher in protein, fat, calcium, and riboflavin, whilst orange juice is higher in carbohydrates, iron, Vitamin A Value, thiamine (Vitamin B1), and Vitamin C.

As regards the **average** primary school pupil, it is impossible to state categorically in what respects his diet is deficient, but the table below lists the "Recommended Dietary Allowances" for a **child aged 9 to 12 years,** as calculated by the National Health and Medical Research Council of Australia, and the estimated nutrients consumed in Australia, per head per day, as derived by the Commonwealth Statistician.

	Calories	Protein	Calcium	Vitamin A Value	Thiamine	Riboflavin	Niacin	Vitamin C
Recommended	2300	70	1200	3000	1.2	1.7	12	30
Consumed	3325	92.7	854	7374	1.12	1.88	18.9	58

It can be seen, then, that the diet of the **average** Australian, adults and children included, meets these requirements for every major ingredient other than calcium and, to a lesser extent, thiamine. How closely the diet of the **average child** approaches the figure above is a matter for conjecture, but it can be safely said that, with the exception of calcium, the average child's diet is probably close to the recommendation. In the case of the underprivileged child it may be assumed that the deficiencies occur in those ingredients where the average is marginal, namely, calcium, thiamine and riboflavin. Clearly milk is the only supplement which will make up the deficiency in calcium (in which, unfortunately, the Australian diet is notoriously low) and so overcome the problems that come from such a deficiency, namely poor dentition, and postural and other skeletal defects, with probably some nervous malfunctioning which every dairy farmer has seen in its extreme form as milk fever or hypocalcaemia (meaning "lack of calcium"). In this respect the high carbohydrate content of orange juice could have a deleterious effect in that the excessive carbohydrate content is one of our national dietary problems.

Apart from composition, the question of price is important. The price of a ½ pint bottle of milk as supplied to the schools is 3.2d., whilst the same quantity of orange juice costs 8.25d. **wholesale** in the largest (5½ pint) container up to 9.9d. wholesale in the 16 oz. container, so that there would appear to be a serious obstacle in supplying orange juice in individual containers at anywhere near the price of milk.

DAIRY PASTURE MANAGEMENT

There is no doubt that purchased fodder either as hay or concentrates is playing an increasing part in our farming pattern, to the extent that many farmers have expressed interest in the most extreme form of this practice, "dry lot feeding", in which the "farm" provides only "living room" for the cows and the whole of their fodder needs is brought in. This is the pattern in many centres of high population density, particularly in the U.S.A. The economics of the system in this country have yet to be examined.

At the other extreme is complete self-sufficiency, a technique which a number of our dairyfarmers practice with good results.

It is to be hoped that one day an authoritative study will be made of the two extremes. In the meantime the following article which deals with the results of work at Badgery's Creek towards self-sufficiency is an abstract of an address delivered by H. J. Geddes, M.Sc. (famed for his work on "water harvesting") at the Symposium on Dairy Cattle organised by the Australian Society of Animal Production on Apirl 12.

* * *

We need to take more interest in the economics as distinct from the technicalities of dairy cow feeding.

Suppose that I were to offer you a supply of high quality dairy cow feed at a certain price per ton.

Could you tell me at once whether it would be profitable to you at that figure? If it were very cheap you would have no hesitation about accepting the offer; if it were very dear, you would be equally prompt to reject it. But there would be a wide zone of price over which we would be scratching our heads.

Now this is a sorry state of affairs. We should know more about the internal economics of our industry. Of course, we could claim that the economic circumstances of the individual farm are so variable that no single answer could possible cover more than a few farms, but, I wish to suggest that a passably accurate answer could be given that may be true for a large proportion of farms. I suggest that we cannot afford to spend more than 50 per cent of the revenue of a dairy farm on feed of all kinds and stay in business. I suggest also that this critical level is extraordinarily constant.

Next, I wish to demolish the notion that yield per cow is a satisfactory measure of farm efficiency. Actually, yield per cow is a very poor measure. The Joint Dairy Industry Advisory Committee showed that the average production per cow in Queensland was 143 lb.; in South Australia, 289 lb. This amounted to a difference of more than 100 per cent in production per cow. Yet the survey showed that the cost of production in Queensland was 27.43d. and in South Austalia 27.11d.—a difference in cost of less than 2 per cent. These figures were taken out several years ago, but the basic distinction is still true. It is production per unit of food that counts. On an all-pasture farm this means production per acre.

At Ruakura for example, they increased stocking per acre by 50 per cent. This cut production **per cow** by 20 per cent but increased production **per acre** by 26 per cent. More cows, giving less per head, gave a better return per acre.

Certainly we need good cows; but under certain circumstances it is better to run cows at a lower productive level than their maximum and pack more on per acre.

The Ruakura work opens up a new approach to this question on converting dairy cow feed most efficiently. The time may come when we can examine the yield of a herd and say how the output from a given feed supply can be increased—by reducing numbers so that the individual cows do better or by increasing the herd numbers even to the point of decreasing the yields of the individual cows.

The work done by Wallace on pasture utilisation at Ruakura has shown the importance of the cow's body weight in securing productivity per acre. We have long known that the heavy cow needs more feed for a given production than the lighter cow, but Wallace has given us a more precise measure in practical terms. He has shown that the feed necessary to support an extra 200 lb. of body weight could yield an extra 100 lb. of butterfat. In these terms the most efficient cow we have ever owned was a five-gallon dwarf!

Wallace's figures bring out an interesting point in connection with heifers. Some farmers are inclined to apologise for a herd consisting of heifers only, realising that a heifer normally gives on by 70 per cent of her ultimate yield. But, when allowance is made for the larger number of lighter weight animals that can be carried on a given food supply, a herd of heifers only will give at least 90 per cent as much milk as a herd of adult cows.

Five years ago we set out to develop at Badgery's Creek a system of providing year-round grazing for a town supply herd. Such conditions impose very stringent requirements. A town supply herd requires a steady, high level of feeding throughout the year. There is no let-up in the feed demand at any time.

The objective of year-round grazing without concentrates was finally achieved in 1961.

The high level of return obtained from some of the hitherto poor paddocks at Badgery's Creek is shown by the record of paddock No. 18 which in both 1960 and 1961 turned in £150 worth of milk to the acre.

We are now using the cost of the feed, expressed as a percentage of the gross revenue from each paddock, as a measure of efficiency. I have already suggested that one cannot afford to spend 50 per cent of the revenue on total feed costs. Paddock No. 18 produced feed in 1961 at a cost equal to 11 per cent of the value of the revenue from it.

Our experience suggests that, barring unpredictable disasters, we should be able to go on indefinitely without ever having to buy concentrates for our dairy herds. Naturally, these results are dependent upon irrigation.

Not that we have turned our backs completely on concentrate feeding. Our aim is to develop year-round grazing to the limit and then, having found how far we can push it, we may superimpose on it limited, strategic concentrate feeding.

Year-round grazing has had a marked beneficial effect upon the economic situation of our farms. At Badgery's Creek feed purchases have been reduced from £4,000 a year to zero. We have not, until recently, increased production markedly at Badgery's Creek. On the other hand, we have greatly improved the financial situation. The farm lost money when it was run in the orthodox way, depending heavily on feed purchases. Today it is more than self-supporting. And we do not enjoy either a bottomless pocket or a cheap source of labour.

That hitherto almost worthless country can now carry three cows to the acre in the summer months and one cow to the acre in winter on the irrigated portion.

The most efficient way of using feed is to have it eaten by the cow while it is growing. We started our work on year-round grazing because of a realisation that fodder conservation resulted in heavy losses of nourishment which automatically made conserved feed costly. Sears in New Zealand showed that, even in the most efficient processes of making silage, 50 per cent of the nourishment was lost.

My final point is to report on the long-standing argument over rotational grazing. In recent years it has been suggested that rotational grazing is of little value. Now that the significance of stocking rate is more clearly understood it is apparent that the original claims for rotational grazing, namely an increase of 25 per cent in efficiency of feed utilisation, was soundly based.

THE RELATIONSHIP OF INHERITANCE AND ENVIRONMENT TO HERD PRODUCTION

(By P. J. Brumby, Ruakura Animal Research Station, Hamilton)

The average production per cow in the Metropolitan Supply Area was 525 gallons for 1960-61, compared with the all-Australian average of 419 gallons. On the other hand, production per cow under grade herd test in the Metropolitan Supply Area was 641 gallons. With the widespread adoption of A1 now imminent, what effect can we expect on the general level of production per cow? This abstract of a report from the Ruakura Experimental Research Station contains some challenging ideas.

What has been the most important advance in dairy cattle breeding during the last 50 years? The answer would probably be A.1. The effect of A.1 in dairy cattle breeding can be summed up in three short statements:

1. It has short circuited the social hierarchy of the N.Z. Jersey cow.
2. It has been a major instrument in improving production per cow in N.Z.
3. It has provided the key data with which the murky tangle of production figures cluttering every farm, A.1. office and research station have been clarified.

The analyses of the movement of breeding stock in N.Z. show that at the top of the pyramid are a group of dominant breeders who maintain fairly closed herds, or buy bulls from another member of this group. This group sell bulls to the second tier of breeders, who simply multiply this stock and in turn sell bulls to the small pedigree breeder. It is this last group who sell into the grade herds of the country.

The consequences of this system are twofold. In the first place the genetic differences that exist between the different levels are continually being ironed out by the interchange of breeding stock. In the second place any long term changes in the genetic makeup of a breed are determined entirely by the operations of the dominant group of breeders. Culling in the lower herds produces no long term improvement because its effects are constantly being diluted by the blood of the next bull bought in.

The idea underlying A.1. in N.Z. was to find the best bulls in the country and use them as widely as possible and those responsible for A.1. thought the best bulls were to be found in the top producing herds of the country. Consequently the A.1. movement cut across the conventional social ladder of pedigree cattle.

As soon as the bulls from the elite herds had large numbers of daughters in production in commercial herds, two valuable pieces of information were obtained. It quickly became apparent that there were consistent differences in any one herd between daughter groups by different bulls, indicating clearly that genetic differences amongst different sires could be used to advantage in breeding better cattle. Figures were then obtained concerning the differences that might be expected between the daughter groups of different bulls. More important still, we discovered the extent to which the superiority of the breeding animal was reflected in his progeny or the heritability of different characters. On average we expect one bull of every six bred in N.Z. to leave daughters averaging more than 10 lb. better than their herd contemporaries, one in six would drop production by more than 10 lb., the remaining four would lie between these extremes and be neither particularly good or bad; about one bull of every 50 bred will lift production by more than 20 lbs. of fat.

The second point that emerged was that the bulls bought from the top herds did not appear to be leaving daughters much better in production than bulls from the other two tiers of pedigree breeders. This observation suggested that genetic differences between the three pedigree groups and the grade herds were rather

small, and the really important problem at stake was the design of the N.Z. sire survey system in such a way that it might identify the outstanding bulls in N.Z. An example might make this problem clear. If all the differences in production between a 200 and a 400 lb. herd are due to breeding we should take all our industry bulls from the 400 lb. herds. On the other hand, if all this difference was due to feeding and management, the chances of a good bull being bred in either group are roughly equal. In practice the situation hardly seemed to be a case of all genetic or all environmental. Rather it seemed likely that part of the differences were environmental, and part genetic, the big question was how much of each?

We at Ruakura decided to tackle the problem in two related experiments. In the first experiment we took two young calves from each of 20 high producing herds and likewise two calves from each of 20 low producing herds. These calves were from average cows in each herd. These young calves were then reared as one mob and eventually milked as one herd in Ruakura. Following their first lactation at Ruakura they were then returned to their owners and subsequent lactations recorded. In the second experiment we divided some 40 sets of identical twin calves between the same 20 high and 20 low producing farms. These twin calves were reared and milked along with the farmers' own young stock. Following the end of the first lactation half of them were returned to Ruakura and subsequently milked under uniform feeding and milking conditions.

Before considering the results of these experiments look at the performance records of mature cows on these 20 high and 20 low producing herds.

Table 1.—Lactation Records of Parent Herds

	Milk	Test	Fat	Days
High Producing Farms	7,382	5.40	399	277
Low Producing Farms	4,737	4.88	231	231

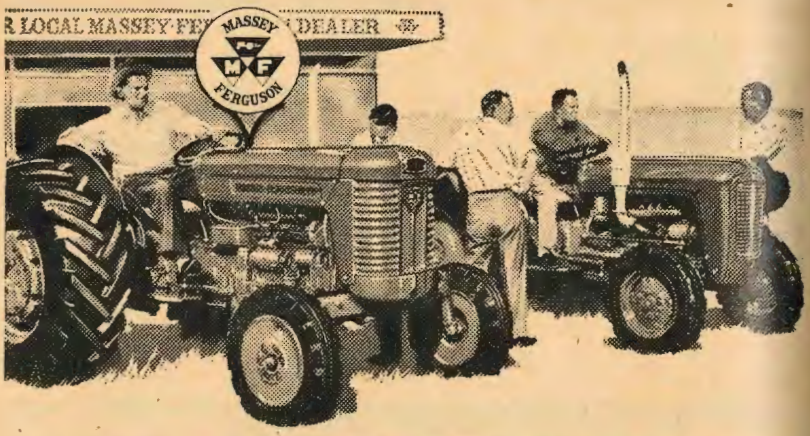
The production of two year olds and three year olds was of a similar order.

When we analysed the average calving dates we found that both the two year olds and mature cows in the high herds calved approximately one week earlier than those in the low herds. There were a greater number of aged cows, i.e., 10 years and over, in the high herds. These high herds also had a much greater stability of replacement rate and age composition.

The production figures for the first two crops of heifers are indicated in these next two figures.

	GROUP 1				GROUP 2			
	Milk	Test	Fat	Days	Milk	Test	Fat	Days
Ruakura								
From High Producing Herds	6,396	5.25	334	301	5,986	5.77	348	296
From Low Producing Herds	6,356	5.11	321	301	6,139	5.52	337	298
	40	0.14	13	0	—153	0.25	11	—2
Farmers' Two Year Olds								
From High Producing Herds	6,139	5.39	331	287	6,134	5.59	342	285
From Low Producing Herds	3,833	5.09	195	235	4,424	5.18	228	260
	2,306	0.30	136	52	1,710	0.41	114	25

It is clear that the only difference of any consequence in the two groups at Ruakura was the fat test. Approximately half the difference in test in the high and low farm productions was reproduced at Ruakura. This gave rise to a small difference in butterfat yield of some 10 per cent of the actual difference.



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Of these 70 heifers milked at Ruakura, 50 were returned to their owners at the end of their first lactation. A summary of these production figures is shown:—

	Milk	Test	Fat	Days
Two yr. old Production when at Ruakura				
High	6,442	5.29	340	300
Low	6,424	5.12	326	303
Three yr. old Production in Parent Herds				
High	6,686	5.38	361	273
Low	4,709	5.09	239	251
Contemporary Three yr. old in Parent Herds				
High	6,780	5.25	374	268
Low	5,068	5.07	256	249

I draw your attention to the large drop in production when the low herd heifers returned to the parent herd, plus the fact that in both groups their contemporary three year olds apparently outproduced them. It appears that their first three years of life at Ruakura had no permanent influence on their productive ability.

Let us now consider the twin data. At approximately 12 months of age the twins on the farms were measured and weighed. There was a very small difference in average size between the yearlings on the high and low farms, but a much greater range of size in the yearlings on the low farms, some being very good and some very poor. The fact that yearlings in some of the low farms were bigger than those on any of the high farms is fair evidence that on some of the low farms poor feeding is not likely to be a big factor causing low productions.

The production figures for the first two groups of these animals are listed in the next table:—

	GROUP 1				GROUP 2			
	Milk	Test	Fat	Days	Milk	Test	Fat	Days
Twins								
High	5,541	5.18	288	276	5,930	5.25	312	280
Low	3,574	5.03	181	217	4,153	5.07	210	251
	1,967	0.15	107	59	1,777	0.18	102	29
Farmer's Two Year Olds								
High	5,959	5.41	322	287	6,069	5.60	339	284
Low	4,013	5.09	205	236	4,243	5.11	217	253
	1,946	0.32	117	51	1,826	0.49	122	31

As in the first part of the experiment it is apparent that the only appreciable genetic difference was in the fat test, where approximately one half of the difference in test appeared to be genetic in origin. This difference again gave rise to a small genetic difference in butterfat yield, amounting to about 10 per cent of the total difference.

This last table shows the average productions of the twins returned to Ruakura and milked under uniform conditions as three year olds.

	1957/58 GROUP (10 pair)			1958/59 GROUP (8 pair)		
	Milk	Test	Fat	Milk	Test	Fat
Ex High	2,706	5.13	138.6	2,813	4.99	139
Ex Low	2,841	4.98	140.6	2,715	4.97	134

These twins have a somewhat greater variability than is usual for uniformly reared twins, but overall production of the two groups is comparable. On average then, the productive level of the herd in which an animal is reared and milked appears to have little permanent influence upon that animal's subsequent production figures.

Summarising the results of both experiments, the differences in milk yielded between the herds in these were almost solely determined by environmental causes, roughly one half of the differences in fat test were due to genetic differences and about 10 per cent of the differences in fat yield were genetic in origin.

The conclusions we can draw are as follows:—

1. The differences between herds in milk yield are mainly due to management not breeding.
2. Although genetic differences in milk and fat yield are small, there are sufficient differences between individual animals in their breeding value for appreciable improvement to be made by breeding.
3. Because of the small genetic differences between herds superior breeding animals for milk and fat yield are likely to be found in the upper producing bracket of any herd irrespective of that herd's level of production.

Technical Digest

GREATER GROWTH OF SUB-CLOVER (Rural Res. C.S.I.R.O.—No. 39, March 1962)

Up to 39 per cent increase of growth at three months of age results from pretreating seed before sowing with a systematic insecticide (see Technical Digest in April issue). Further research indicates that this effect did not result from suppression of pests and must be due to some unexplained action of the chemical on the seed itself.

VACUUM INOCULATION OF LEGUMES (Rural Res. C.S.I.R.O.—No. 37, March 1962)

The necessity to inoculate legume seed with Rhizobium bacteria before sowing in certain soils is widely accepted. Problems arise due to the need to inoculate shortly before sowing, and the susceptibility of the inoculum to contact with super and lime in the seed drill. Inoculation under vacuum forces the bacteria under the seed coat and allows survival for over 12 months, particularly if seeds are lime coated. Lime coated, vacuum inoculated seeds stored for 32 weeks produced 75 per cent nodulated plants, compared with less than 20 per cent for all other techniques.

THE PLACE FOR PROMOTION IN EXPANDING DEMAND FOR AG PRODUCTS (K. O. Campbell, Farm Policy, No. 3, December 1961)

The increasing amount of money spent on advertising by primary industries may be benefiting only the advertising profession. The profitability of advertising is difficult to measure, and advertising of opposing products tends to cancel out, so that each product keeps increasing its expenditure to beat the other, with no final gain to either section.

FEED WASTAGE ELIMINATED (N.S.W. Milk Board Journal, June 1962)

Use of permanent zincanneal feeding trough for forage-harvested feed has increased carrying capacity 20 per cent, controlled bloat, and eliminated long walks to grazing paddocks on N.S.W. farm.

COMPARISON OF TWO SYSTEMS OF CLEANING MILK MACHINES (Whittlestone, Australian J. Dairy Tech., April-June 1962)

Use of Ruakura formula alkali cleaner combined with premilking rinse with iodophor gives less milkstone build up than previous alkali-acid programme.

THE SOUTH AUSTRALIAN DAIRYMEN'S . . . Journal

Official Publication of the South Australian Dairymen's Association Incorporated

Published Bi-monthly

Vol. 2 No. 1

Adelaide, AUGUST, 1962

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General Secretary: DAVID J. HIGBED

Advertising Rates on application

Is the Stabilisation Plan Sufficient?

The Minister of Primary Industries (Mr. Adermann) in his speech on the Dairying Industry Bill stated that the Federal Government had rejected the recommendation of the Dairy Industry Committee of Enquiry concerning the gradual abolition of the subsidy, and had passed over to the State Governments the responsibility for considering what, if any, action should be taken concerning the remainder of the Committee's recommendations for the stabilisation of the industry. The State Governments considered the problem at the last meeting of the Australian Agricultural Council, but it is apparent that the more radical remedies suggested by the Committee are no more palatable to the States than they were to the Federal Government.

The Federal Government has salved its conscience by the new Stabilisation Plan, which provides a subsidy of £13½ million each year for the next five years, but which covers **just half of the £27 million difference between assessed cost of production and returns from sales** which existed in 1961/62. Furthermore there are no symptoms of determination on the part of the Government to come to grips with the problem of rising prices, or to deviate from its policy of increasing tariff protection, so that year by year the subsidy will cover an even smaller fraction of the total loss.

It is therefore obvious that the stabilisation plan alone is not enough, there must be conscious planning towards an acceptable target, yet in the two years since the Committee presented its report there has been little indication of any other major attempt at Government level to solve the industry's problems. In such a case it falls on the industry itself to look into the problem of reconstruction and submit its own recommendation to the State and Federal Government. The Australian Dairy Farmers' Federation took this step in 1958, with a request of the Faculty of Economics at the University of Sydney to conduct an economic survey of the industry to provide guidance to representatives of the farmers in negotiating new regulatory arrangements for the industry. This survey had not proceeded far when the investigators found themselves forced to accept the conclusion that the root of the problem lay in excess supply.

The remedy proposed by the "Sydney group", as the investigators are called, was in the form of a two-price quota, which was not favoured by the industry.

A similar, although not identical scheme (the "Gruen Scheme") was submitted to the Committee of Enquiry by a group of economists headed by Mr. F. H. Gruen of the Australian National University, but was rejected by the Committee as involving "repressive measures". There have, however, been no other worthwhile acceptable remedies submitted, and it is for this fact that the Queensland Dairymen's Organisation is re-examining its attitude towards a quota scheme.

PENICILLIN IN MILK — A FURTHER WARNING

We have probably all tended to connect the problem of penicillin in milk solely with treatment for mastitis. It must be realised that the use of any antibiotic, such as an injection for abscess, will also contaminate the milk and render the producer liable to suspension, and the veterinary profession recommends that in such cases the milk be discarded for 72 hours after treatment.

As any such scheme must be Australia-wide it is necessary for each constituent organisation of the Australian Dairy Farmers' Federation to examine the proposals and determine whether it supports or rejects such a scheme, and in order that our members may be adequately informed before deciding our own policy a summary of the three schemes is given below, together with a brief explanation.

WHY HAVE A QUOTA?

One of the problems of primary industries is that unlike manufacturing industries, where, as prices fall, output decreases as the less efficient ("marginal") units go out of production, and, as the remaining firms cannot produce as much as the previous total of all firms, a point is reached where output is just sufficient to meet demand at the prevailing price, in primary industries, as prices fall, each producer strives to increase his **individual** output so that his gross income (output × price received) will be maintained at the same level as it was before the price reduction. Consequently the increased **total output** which results from this action by the individual producers results in excess supply–prices fall still further, so each individual again increases output . . . and so on, with each producer running faster and faster to stay in the same place.

Apart from this action which arises from the individual producer's desire to avoid loss of income caused by falling prices there is the additional but unrelated problem of expanding production, not only by producers already in the industry but by producers in other fields turning to dairying as the markets (and hence the prices) for their own produce decline. Whereas a farmer planning to increase production can expeca to receive the equalised price for the whole of his increased output, to the industry as a whole the value of the increased output is only what it will bring on the export market, so that the producer who increases production is paid a "subsidy" by every other producer to the extent of the difference between the "export price" at which the excess supply is sold and the now slightly lower "equalised price" which he will receive.

With a quota scheme increased production (which, of course, applies both to increased production by existing producers as well as production by new comers into the industry) will return to the individual **only its value on the export market** and hence will be undertaken only by those whose production costs are sufficiently low to make this proposition attractive.

On the other hand the stability, both in respect of quantity and price of the home market, which consumes the great majority of output, will enable the producer who either cannot or does not wish to expand production to plan ahead secure in the knowledge that his gross income will be unaffected by market price fluctuations.

The exact details of quota allocating, the effect of increased home consumption, and to what extent new producers should be allowed in are beyond the space available, but it should be noted that if output remained stable the return would be exactly the same as the equalised price. A further feature of the scheme is that domestic quotas would be saleable, thus giving the farmer who wished to move out of dairying a saleable asset.

This scheme would, however, still not bridge the gap between costs and returns; the subsidy would still be required, but incorporating the subsidy into the scheme would present no difficulties. As the authors of the scheme state:

> "There is no doubt that the competitive position of the dairying industry in the export market is handicapped more than that of most other rural industries by the effects of tariff protection on the general level of . . . costs and this is an argument for . . . Government support of the industry so long as it must depend on the export market."

THE GRUEN SCHEME

This scheme is similar, differing only in the administrative arrangements, and its essential features are:

(1) All farmers selling milk or cream to a factory (co-operative or proprietary) on a butterfat basis to be given a quota equal (approximately) to 60 per cent of their annual production during a base period of, say, the last three years. Milk zone suppliers or holders of liquid milk contracts would be entitled to quota certificates only for 60 per cent of that proportion of their output they sold at butterfat prices in the base period.

(2) The quota certificates to be deposited by the farmer with the factory which he supplies.

(3) Quotas to be freely saleable from one farmer to any other.

(4) The registration of quotas in an individual supplier's name entitles him to payment for his milk and cream (up to the quota limit within any one financial year) at a definite price fixed annually—which is originally equal to the net realisations from this product on the home market (Divergencies may arise over time if total home consumption shows a definite upward or downward trend. At present no such trend is discernible).

(5) All other milk or cream supplied to factories (on a butterfat basis) to be paid for at the export prices realised after sale.

THE Q.D.O. SCHEME

This is still in the formative process, but at the Annual State Conference held in Brisbane it was recommended:

- That this Conference expresses dissatisfaction with the present Commonwealth Dairy Stabilisation Plan and requests State Council to endeavour to bring forward a Plan which would ensure a return to producers more in line with the cost of production.

- That, with a view to lowering cost of production to farmers and prices to consumers, complete subsidisation of all primary products along similar lines to that in Great Britain and New Zealand be investigated; alternatively, that the Commonwealth Government be requested to dispose of all surplus butter and other dairy products on export markets and provide returns to suppliers on a level with the cost of production in Australia.

- That it be a recommendation to State Council that the following be investigated:—
  That, in view of the possible loss of markets should the U.K. Government enter the European Common Market, all butter producers in Australia be assigned a quota for butter production; a portion of such quota to be known as effective quota shall be paid for at the Australian price level and this effective quota shall be in the same ratio to actual quota as the home consumption is to total of all quotas; the balance of production, which shall be unrestricted and without regard to quota, shall be paid for at the realisable value.
  Further, that a judicial board be set up to decide the basis on which to allot quotas and in particular to consider the following proposals:—

  (1) Each farmer shall be alloted a quota which shall be equal to his maximum production during any one of the last five (5) years.

  (2) Consideration shall be given to an increase in his quota if, during the last of such years, he has effected capital improvements which would have increased his production. This must not apply to a subsequent year.

  (3) A minimum quota to be declared, which shall be the lowest amount that would provide a farmer with a decent standard of living; and this quota be allotted to any farmer who has not had time enough in the industry to reasonably develop his farm.

  (4) Any other factor of natural justice to be taken into consideration.

  (5) All dairy farms to be licensed and that further licences be issued only by the Board; also that farmers' sons be given priority in the issue of such licences, and that these be so issued as required.

  (6) That any increased quotas granted under (1), (2), and (3) shall be known as increased quota, and that the home consumption price paid shall be drawn only from the subsidy and shall not in total exceed the subsidy; should there by any amount of subsidy over and above the amount required for this purpose such amounts be used to increase the price paid on the effective quota to bring that price up to the Australian cost of production.

THE SOCIAL AND POLITICAL OBJECTIONS TO A QUOTA SCHEME

The authors of the various schemes claim that they will bring some measure of stability to the industry, but this will be mainly by stabilising (or reducing) export sales. This may have a serious effect on our export income, of which dairy produce accounts for some £A million. It may be argued that if the dairy industry is required to contribute additional export income it should not be asked to do so at less than the cost of production, and the task of finding a way to gain export income without loss to the industry is surely a matter for the Federal Government.

An even more important question is whether the industry is justified in advocating or adopting any scheme which will tend to restrict the output of foodstuffs in a world where the majority of the population live at starvation level. The fact that such a scheme is even contemplated in these circumstances does highlight the fact that in a free enterprise economy we have gone far further towards solving the problems of production than of distribution. We already have many thousands of tons of butter and a lesser quantity of cheese left over from last year's production and which is, at the moment, apparently unsaleable.

Furthermore the need of the starving peoples of the world is for protein, not fats, and our surplus (and most of our price problems) stem mainly from butter, not cheese. This again is a problem for a higher authority. The individual dairyfarmer is no less humanitarian than any other member of the community, but if the peoples of the world are to be fed from Australia's store, it seems unreasonable that the dairying industry should make this contribution at financial loss to its members whilst the country's secondary industries follow a programme of unabashed profit seeking.

But probably the greatest objection will be that concerning freedom of entry. What right has the "vested interest" of the present dairy farming community to restrict other persons from coming in to the industry on terms telss favourable than they themselves enjoy?

One answer can be that this practice already obtains, in primary industry, in secondary and tertiary industries and in professions. And, in fact, in many cases the restriction is not relative, but absolute.

But these comments do not purport to answer the problems. That task is for the industry. Members are urged to study those proposals and to give them due consideration and discussion, so that the Association may decide its policy and its attitude toward the question of quotas when the subject is discussed at the Federal industry level.

ABOUT YOUR POSTAL ADDRESS

The Postal Department has advised us that many of the members' addresses are not correct postal addresses.

For speedy delivery with the minimum of trouble to the postal authorities it is necessary for your address to include the name of the actual post office from which you collect your mail, either in person or in a private mail bag.

Please check the address shown on the wrapper and advise us of any alteration to be made.

NEW BASIC PRICE

The interim basic price for 1962/63 has again been set at 3/3d. per lb. butterfat at the farm gate, being the same price as for 1961/62.

The retention of this level of initial payment, in view of the uncertain state of the market, is due to the Federal Government's undertaking, in the new Dairy Industry Stabilisation legislation, to underwrite the initial payment at a figure higher than the Commonwealth Equalisation Committee would otherwise afford to pay, the figure for the coming year being 3/4d. lb. commercial butter at factory door, equivalent to 3/3d. lb. butterfat at farm gate.

FIRST RETROSPECTIVE 1961/62

The first retrospective payment for 1961-62 to be paid early in October will be approximately 1.7d. lb. butterfat (equalised).

WHAT IS EACH MARKET WORTH TO US?

Since the negotiations concerning the European Common Market have intensified, dairy farmers are frequently asking what proportion of our return is derived from the United Kingdom market.

Based on the latest year for which final figures are available, namely 1960-61, the equalised return to licensed suppliers for each pound of butterfat or each gallon of milk sold was made up as follows:—

	Pence per lb. fat	Pence per gallon
Milk		
Metropolitan Sales	46.41	20.55
Country Sales	1.94	.88
Cream		
Metropolitan Sales	2.49	1.12
Cheese		
Australian Market	14.85	6.72
U.K. Market	4.32	1.95
Other Exports	1.99	.90
Excess Butter Fat [1]	2.22	1.00
Bounty	3.28	1.48
Total	77.5	34.6

It can be argued, then, that the U.K. market represents less than 6 per cent of the return to licensed suppliers in the Adelaide area. This does not mean, however, that, if the entry of Britain into the E.C.M. was unconditional, and resulted in the complete closing of the U.K. market to Australian dairy produce, we, in this area, would feel the effects only in 6 per cent of our return.

Whilst initially, this would be so, the effect on those sections of the industry relying solely on milk for manufacturing would increase the pressure for full equalisation of city milk, as recommended by the Dairy Industry Committee of Enquiry (clause 27 [b] of the "Recommendations") and strongly advocated by a number of agricultural economists. Such being the case, should we support any move to restrict the expansion of dairy by measures such as those proposed by the Queensland Dairymen's Organisation and reported elsewhere in this Journal.

To gauge the effect of such a proposal and to identify the economic value of each market, the net return to the licensed producer from each outlet for his milk (based on 1960-61 figures) is shown below:

Market	Net Return to Licensed Producer (pence) per lb. butterfat	per gallon
Metropolitan Milk [2]	99.5	41.2
Country Milk [3]	99.0	40.9
Sweet Cream [4]	68.0	30.2
Australian Cheese Market	57.5	23.8
Excess Butterfat [5]	48.3	21.5
Other Export Cheese Markets	41.7	17.2
U.K. Cheese Market	37.8	15.6
Bounty	7.8	3.2

1. "Excess Butter Fat" is the surplus butterfat resulting from standardising bulk milk as received at 4.3 + % down to nominal 4%.
2. For 1962/63 the returns for metropolitan milk are 101.0d. and 42.7d. respectively.
3. For 1962/63 the returns for country milk are 100.5d. and 42.4d. respectively.
4. For 1962/63 the returns for sweet cream are 54.0d. and 22.3d. respectively.
5. Equalised price. As excess butterfat is made into butter which is then distributed between Australian and Export markets a more exact allocation could be made to show the return for local and export sales.

In the introduction to the abstracted article "The Relationship of Inheritance and Environment to Herd Production" in the June issue, which summarised work done at Ruakura we stated that the article contained "some challenging ideas"; one dairy farmer described the article as proving that the industry's problem was "not breeding better cows but breeding better farmers".

The challenge has not gone unanswered, as the following article demonstrates.

THE RUAKURA EXPERIMENT—A REBUTTAL

The Ruakura report in the June issue of the Journal made interesting reading. At first, the results of the experiments must appear somewhat disturbing to the dairyfarmer who is trying to improve his production by selective breeding. Mr. Brumby deduces that in high and low producing herds only "about 10 per cent of the differences in fat yield were genetic in origin", and hence that 90 per cent of the differences in fat yield must be due to environment, i.e., feeding and management.

However, if one stops to consider whether this 10 per cent genetic figure seems compatible with production figures obtained in the real world of commercial dairying, I think we must immediately doubt the validity of the Ruakura deductions. For example, in a single herd where environment is constant, in how many cases would you find the differences in fat yield between all sound herd members of the same age to be only 10 per cent, which is the expected figure according to the report? The report infers that any cow, given good feeding and management is capable of producing to within 10 per cent of any other cow given the same environmental conditions. Any dairy farmer knows that this is far from the truth. Most will know that class of cow which no matter how well it is fed, merely puts on condition without greatly helping yield, while another class of cow if fed well will increase its production and in fact still "milk off" condition. This dairy quality, or lactation drive may be defined as the "inherent character or combination of characters which enable the dairy cow to utilise nutrients for milk production, even if necessary withdrawing them from her own tissues to provide the nutrients she puts into her milk". Now lactation drive in itself is not enough, for it is desirable that it be combined with an udder which will last, and legs and body which will support and "feed" the udder for as many years as possible. That is to say, "type" is also important.

By only testing two year olds, the Ruakura experiments hardly take "type" into account at all, and virtually only compare inherent lactation drive. Not many cows are so poor in "type" that they will throw in the sponge during the first lactation. However, from about the third lactation onwards, deficiences in "type", particularly those of the udder, start to affect adversely milk production. It should be stressed that by "type" I do not include such eye-appealing "show" points as body colour, set of horns, and whether the tail is crooked or not, which do not affect milk production. I mean good udder attachment, texture and teat placement, good body capacity, strong legs and pasterns and good pin bones. If any of these charactaristics are poor then no matter how good the first few lactations, in later years the cow will tend to break down. The more faults, the quicker this will happen. In other words, "type"

above all affects the longevity of the cow and hence her lifetime production.

It is obvious that the more lactations a good dairy cow lives to have, the greater is her profitability, as the original cost of rearing her from a calf (or buying her as a springing heifer) has to be offset against her subsequent production returns. Furthermore if the cows in a given herd average only three lactations, then over 30 per cent of the heifer calves born each year in that herd must be kept as replacements. However, if the "type" of the herd is such that the cows average six lactations, then only 15 per cent of heifer calves need to be retained and the remaining 85 per cent can be sold each year as dairy heifers, providing an important additional source of income. Few will deny that the great lifetime production cow is the top money spinner on a dairy farm.

Thus, I submit that by merely comparing two year old figures instead of lifetime production, the Ruakura experiments have failed to show the correct relationship between inheritance and environment on the production of a dairy cow. I feel that a similar experiment, using not only low and high producing herds, but also combining good and bad type herds, and which compares lifetime production (say for six years) would give a vastly different figure for the genetic influence involved. This is, of course, a long term experiment, but without it, such a conclusion as that in the Ruakura report, namely that "differences that occur between herds in milk yield are mainly due to management, not breeding", cannot be validly made. Certainly there are herds of good milking potential which, through bad management do not show their capabilities, but it is impossible for a herd of poor genetic origin to give high lifetime production no matter how good the management and how much feed is stuffed into it.

MARGARET H. ROBERTSON,
Vale Royal Jersey Stud
O'Halloran Hill.

DAIRY FARM REFRIGERATION

A problem confronting any dairy farmer who contemplates the installation of dairy refrigeration is "What type of refrigerator do I need?" and this question is being asked increasingly as the summer approaches.

Assistance in answering this question is given in this extract from a paper delivered at the Annual Conference of the Australian Institute of Dairy Factory Managers and Secretaries by Mr. W. J. Taylor, Chief Supervisor of the Metropolitan Milk Board.

"The New Zealand Milk Board has published a most useful booklet on farm refrigeration, which provides excellent guidance for the manufacturers of refrigerators, producers, factory managers and others interested in this field of work. Chilling and storing is defined as follows:

1. "Chilling by mechanical refrigeration means the chilling of milk immediately after milking to a temperature not exceeding 40 degrees F. as the milk flows off the chiller.

2. Chilling and storing by mechanical refrigeration means the chilling of milk immediately after milking to a temperature not exceeding 40 degrees F. as the milk flows off the chiller and then holding such milk at a cool room temperature not exceeding 40 degrees F. or in an ambient temperature not exceeding 40 degrees F. until the last possible stage before collection."

Although all types of refrigeration will give some protection to milk quality, there is a wide variation in the effectiveness of the various methods already in operation in our city milk producing area.

The immediate chilling of milk to 40 degrees F., and storage at this temperature, undoubtedly provides the maximum protection while the most inefficient method is the refrigerated cold room for the chilling of milk which has been cooled by farm water only before being placed in the room. In the latter case, the rate of cooling is very slow, taking approximately 16 hours to reduce the milk from 70 degrees to 50 degrees and, as a consequence, considerable bacterial growth occurs during the early hours of storage.

The chilling of milk by refrigeration and storing at atmospheric temperatures is more effective than the cold room method but this cannot be considered as the ideal method. Overnight temperatures are frequently high and, as a result, the temperature of the milk in an atmosphere of 80 degrees will rise from 40 degrees to 68 degrees in just under 12 hours.

Refrigeration units are of two types, namely, the direct expansion and the ice-bank system. The choice of the system will depend on individual circumstances. It is significant, however, that most of the older units were the direct expansion type but the majority of the new refrigeration units operate on the ice-bank principle.

The direct expansion system consists of an aerator or tubular cooler with water passing through the top section and refrigerant through the bottom section. The outlet of the bottom section is connected to a motor-driven condensing unit in which the refrigerant vapour is compressed,

cooled and returned continuously as a liquid to the inlet connection of the bottom section of the cooler where the liquid refrigerant vapourises and chills the milk. The size of the refrigeration unit for direct expansion depends on the rate of milk flow per hour and, therefore, the direct expansion system requires a larger condenser than the ice-bank type as the milk is cooled directly while milking is in progress.

With the ice-bank system, ice water is circulated through the bottom section of the cooler instead of refrigerant gas. While passing through the bottom section, the ice water increases in temperature slightly by removing heat from the milk so that it must be re-chilled by allowing it to flow over the ice in the tank. The ice is replenished between milkings by allowing ice to accumulate in the tank on a copper coil which is connected to a small motor-driven refrigeration condensing unit. The ice-bank system has been developed because the refrigeration can be operated for long periods each day and consequently the compressor is

only one-quarter to one-fifth the size of the equivalent direct expansion system.

The most popular type of unit on the market at present is the package unit in which is incorporated the condenser, the water tank, controls with the lower section of the cabinet being used for refrigerated storage. It is of similar design to the unit manufactured by the Queensland Butter Board, except that the ice-bank is used instead of brine. The ice tank keeps it at refrigeration temperature level. The cabinet doors open outward at floor level, thus eliminating the need for a hoist as with the Water Immersion type.

The units are designed with sufficient capacity for storage space for the night's milk and, as the morning's milk is usually dispatched soon after milking is completed, this is quite a satisfactory arrangement. It is essential, however, that chilling of the milk, prior to placing in the cooler, be effective as the cooling rate in the cabinet is relatively slow.

As the major cost of ice-bank type refrigerators is involved in providing the cabinet, condenser, ice-bank and controls, it seems short sighted practice not to provide sufficient cold storage for the evening milk at little extra cost.

The water immersion type works on the ice-bank principle, the main difference being that during storage the cans are partly immersed in the chilled water. They have given quite good results and provide most effective control of temperature during storage but they have not proved popular because of difficulty of loading and unloading filled cans into and from the cabinet.

Minor problems with this type of refrigeration have been corosion and discolouration of cans as a result of the immersion in certain types of water and the minor inconveniences through necessity to periodically renew the water to avoid stagnation and consequent bad odours, while accumulation of foreign matter in the water has reduced the efficiency by restricting circulation during the shock cooling period. These units are usually cheaper than the ice-bank package type or the direct expansion.

A refrigerated unit, using a jet or spray system in place of the water immersion method, has given satisfactory results under trial with particularly good control of temperature during the storage period.

Aerators or Coolers

In addition to the capacity of the refrigeration unit, the size of the tubular cooler exerts considerable influence on the efficiency of milk chilling.

Producers with small herds and a relatively slow rate of milk flow per hour, have obtained effective results without the aid of a two-stage cooler but, with bigger herds and a correspondingly larger flow of milk, the results have not always been satisfactory.

However, some producers have not installed double stage coolers as they prefer to pay higher running costs rather than have the immediate additional expense of purchasing a double stage cooler. This has also been influenced by minor problems in installing the bigger cooler.

By reducing the temperature of the milk to 65 degrees to 70 degrees by pre-cooling with farm water, the refrigeration load is reduced by approximately half and, therefore, in general, pre-cooling with water followed by refrigerated chilling in the lower section of the double stage cooler, is considerably more economical than cooling the milk from approximately 95 degrees to 40 degrees with refrigeration only.

This aspect of farm refrigeration has not received enough consideration and it is something which the manufacturers of refrigeration units

as well as producers, must study more carefully to achieve maximum efficiency and economy in chilling milk.

Manufacturers of Refrigeration Units

Local manufacturers of dairy refrigerators have practically standardised on the ice-bank cooling and storage units which are well suited for South Australian conditions.

Careful thought has been given to design of the unit and quality of materials and manufacturers have been quick to make improvements for better performance. At the same time, costs have been kept well in sight and, as a result, locally-made units are selling at prices which have been consistently below those for a similar class of unit sold interstate.

As an industry, it is important for us to state our requirements to the refrigeration companies and, as factory managers, you are well placed to advise producers in the choice of equipment.

To combat our difficult Summer conditions it is strongly recommended that dairy refrigerators should be designed to cool milk from 40 degress to 45 degrees with provision for storage space at a similar temperature for evening's milk.

Manufacturers of dairy refrigerators have shown a ready desire to ascertain the requirements of the Industry and have succeeded in manufacturing a unit well suited for milk chilling and storage but it is important that over-keen competition between the manufacturers of this equipment does not result in a lowering of the sound standard already established.

Tanker Collection

Producers are keenly interested in tanker collection and make frequent enquiries as to the possibility of the development of this method of handling milk in South Australia.

There is no doubt that the refrigerated system of tanker collection would result in a very substantial improvement in milk quality but there are a number of factors which will militate against its introduction, mainly on the grounds of cost. The present policy of wholesalers is to provide the producers with cans, but the companies cannot reasonably be expected to provide producers with refrigerated farm tanks, the cost of which, I understand, is considerably in excess of £1,000.

On the other hand, producers are not likely to purchase this equipment unless they are assured of additional returns or savings for the money invested in purchasing and operating the tank and providing an all-weather road for the tanker.

Despite this fact, however, a number of producers have installed refrigeration, mainly to give greater flexibility with their times of milking. Twice a day collection means rigid adherence to milking times, thus causing minor problems of inconvenience with the afternoon milkings.

Refrigerated farm tanks with controlled cooling and storage are strongly recommended for city milk whereas the unrefrigerated system with once-a-day collection would add further to our quality problems. With the refrigerated system, excellent control of temperature is possible, while the insulated tankers give full protection to the milk during transit.

The refrigerated system allows more flexibility with collection and, as a consequence, provides greater scope for economy in transport.

Although producers have shown some interest in the tanker collection, particularly in the River Murray Areas, it would appear that it will be a considerable time before the tanker system becomes a practical proposition for the Adelaide Hills."

Statistics

PRODUCTION (000 gallons)

	Month		Total since July 1		Total since Jan. 1	
	1961	1962	1960/61	1961/62	1961	1962
June	2,570	2,572	34,135	38,562	14,443	15,862
July	2,948	3,123	—	—	17,391	18,985

	SALES (000 gallons)				QUOTA %		C.M.B.	
	Month		Total since July 1					
	1961	1962	1960/61	1961/62	1961	1962	1961	1962
June	1,498	1,544	18,147	18,393	58	60	2/7½	2/10¼
July	1,538	1,588	—	—	52	51	2/5⅞	2/5⅝

INTERIM PRICES

(All prices are interim only and subject to adjustment by retrospective payment.)

1962	Basic (per lb. butter fat)	C.M.B.	Total	3% (per gallon)	3.5%	4%	4.5%	5%
June	3/3	2/10¼	6/1¼	1/10½	2/2½	2/6¼	2/10	3/1¾
July	3/3	2/5⅝	5/8⅝	1/9¼	2/0¾	2/4¼	2/8	2/11½
August	3/3	—	—	—	—	—	—	—

In elementary terms international trade merely means selling our produce overseas in exchange for goods (and services—the "invisible imports") which we do not produce at all, such as oil, or else cannot produce in sufficient quantities, such as motor cars. And whatever we buy from overseas, we at least feel we are getting something worthwhile that we otherwise would not have, and that in relation to our exports it's a fair exchange.

But export markets are shrinking, so we will have to cut down on what we get from overseas. With so many things that we do need for our national development, with so many things that we cannot or do not produce economically, where shall we make the cuts? Surely an something that we can get right here in Australia, in a form just as satisfactory as its overseas equivalent, and insurance is one of these things. Because the insurance field is predominated by non-Australian companies a substantial portion of our overseas funds which we can ill-afford is going to overseas shareholders for a service that we can supply locally, and to bring this to our members' attention we asked an insurance authority to explain the position as it exists today, which he has done in the following article.

ONE WAY TRAFFIC

Insurance Premiums to Overseas Companies are a Drain on our Economy

With the advent of Britain into the European Common Market, Australia cannot afford to waste any funds available. Hitherto, we perhaps could afford some complacency in this matter, because by giving funds away to Britain we could feel that they had money to buy our butter, cheese, etc. Now, however, our market to Europe will be very limited and any further funds transferred without reciprocity will only assist in damaging our own economy.

Let's look at the facts . . .

If we continue to place our insurance business with other than 100 per cent Australian Companies, it is certain that as much as £5 million can go overseas annually. What is not so readily realised is that there is an amount of £60 million set aside as a Claims Reserve, which is possibly invested in countries other than Australia.

What would be the effect on our economy if all Australians placed their insurances with Companies whose controlling offices are overseas?

A glance at the last-known relevant figures make interesting reading:

The premium paid for insurance by Australians in the year 1960-61, amounted to £198 million.

Claims paid and outstanding were £129 million.

Expenses of Management, such as salaries, commission, etc., totalled £57 million.

Insurance Companies, therefore, made a profit, before tax was deducted, of £12 million.

Of this figure, taxation accounted for £7 million, leaving £5 million to be distributed mainly to overseas shareholders, and to be ploughed back as reserves to build up the Companies assets, reserves which can be transmitted out of Australia and invested in a foreign country, wherever the overseas Controlling Office believes it will get the best return.

When enquiring about advertised goods and services, say you read it in the Dairymen's Journal.

It is a known fact that many claims, principally claims concerning road traffic accidents and serious Workmen's Compensation cases, remain outstanding on the books of Insurance Companies, sometimes for many years. The main reason for this state of affairs is that the Claimant does not wish to lodge his claim until he is sure that he is fully aware of the extent of his injuries, or that he has reasonably recovered. This is usually a lengthy delay, and, in many cases, the claim is not wound up for a period of years.

We would estimate that an amount in the vicinity of £60 million has been set aside in the books of Insurance Companies as reserve funds specifically to meet these known and expected future payments. In the meantime, however, these funds can be transferred out of Australia by those Companies with overseas control.

The importance that the Government places on the necessity for rigid control of funds is indicated by the fact that no Australian Company may transmit for investment overseas any reserve funds whatsoever, yet in the case of insurance companies with overseas controlling offices no restriction is placed on the transfer of its funds out of Australia for investment on a foreign market.

It may even be asked whether the Australian Government is losing an amount in taxation on premiums being given to these non-Australian Companies. It is common knowledge that some classes of insurance have always proved to be more profitable for Companies than others classes. It would be distinctly possible for the Australian Office of an overseas Company to reinsure with its own Head Office these more profitable classes, with a resultant small profit to its Australian Office and the larger profit going out of Australia.

Under these arrangments even the £7 million being pocketed by the Australian Government in taxation can be drastically reduced.

In addition, insurance business being written for an overseas Company by a Broker who is merely the intermediary between the Company and the client must mean a further reduction of this £7 million remaining in this Country. In this case the premium would go overseas, and the Broker would receive a commission.

This is a situation that Dairymen and other primary producers can assist in rectifying by placing their insurances with an All-Australian Company. The Australian Insurance Companies are one of the few industries that compete on an equal footing with overseas companies without any form of protection, and in fact the Federation Insurance Limited, a 100 per cent Australian company, supplies its services to dairyfarmers who are members of the Association at rates substantially below those which are set by the overseas companies.

FORGET MILK STORAGE WORRIES!

with the NEW

LEONARD

MILK COOLER AND STORAGE UNIT

This new Leonard unit enables registered dairymen to milk in the early afternoon right through summer, and store at 40 deg. F. (nominal) overnight, thus complying with Gazetted Regulations and avoiding loss of income from common pool. Leonard's fast chilling holds cream in milk, reduces cream adhesion in cans, and gives better sampling on inspection, thus ensuring better prices for your herd's product all the year round.

CHECK THESE ATTRACTIVE LEONARD FEATURES!

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The education of farm children is a subject that has been closely studied by the Association during the last year, and the findings of a special sub-committee set up by Central Council have now been made into a case for presentation to the S.A. Branch of the National Farmers' Union so that an approach can be made to the appropriate authorities with the full backing of all primary industries.

It was obvious, during the compilation of our findings, that our views were at variance with present practices and policies. In the following article from "Farm Policy", we find considerable support for our case from an eminent authority in the person of Professor E. J. Underwood, Director of the Institute of Agriculture, University of Western Australia.

EDUCATION FOR FARM CHILDREN

The most effective means of meeting the challenges of change and the forces of competition in farming lies in education—education which emphasises for farmers adaptability, receptiveness, and critical thinking. There should exist a series of steps in the educational ladder and a series of alternative types of agricultural education designed to cope with a wide range of backgrounds, abilities, and emotions.

Farming was once regarded largely as an art and as a craft in which practical know-how and a capacity for hard physical work were the principal ingredients of success. A farmer, as has been said, had only to be 'a handyman with a sense of humus.' Science and technology make such vital contributions to farming practices today that the modern farmer must have some understanding of their impact on his own activities and on those of his fellow producers at home and abroad. In addition to practical competence and a capacity for hard work, he must have an appreciation of the help which scientific and managerial services can provide, a willingness and ability to put these services to use on his own property and some acquaintance with the language and methods of the scientist concerned with attempts to solve his problems and improve his techniques.

Agricultural Education of National Concern

For the **Australian** farmer these requirements have special significance because of his heavy dependence upon overseas markets for many farm products. He is therefore subject to economic forces affecting both costs and prices which neither he nor the rest of the community can do much to control.

Costs of production on the farm are nevertheless strongly influenced by the ways in which the farmer uses his **physical resources** of climate, soil, crops and stock and his **human resources** of labour, capital and managerial skills.

These, in turn, are strongly influenced by the knowledge, industry and receptiveness of the farmer and by the quantity and quality of the technical services with which he is provided. Both of these are basically determined by the nature and effectiveness of the educational background to which farmers and their technical advisers have been exposed.

The farmers and graziers of Australia constitute a small and declining proportion of our population whose contributions to our economic welfare are out of all proportion to their numbers. This is strikingly illustrated by the simple fact that, although they make up only 11 per

cent of the total Australian work force and only about half of these, or a mere 5 per cent are decision-making producers, this 5 per cent produces almost 80 per cent of our total export income. Farmers are therefore major determinants of our whole standard of living. Under these circumstances it is obvious that a sound and effective agricultural education for farmers is a matter of vital concern to the whole nation.

Educational Requirements

Australian farmers range all the way from those who are little more than farm labourers to those who are essentially managers, employing others to do all the physical work of the farm. Most of them, however, have to work with their hands **and** with their heads—they have to be proficient in the practical techniques of farming and the handling of machinery, they have to understand the principles of sound crop and stock husbandry, and they have to be business managers, skilled in the allocation of resources and knowledgeable about costs, prices, markets and credit facilities. They have also responsibilities which go far beyond their own farm—responsibilities to the industry which they serve, to the district in which they live and to the nation of which they form a part.

It is clear that an educational system for farmers geared to meet these formidable requirements presents many problems and that there can be no single practicable scheme which will fit all needs. The problems are accentuated by the fact that potential farmers, like all other sections of the community, vary greatly in application, industry, ambition, brains, and financial resources.

There must therefore be a series of steps in the educational ladder and a series of alternative types of agricultural education designed to cope with a wide range of backgrounds, abilities and ambitions.

University Education in Agriculture

For a proportion of farmers a University degree course in Agricultural Science has a great deal to offer. It should be emphasised that the courses leading to a degree in a University Faculty of Agriculture in this country are not primarily designed for the training of farmers—their principal objective is to provide the scientific background necessary for **professional** agricultural advisers and research workers. It must be admitted also that a University degree in Agriculture, or indeed in any other subject does not necessarily mean that the individual will become an efficient farmer.

This is not because the knowledge of agricultural science will not be of great value and abiding interest but because other qualities essential to successful farming, may be lacking, notably capital, practical commonsense, mechanical skills, business acumen and willingness to undertake hard labour.

Where some or all of these qualities exist in the individual, and a University degree in Agriculture is added, there can be no doubt that we have the ideal ingredients for farming success. In this connection it should be appreciated that a University degree provides much more than a specialised professional training—it provides opportunities for cultural and social development, for the fostering of ability to think critically and appraise facts objectively, and for living for several years in an intellectually stimulating environment.

All of these are just as important to farmers as they are to all other progressive sections of the community—especially if the farmer is to

lead a fully satisfying life and to play a worthwhile part, as he should, not only in the development and the improvement of his own farm but in that of his industry, his district and his State.

Agricultural Colleges

For the great majority of farmers a less demanding education is desirable. This should comprise a full secondary schooling, as for those proceeding to the University, followed by one or more years of practical farming experience and then a one-year residential course at an agricultural college. The period of farm work is designed to develop some degree of skill in practical techniques and the handling of machinery, crops and stock. It should be obtained on a commercial farm where hard-headed realism prevails, the physical work of farming is stressed and the day to day decisions of farming have to be faced and made.

Practical farm experience, in short, should preferably be obtained on the farm and not in the artificial atmosphere of an agricultural college or a research station. The year at an agricultural college should be devoted to learning the principles of crop and stock husbandry, farm management and business methods, with the bare minimum of time spent upon carrying out farm chores. Under such a system twice the number of students could be accommodated at agricultural colleges than is possible at present and the training given could be better orientated to the needs of future farmers.

Agricultural High Schools

A proportion of potential farmers will not proceed along the educational ladder in the two ways outlined above, either because they have not the requisite ambition and intellectual capacity or because they cannot afford it. For such individuals the agricultural wings of country high schools, which have been developed with great success and enthusiasm by the State Education Department, provide a worthwhile alternative. These schools offer some elementary training in agricultural science as an integral part of the secondary schooling. They also foster farm project work with the assistance of neighbouring farmers.

In this way boys whose interests in farming are strong and whose special skills lie more in their hands than in their heads are attracted to further schooling and acquainted with the elements of scientific and economic thinking about their future calling. Moreover, this agricultural education is carried out within the broad ambit of a school whose interests and activities go far beyond farming and where boys are brought into regular contact with other youngsters of different abilities, interests and ambitions. Such contacts are even more important for the enrichment of the later life of farmers than they are for other sections of the community because of the relative isolation of farm life.

It is essential that the agricultural high schools should not create the impression, even unconsciously, that farming is for the scholastically weak and that farming can be equated with farm work and manual skills. The enthusiasm of farmers for a "practical" approach to the education of future farmers unfortunately fosters such an attitude. While there is no doubt that successful farming in the Australian scene generally involves a good deal of hard physical work and practical know-how, it is equally true that such farming also involves an elementary knowledge of the language and methods of science and technology and an acquaintance with the principles of sound husbandry and business procedures. Moreover, practical farming techniques quickly become outmoded. The primary aims of education for future farmers **at the school level** are basically the same as they are for future doctors, engineers or

teachers. These are to provide a broad general education, to teach students to think critically and objectively about their environment, and to engender an ability and an urge to read so that their education can continue throughout adult life.

The achievement of these objectives is of far greater importance to the farming community than the spending of a great deal of time in the precious school years upon doing farm chores or learning practical farm procedures.

A further aspect of agricultural education which warrants some comment is the assumption, all too prevalent among farmer organizations, that rural education should be orientated to retaining farmers' children on the farm. It is easy to understand the desire of farmers to see their children continue with farm life and to appreciate their concern at the so-called "drift to the cities." In fact, there will be a steady movement outward from farms as long as the increasing mechanisation of agriculture continues and the higher birth-rate of country than of town is maintained. The solution to this problem, if indeed a solution is possible, does not lie in assuming that farmers' children should be given an education which orientates them to the farm and so minimises their mobility and occupational opportunities. Country children, no less than city children, have a right to an education which will enable them to find for themselves their true niche in life, whether it be on a farm or in a bank, school or hospital.

In the same way, and for the same reasons, city children should have equal opportunities with those of farm children for an **agriculturally-orientated** education leading to farming as a way of life, if such is their interest and their ambition. There is no more logic, or more justice, in suggesting that the education of farmers' children should be directed to keeping them on the farm than there is in suggesting that the children of bank clerks should be educated to encourage them into banks, or carpenters' children to become carpenters. In point of fact there is less justification for such an attitude on the part of farmers because, with the growth of science and technology, less and less farmers are needed to produce more and more farm produce.

In all our thinking about agricultural education for farmers it is important to keep our sights on the future rather than the present. Farming is not a static occupation—it is constantly changing in response to new research findings, new mechanical devices and new markets and consumer preferences. This is one of its attractions but is also one of its challenges.

The most effective means of meeting the challenges of change and the forces of competition in farming, and in many other occupations, lies in education—education which emphasises for farmers adaptability, receptiveness and critical thinking.

AUSTRALIA'S CHALLENGE FOR OVERSEAS MARKETS

The Australian Publicity Council expects to complete by mid-September 100,000 copies of a publication titled "SPOTLIGHT ON AUSTRALIA" which within its 208 pages attractively presents practically every phase of Primary Production and a wide cross-section of Secondary Industry in Australia —one major objective in its world circulation is to achieve additional markets on behalf of the Commonwealth.

Just on 20 months ago, the Australian Publicity Council was asked to consider the preparation of an all-Australian publication to circulate overseas with the purpose of attractively presenting practically every phase of our Primary Produce and that of Secondary Industry, with a view to expansion of our overseas markets.

Immediately conferences were convened in each State of Australia with a very wide cross-section of practically all of our business, primary and professional organisations. Each conference wholeheartedly supported the proposals and at the same time offered constructive advice toward the ultimate planning of the publication which was expected to be completed in August, 1962. The Australian Publicity Council recognised that this was a mammoth undertaking and could only be brought about by the very close co-operation with leaders from all over the Commonwealth.

Following discussions with the primary and business leaders, further conference took place with individual members of the Export Development Council and the Department of Trade. It was then necessary to consider photography and to obtain the co-operation of leading Commercial Photographers all over the Commonwealth.

So in the planning of this publication which is titled "SPOTLIGHT ON AUSTRALIA," of 208 pages, 100,000 copies, firstly a policy had to be adopted of its objectives. These were summarised as "OPPORTUNITY FOR TRADE—CAPITAL INVESTMENT—TOURISM."

The publication is being produced on the finest Australian art paper, fly leaves set out a map of the world with Australia centrally located showing all Trade and Diplomatic Posts and also Sea and Air routes. The book is introduced by a Message of Commendation by the Rt. Hon. The Prime Minister of Australia, then follows a Leading Article headed "SPOTLIGHT ON AUSTRALIA and OPPORTUNITY FOR TRADE—CAPITAL INVESTMENT—TOURISM."

The Australian Publicity Council felt that they should then present 70 to 80 per cent pictorially, something of our natural resources of water, forests, power, and some brief recognition of scientific development recognising C.S.I.R.O. Pages then follow with a presentation of the important Primary Industries of Australia commencing with wool, showing from the rural scene to the finished product, likewise with wheat, grain and other cereals, a coverage of the meat industry, dairying, sugar, fresh fruits, apples and pears, citrus, canned fruits, dried fruits and glace fruits, the wine industry, egg and poultry, honey, cray-tails, vegetables, etc.

All of these pages have been attractively presented, colour predominates throughout the book, editorial has been made available by the respective leaders of Primary Production throughout Australia.

The Australian Publicity Council expects to complete this most attractive publication, "Spotlight on Australia," by mid-September, 1962, and feels that it must surely act as a wonderful ambassador for Australia in every country in the world.

Every reader is urged to play his small part in effecting a world distribution to associate companies and contacts overseas.

Enquiries for copies of this book should be made direct to:

Mr. Athol E. Turner, Executive Director,
Australian Publicity Council.
405 Collins Street, MELBOURNE.

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THE SOUTH AUSTRALIAN DAIRYMEN'S . . . Journal

Official Publication of the SOUTH AUSTRALIAN DAIRYMEN'S ASSOCIATION INCORPORATED

Published Bi-monthly

Vol. 2, No 2

Adelaide, OCTOBER, 1962

VYNETTE DIAMOND SEGIS
Reserve Champion—Adelaide Royal Show, 1961.
Owned by M. R. & J. E. McKENZIE, TOOPERANG.

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AN APPEAL TO DAIRYFARMERS IN SOUTH AUSTRALIA

With the greatly increased numbers registering for support, Legacy has found it necessary to seek additional avenues of financial assistance.

It was strongly recommended that Dairymen be approached with a view to assisting them, and they duly forwarded a letter seeking the support of the S.A. Dairymen's Association.

Their letter was considered by the Central Council, and it was resolved that the Association support such an appeal.

The original suggestion was that Dairymen may be prepared to donate the proceeds of a can or cans of milk, and request their buyers to deduct proceeds from their account sales, and credit the same to Legacy.

It was realised and appreciated that this would involve many practical problems for the Wholesale Milk Buyers' and Distributors' Association, who are in full sympathy and admire the work of Legacy.

To issue a personal appeal letter to every dairy farmer would entail a vast amount of time and expense, so the opportunity is taken by Legacy to make their appeal through the medium of this Journal with the approval of the Editor.

Legacy now asks that dairy farmers may be prepared to make a donation direct to them, Legacy Club of Adelaide, Box 54a, G.P.O., of the value of a can or cans of milk. Official receipts will be sent to donors and all donations are taxation deductions.

Legacy is comprised of ex-servicemen of World Wars, who have banded together and voluntarily undertaken the obligation to care for the widows and children of deceased ex-servicemen.

At present there are 5,686 families registered on their books, being 3,537 World War I, 2,142 World War II, and 7 Korean War, with over 2,000 children under the age of 18 years eligible for assistance.

The greatest call on Legacy funds comes from families where the Husband and Father has died from natural causes since his return, and in consequence there are no Repatriation pensions or benefits.

The dependents of practically every ex-serviceman are potential beneficiaries under Legacy, and consequently the numbers will continue to increase for many years yet.

The expenditure in providing for the families under Legacy care is expected to reach £65,000 this year—hence their need for additional funds. This request therefore is that you may favourably consider assisting their cause as above-mentioned.

VYNETTE DIAMOND SEGIS

produced 637 pounds butterfat in 300 days to 31st March 1962, and was placed 2nd in type and production at the Adelaide Royal in 1961, and 3rd in type and production in 1962. VYNETTE DIAMOND SEGIS has won 12 Championships and 2 Reserve Championships during 5 years of showing

THE SOUTH AUSTRALIAN DAIRYMEN'S JOURNAL

Published by
THE SOUTH AUSTRALIAN DAIRYMEN'S ASSOCIATION INCORPORATED
11 Leigh Chambers, 20 Leigh Street, Adelaide. 51 3034

General President: I. R. ELLIOTT
General Secretary: DAVID J. HIGBED

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General President's Annual Report

The year just passed has brought no sign of a worthwhile solution to the problems of the dairying industry in Australia. The future of our chief export market is still in doubt as negotiations continue concerning the terms of Britain's entry into the European Economic Community. At home the effect of the temporary check to continuing cost rises initiated in November, 1960, is being dissipated by capitulation to pressure from secondary industries demanding yet further protection from overseas competition, thus simultaneously increasing our costs of production and cutting off our potential customers from the possibility of reciprocal trade.

In the face of this uncertainty, and the possibility of a reduction in the return for his output, the primary producer takes the only course open to him as an individual, namely to increase his own production in order to maintain his gross income. The aggregate result of each individual's action is seen in the production level achieved during the last 12 months, in Australia and particularly in the Adelaide metropolitan supply area where production has increased from the record level of 34 million gallons in 1960/61 to a new record of 38½ million gallons in the last twelve months.

THE NEW STABILISATION PLAN

The Federal Government has demonstrated its recognition of the industry's contribution to the national welfare by the new Stabilisation Plan, which provides a bounty of £13½ million each year for the next five years, together with the underwriting of the interim payments, (currently at a level of 40d. c. b.) which will allow a higher initial rate than the Commonwealth Equalisation Committee's necessarily conservative policy would otherwise permit, but the bounty goes no more than halfway towards bridging the gap between assessed production cost and the total return from sales. Whilst we appreciate this and other legislation which the Federal Government has contributed towards the stabilisation and development of the industry, we must recognise that, otherwise, there are few signs of any firm resolve to deal with our problems, either by direct assistance to the industry, or by taking positive action to halt the cost squeeze in which we are inescapably involved.

Despite the unpalatability of the McCarthy Committee's general recommendations, there is much of value in the Committee's report that could be adopted with benefit to every member of the industry, but there has been as yet no governmental action to this end other than discussions by the Australian Agricultural Council. Consequently, in the absence of guidance from those to whom our plight is largely due, the

industry is seeking its own cure, and recent action by the Queensland Dairymen's Organisation, which may result in their advocacy of a two-price quota scheme, demands that we, too, consider what attitude we shall take toward the alternatives available for the industry's reconstruction.

PRODUCTION OF CITY MILK

These are, however, industrial problems; the problems of production are, as our results show, being tackled successfully. In the Adelaide supply area an overall average production of almost 600 gallons per cow and a production cost per gallon which has remained practically unchanged over the last three years despite the continued cost increases in the remainder of the economy, are our answer to the taunt of inefficiency which is so frequently thrown at the industry. The result is even more creditable when it is realised that the major increase in output has occurred throughout the high-costing "lean period" of the year, during which, in the year just ended, we produced an average surplus over metropolitan requirements of 28,000 gallons per day, a figure which, even without the further increase which expanding irrigation and improved methods will inevitably continue to bring, is estimated by the Metropolitan Milk Board as being sufficient to supply the metropolitan area until 1972, whilst still maintaining an adequate safety margin.

Whilst this is a very satisfactory position, two problems, those of licence suspension and sweet cream sales are still unresolved. Early in the year a record number of producers' licences were suspended for failure to achieve methylene blue standard. There can be no argument about the need for a standard, and the need to observe such a standard, as our existence depends on the sale of milk, which will continue only whilst the consumer is satisfied with quality. But we can have grave doubts as to whether the present method of suspension is an adequate safeguard for quality and to whether the penalties inflicted are just and equitable, particularly when we consider the fact that the producer's control over quality ceases at the farm gate whilst he continues to bear full responsibility right up to the point of receival, and that he alone suffers the penalty should his produce be below standard, and the matter is, consequently, under continuous review by the Association.

Sales of sweet cream have been steadily declining over recent years, partly, perhaps, owing to changing dietary habit, but mainly, we believe, because of the influx of cream from Victoria which, although it is of much lower quality, is promoted more vigorously and presented more attractively than local cream. In a move to halt the decreasing sales it was suggested late in 1961 that the retail price be reduced, a method which had achieved satisfactory results in New South Wales, and the Association agreed, with reluctance, to accept, with the other sections of the industry, its proportionate share of a price reduction. Since the reduction cream sales have increased substantially, but this increase must be considerably greater if sweet cream sales are to be economically attractive, and the Association is pressing on strongly with moves to improve our market position for this commodity.

ANTIBIOTICS IN MILK

The echoes of overseas concern at the incidence of antibiotics in liquid milk have recently been heard in Australia, and consideration has been given by the Australian Agricultural Council to ways of ensuring that milk is free from antibiotics. However it is a matter for considerable gratification that health authorities in this State have given the assurance that Adelaide's city milk has an excellent record in respect to antibiotic content, a fact which is indisputably tied to the campaign over recent years for the elimination of penicillin owing to its effect on cheese starters.

THE MARGARINE PROBLEM

Although margarine production is limited by quota in every State, it has been believed for a long time that the quotas are exceeded by manufacturers in other States, who then use the over-production for interstate-trade. The industry organisations have protested frequently at the flagrant breaches of the law, and it was hoped that action through the Australian Agricultural Council would enable a satisfactory position to be reached. However, press reports are foreshadowing action by the N.S.W. Government to increase table margarine production quotas in that State.

To give full value to this statement, it must first be appreciated that N.S.W. already has by far the greatest quota, either in total or per head, of any State, and is the State in which the quota legislation is being breached. It is therefore doubly to be deplored that N.S.W. should take the initiative in increasing quotas.

The importance of this to the Australian dairying industry is obvious, yet the Premier of New South Wales has refused to see either the Chairman of the Australian Dairy Produce Board (Mr. E. G. Roberts) or representatives of the Australian Dairy Industry Committee.

The quotas allotted in each State, compared with those of 20 years ago, are (in tons):—

	1961	1941
New South Wales	9,000	1,248
Queensland	4,236	468
Victoria	1,196	1,196
South Australia	528	312
Western Australia	800*	364
Tasmania	312	208
Australia	16,072	3,796

* Includes 200 tons not allocated.

The difference in consumption of butter per head in New Zealand (43.3 lbs.) and Australia (25.1 lbs.), as quoted in the June issue of this Journal, may be due, not only to the difference in initial price, but also to the fact that margarine is prohibited in New Zealand; although 16,072 tons is equivalent only to 3.4 lbs. per head, we must add to this the quantities produced in excess of quota, plus the usage of considerable quantities of cooking margarine, making a total of at least 7 lbs. per head to be added to the 25.1 lbs. of butter.

It is not only the dairy industry which is objecting. The Table Margarine Manufacturers' Association of Australia, whose members observe the quotas, but which does not include the three international giants, are also protesting and have asked for the support of the Australian Agricultural Council, as the present situation gives their competitors an unfair advantage and could force them, too, to produce in excess of quota for self protection.

The President of the Australian Dairy Farmers' Federation sent the following telegram to Mr. Heffron on October 19, 1962:

"I am seriously concerned at persistent rumours that your Government may increase table margarine quotas. On behalf of dairy farmers in N.S.W. and all other States, I respectfully request your assurance that existing quotas will not be increased and that legislation will be enacted to ensure strict policing of margarine quotas at existing levels. An increase in the production quota, or recognition of illegal over-production, could lead to a complete breaking down of quota restrictions throughout the Commonwealth, which would be disastrous to dairy farmers and seriously affect the economy of rural areas. Dairy farmers are looking to your Government to protect their livelihood."

ARTIFICIAL BREEDING

A further matter for gratification is the passing of the Artificial Breeding Act and the establishment of the Artificial Breeding Board, of which I have the honour of being a member. Whilst there will be problems during the implementation of the full programme of artificial breeding including the establishment of our own bull centre, the experience gained from the pilot schemes in South Australia and the assistance we have received and will continue to receive from the inter-state A.B. Centres will enable the provision of a service which should make a substantial contribution towards more economic production.

THE JOURNAL

The economic survival of the industry is intimately linked with awareness of its problems, and the Association has, during the past year, taken a major step towards increasing the members' knowledge of matters of importance in production, marketing, legislation and other factors influencing the industry, by the publication of its own journal, a step which has been received with approbation by all sections of the industry, and it is hoped that the journal will not only make the members better acquainted with the problems which confront us but also better fitted to make decisions as to the solution of these problems. At the same time the journal will serve to inform those dairyfarmers who are not yet members of the Association of the work that the Association is doing on their behalf.

THE FUTURE OUTLOOK

We have, therefore, at the opening of a new financial year, a position where a high standard of husbandry, as indicated by our production figures over the last few years, coupled with a season which, although far from favourable, shows signs of improvement, augurs well for a continuation of record level of output. Against this must be placed a confused market outlook, with a large surplus of dairy produce carried over from the previous season.

The stability of the home market, in both quantity and return, for city milk and for butter and cheese, is, therefore, in view of the fact that less than ten per cent of our produce goes into the export market, the one factor to which we can look for a continuation of returns at near the present level.

The future continuation of the industry at its present strength, and the prosperity of the individual dairyfarmer, depend upon co-ordinated efforts by the authorities concerned in promoting increased home consumption, in seeking more export outlets, in reducing tne crippling effects of the present wage and tariff policies, and in improving and increasing extension and research services.

Our Association and our fellow organisations in the Australian Dairy Farmers' Federation and the National Farmers' Union of Australia have played a major role in influencing and guiding these efforts in the past, and will continue to work to these ends, but the extent of our influence and guidance depends upon the degree of support which each member gives to the Association. In giving that support each member will also be contributing to the assistance which the Association is able to give to members in respect to their individual problems.

The effectiveness of our work during the past year in every sphere has been due to the sterling support of our members and to them, to the Central Council and the Executive Committee, to the Staff, and to all other persons connected with the industry on whom we call for guidance or assistance I express my gratitude and my hope for their prosperous future.

I. R. ELLIOTT, General President.

There is no doubt that the subject of antibiotics in milk created a great deal of controversy when it was publicised earlier this year, and industry representatives expressed considerable concern at the impact on the public and the possibility of decreased sales of dairy produce.

The matter has been discussed at length by the Australian Agricultural Council and recommendations were made concerning the inclusion of safeguards in public health legislation. However, the South Australian Department of Agriculture has indicated that the position in this State does not give cause for alarm. The Association therefore invited Mr. W. S. Smith, Chief Inspector of Stock to address the Central Council and state the Department's attitude in the present situation for the guidance of the Association. The following is the text of Mr. Smith's address.

ANTIBIOTICS IN MILK

Mr. Chairman, I was very pleased to receive this opportunity to talk to you because I think that the question of antibiotics in milk has been distorted out of all perspective.

In examining the present position, we must first survey the history of the problem. The story begins in 1944, when the C.S.I.R.O. set up a special research unit under the control of Dr. Murnane to investigate mastitis in dairy cattle. Murnane's work showed that 75-80 per cent of mastitis was due to streptococci, a type of bacteria which forms in long chains like a string of beads; the remainder being mainly due to staphylococci, which resemble bunches of grapes. His work also showed that the streptococcal organism was very susceptible to penicillin and that it was possible to treat a quarter with pencillin very successfully and return it to normal production. He also showed, and subsequent work has confirmed, that pencillin was virtually useless against staphylococci as are most of the newer antibiotics developed since that time. Not only did Murnane show that penicillin was effective, but he also showed that only one unit of penicillin per c.c. of milk was needed to destroy the organism, and that finding has been verified by a number of other research workers since. Based on this dosage of 1 unit per c.c. Murnane's work showed that 25,000 units of penicillin per quarter on each of three days was adequate. Even if we are very generous, and assume that an infected quarter will produce a gallon of milk, or 5,000 c.c.s approximately, a dose of 25,000 units in one quarter is equivalent to five units per c.c. or five times the required dosage, which is more than adequate. If we concede that half the penicillin is excreted at the next milking, there is still more than two times the effective dose left until the next milking. So after three doses have been given at daily intervals there is something like 40,000 units remaining in the quarter. For this reason, the milk must be discarded for the next three days until the greater part of the penicillin is excreted.

Although it had been shown that a dose of 25,000 units was effective against streptococci, and that penicillin was of little use against staph and the other organisms causing mastitis, it was not long before the manufacturers were putting out 40,000 units, then 50,000 and so on up to as high as 675,000 units per tube in South Australia, although in other States it reached as high as 1½ million units.

Despite the huge dosage, farmers began to find that some cases of mastitis were not cleaning up; obviously these were due to other causes than streptococci; and so the demand increased for more powerful

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SPECIAL NOTE

As a result of numerous requests for a larger capacity container, we have asked the manufacturers to take action to fulfil this demand. So, if you need a larger container, please contact us.

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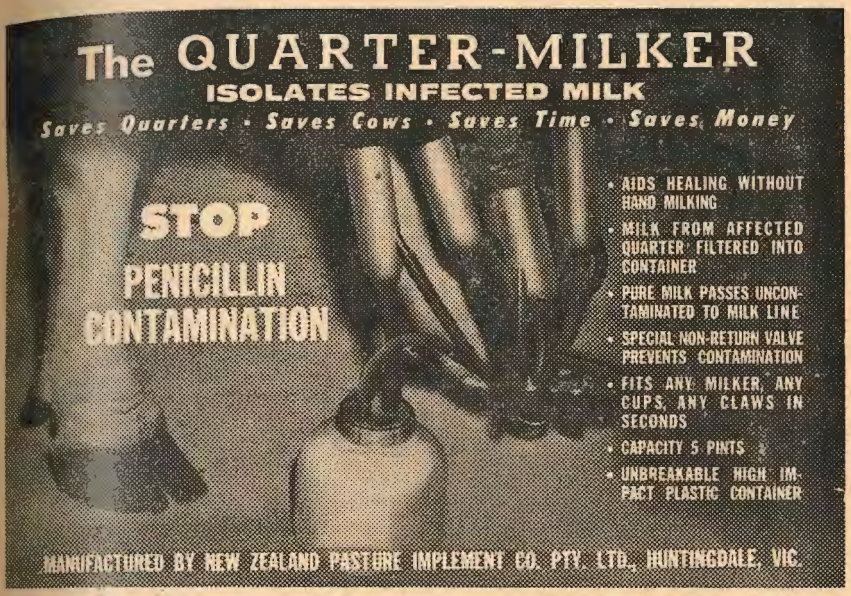

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antibiotics, and we began to use aureomycin, terramycin, neomycin and so on. It should have been realised that if penicillin would not do the job, just pouring in other antibiotics without proper study of each case was just pouring money away.

It is obvious that these huge quantities of antibiotics would come out again in the milk, as was soon apparent in the trouble we began to run into with cheese manufacture. Investigation of starter failure revealed penicillin concentrations as high as two units per c.c. of milk. About the same time reports began to be heard of allergies in humans which, I have no doubt, did occur, owing to the quantity of penicillin that was finding its way into city milk. Simultaneously we found ourselves faced with the problem of resistant strains of bacteria, particularly staphylococci, which we now know are able to build their resistance a thousandfold in a very short time. Before long, instead of streptococci being the chief cause of mastitis, its place was being taken by staph. The results were an increase in the number of cases of incurable mastitis, and at least overseas, if not here, a growing public health hazard because some of the staph. strains were capable of affecting human beings.

At this stage, whilst studying the cheese problem, the Department and the Stock Medicines Board conferred with the Department of Health and decided that before taking any action we should examine overseas practice. We found that in Britain the use of all antibiotics for mastitis had been prohibited except by prescription, although at that stage, the farmer was allowed to administer the first injection. In the U.S.A. the amount of penicillin per tube was limited to 100,000 units which was four times the standard dose and gave 20 times the required level. The British scheme did not appear very practical for this country so we agreed to adopt the U.S. practice. All manufacturers were advised that from July 1, 1958, no penicillin preparations would be registered for sale to the public in South Australia in excess of 100,000 units. At the same time, by arrangement with the Department of Public Health and with the co-operation of chemists, the sale of other antibiotics to the farmer was prohibited.

There was some objection at the time, but events have shown that the action taken is now generally accepted as being reasonable. We also issued instructions that the veterinary surgeons in this State were expected to recognise their responsibilities by respecting the regulations and advising the farmer of the necessity to discard milk following treatment with penicillin.

From July to December, 1958, there was still some trouble with cheese starters, but this was only to be expected as farmers and dairy factories were still holding stocks of now prohibited drugs. From the beginning of 1959, the position improved enormously, and over the last three years no troubles have been encountered in any cheese factories with slow starters due to antibiotics. Work done by the Metropolitan Milk Board also indicated a very low level in the bulk milk delivered to the city.

There the matter rested quite satisfactorily for some years until the incident this year following a meeting of the Australian Veterinary Association in Melbourne at which I was present, when the press published the scare-headlines, of which you are all aware.

Ever since we first examined the position in 1959, we have been satisfied that the action we took in controlling the upper limit of dosage was quite satisfactory. The complaints concerning the effects of penicillin milk came mostly from the other States which were not prepared to take the same sort of action. After the meeting in Melbourne events moved rapidly toward the uniform adoption throughout the Commonwealth of the 100,000 unit limit together with the proposal for the incorporation of a dye marker.

This dye-marker has been under investigation for several years. Superficially it appears to be very good; the principle is that it is inserted with the pincillin into the quarter and excreted with the milk at approx-

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'DISPEN'

A formulation of penicillin for the treatment of Mastitis — it disperses quickly in the milk ensuring rapid circulation throughout the udder.

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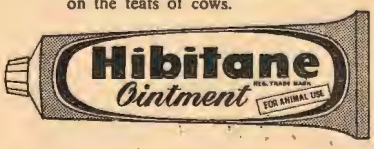
This unique germ-killer, an all powerful anti-mastitis disinfectant and dairy sanitiser, gives complete mastitis control. It is non-poisonous and non-irritant. It does not taint milk or rot udder cloths. A pre-measuring device built into the pint and quart containers ensures simplicity and accuracy in mixing.

COSTS ONLY 8d. EACH MILKING FOR A HERD OF 50 COWS.

'HIBITANE' OINTMENT

The modern antiseptic and cleansing ointment for the treatment of chafed teats and wounds of livestock. 'Hibitane' Ointment helps control mastitis because it rapidly destroys mastitis germs harboured in cracks and sores on the teats of cows.



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imately the same rate as the penicillin so that when the color disappears, the milk is then satisfactory for inclusion in the city supply. However, it is significant that no other country has yet adopted it as a standard practice.

Some recent work has indicated that the dye is tied to the protein fraction of the milk, and in making cheese it is possible to get a blue tint even when the milk itself contains insufficient dye to be detectable. The use of the dyed milk to feed pigs and calves may also cause a blue discoloration of the bowel walls and the carcases may be rejected by the meat inspectors. It is for these reasons that caution is being used concerning the dye.

The other action which is proposed is the rejection of milk showing traces of penicillin. The problem here is one of the standard to be used. From the point of view of the Department, we now have no problem with cheese. The control of the dosage to 100,000 units is rational, not over-expensive, and gives the farmer the protection he requires.

For the milk itself, there have been two tests developed, the Keogh test, which is sensitive to 0.03 units per c.c., and the Naylor test, which at 0.005 units is almost ten times as sensitive. In Denmark, a test has now been devised which is about three times more sensitive even than the Naylor test.

It is obvious that a practical standard must be set, and we are satisfied that at 0.03 there is no trouble with cheese. The standards adopted for South Australia are that if the individual supplier's milk is less than 0.03 it is acceptable for the bulk milk supply, and the bulk milk is tested by the Naylor method to a standard of 0.005. It is quite impracticable to demand that there be absolutely no penicillin at all in milk. It is impossible to tell at what time after injection every single unit of penicillin has been excreted, and on a practical basis, we are satisfied that a bulk standard of 0.005 units per c.c. is satisfactory.

Farmers should appreciate that it is not only penicillin injected directly into the quarter that is excreted with the milk. Intra-muscular injections of antibiotics, whether for mastitis or anything else, will also contaminate the milk; but the usual precaution of discarding all the milk for 72 hours is an adequate safeguard.

In the case of intramammary infusion it is necessary only to discard the milk in the treated quarter, unless doses in excess of 100,000 units have been used, in which case there may be a transfer from one quarter to another, and all the milk should be discarded for 72 hours.

Although, theoretically, the feeding of penicillin-contaminated milk to calves may cause some upset, there is no practical objection to using it. The effect on the ruminal bacteria is only temporary and there is no risk of a calf building up immunity to penicillin.

Despite the range of strengths that are available, in my opinion there is no need to use more than 25,000 units; those bacteria which are able to build up resistance can build it up at a fantastic rate **regardless of the dosage.**

SITUATIONS WANTED—We have had applications for positions on dairy farms from four young men, one aged 22, two aged 19, and one aged 16. All have had dairy farm experience and appear to be reliable, keen types. Apply this office.

Statistics

PRODUCTION (000 gallons)

	Month		Total since July 1		Total since Jan. 1	
	1961	1962	1961/62	1962/63	1961	1962
August	3,453	3,623	6,402	6,746	20,844	22,608
September	3,994	4,144	10,396	10,890	24,838	26,752

SALES (000 gallons) QUOTA % C.M.B.

	Month		Total since July 1					
	1961	1962	1961/62	1962/63	1961	1962	1961	1962
August	1,516	1,579	3,054	3,167	44	44	2/1⅜	2/1½
September	1,472	1,488	4,526	4,655	37	36	1/9¾	1/9⅞

INTERIM PRICES

(All prices are interim only and subject to adjustment by retrospective payment.)

	Basic	C.M.B.	Total	3%	3.5%	4%	4.5%	5%
1962	(per lb. butter fat)			(per gallon)				
August	3/3	2/1¾	5/4¾	1/8	1/11½	2/2¾	2/6	2/9⅜
September	3/3	1/9⅝	5/0⅝	1/6¾	1/10	2/1	2/4	2/7⅞
October	3/3	—	—	—	—	—	—	—

SWEET CREAM SALES (lbs.)

	Month		Total since July 1	
	1961	1962	1961/62	1962/63
August	90,286	104,351	185,000	205,000
September (to come)				

The A.B. Pilot Schemes have indicated that there are considerable problems to be overcome in the field if the most effective **and economic** use is to be made of this technique. The experiences of farmers show no common pattern; conception rates have varied from very high to very low, and on some farms initially high rates have been followed by a disappointing fall. Some farmers have had good results with both cows and heifers, others have had success only with cows. These and other problems caused the Central Council to form a Special Study Group to examine actual cases and to gather evidence in order to assist in the formation of an acceptable artificial breeding programme.

On Monday, September 17 the Study Group conferred with Mr. W. K. Rose, the Director of the Artificial Breeding Centre, concerning the data that had been collected by the Group, and to formulate a procedure for the guidance of farmers using artificial breeding. Mr. Rose's main points are summarised below.

Artificial Breeding Problems and Programmes

The conception rate, or "non-return" rate, is of vital importance in A.B., not only because of its influence on the herd, but also because of its effect on the A.B. organisation itself, as a low non-return rate prevents the Centre from operating economically and limits the number of herds which can be admitted to the scheme. The apparently low non-return rate is the greatest worry to A.B. schemes in the other States and New Zealand and is undoubtedly the greatest cause of dissatisfaction among dairy farmers in the South Australian scheme. Nevertheless, on the average, South Australia's non-return rate has, since the inception of the scheme, closely approximated the average rate from natural matings on farms where accurate records are kept; because natural mating did not involve the same cost and effort as A.B., many farmers did not realise how low the conception rate of natural mating often was. In the four years of the S.A. scheme the average non-return rate from the first service had ranged from 52% to 59%, which compared quite favourably with the results of natural mating in herds under test, where the average conception rate at first service over four years ranged from 55% to 65%, although individual herds were as high as 100% and as low as 13%.

One factor which produced an apparently low non-return rate, and which was being studied on a world-wide scale, was the exhibiting of false heats after conception. Experiments had shown a rate as high as 16% of cows conceiving and subsequently showing signs of heat. Insemination of such cows, which was wasted as no ovulation took place, possibly resulted in the death of the embryo either through damage or the foreign nature of the semen diluent; an answer to this problem is hard to find.

However, the most serious problem was that of infertility. Not all cases of infertility were induced by infection; a considerable proportion was nutritional, and could be caused by high levels of oestrogen in pasture plants, particularly clovers.

The oestrogen content varied between species, as well as from season to season, and area to area, and, in addition to infertility, was believed to induce false heats in pregnant cows. This could be one of the factors causing the low fertility rate on the Murray Swamps, although vibriosis has been diagnosed as the cause in some cases. Vibriosis was not self perpetuating, and under A.B., with proper care, would disappear fairly rapidly if no new focus of infection was allowed to enter the herd. It was unfortunate that to these problems was sometimes added that of

poor handling practices; the use of dogs, rough treatment of the cows and inadequate protection from the weather made a low conception rate a certainty anywhere. This was particularly true of heifers, and over-excitement was to be avoided if A.B. was to be successful with heifers, even if it meant the farmer being present to control the animal.

The other important infectious disease causing infertility—Trichomoniasis—was not troublesome in South Australia. It had never been diagnosed here yet, but Artificial Insemination was completely successful both for prevention and treatment. The disease still occurred in herds in New South Wales and Queensland, and veterinarians there thus had wider experience in handling infertility problems than in this State where our only specific disease problem appeared to be vibriosis. The treatment of individual infertility was best left to the veterinarian with his specialised local knowledge of abnormalities and successful treatments.

Although there was a relationship between productivity and infertility it was not absolute, and the relationship was probably conditioned by the level of husbandry, so that cows with high productivity potential on a low level of nutrition could present an infertility problem, where the same cows, properly fed, would not.

One thing was certain; if infertility was still a problem after two years **on A.B. alone,** the possibility of infection was eliminated, and the Centre would co-operate in tracing the cause to nutrition, genetic make-up, or any other factor.

A return at less than 17 days after service was abnormal and very likely due to ovarian cyst, which should be treated before any further insemination.

In general, if infection-induced infertility is suspected the best routine is to have two services (if the heat periods are normal) and to call in the veterinarian if the cow again comes on heat, but do not inseminate until the heat period **after** treatment; although in the absence of any suspicion of disease, a cow returning after two services should be rested and served at the fourth heat period.

For the most effective results, the schedule for insemination should be to inspect the herd in the morning and to telephone the inseminator by 9.30 a.m. to arrange service **for that day.** Any cows observed on heat after that right up to the time of the inseminator's arrival **should also be served on the same day;** but where no cows had been observed before 9.30 a.m., the inseminator should be called on the following day for cows observed after 9.30.

Although this schedule was suitable for heifers, the difficulty of diagnosing heat and the short duration of the heat period, coupled with the possibility of over-excitement in fractious heifers, made successful insemination more difficult, and in many cases it might be advantageous to use a clean bull solely for the purpose of serving heifers.

(Note.—We are advised that A.B. in New Zealand does not apply to heifers, therefore a bull is necessary in that country.—Ed.)

HOWEVER, IT MUST BE REALISED THAT KEEPING A BULL IS **NEITHER A SAFE NOR EASY WAY TO OVERCOME THE PROBLEM** OF THE INSEMINATION OF HEIFERS. If the herd is to be kept disease-free, the greatest care must be taken to ensure that the bull serves only unmated heifers.

FIRE INSURANCE

THE PRINCIPLE OF INDEMNITY

From time to time misunderstandings arise relating to amounts which are recoverable under policies of Fire Insurance and it is our desire to briefly explain the principle of indemnity, upon which these policies are framed, and around which principle there occasionally arises some difficulty when a claim occurs.

A contract of fire insurance differs from that of life or personal accident insurance, in that it is purely a contract of indemnity against loss actually sustained. Even where, by the terms of the contract, the Insurance Company expressly undertakes, in the event of loss or damage by fire to the property insured, to pay or make good the loss or damage up to a specified sum, the contract is nevertheless one of indemnity, and of indemnity only. The principle is applied in accordance with the following rules:—

(1) To establish a right of indemnity, it is necessary for the insured to show he has in fact, sustained a loss by reason of his legal interest in the property damaged or destroyed.

(2) The extent of the insured indemnity must, subject to the terms of the contract, be measured by the loss he has actually sustained.

The principle of indemnity applies with equal force to many policies of accident insurance, for example, it applies in the case of motor vehicle insurance. In these days when there is an apparent depreciation in the values of motor vehicles, it should be understood that the policies issued by the great majority of insurers, make good in the event of the destruction of the vehicle, the market value of the destroyed vehicle at the time of its destruction, and not necessarily an inflated value for which it may have been insured.

To permit an insured person to obtain more than indemnity may tempt him to desire the event insured against, perhaps even it may cause him to accelerate the happening, which would definitely be against public policy.

Agreement on values to be paid when a loss occurs, cannot be reached before-hand, because it does not necessarily follow that the value of the insured property will remain constant during the currency of the policy. Consequently, the amount of the policy would not necessarily coincide with indemnity throughout the currency of the contract.

The very great majority of Insurance Companies exercise the utmost care to prevent over-insurance, but it is not possible for them to keep all risks under constant supervision, nor is it possible for them to police values, because of the expense which would be involved.

If they were obliged to do this, the additional cost incurred would necessarily have to be passed on to the insuring public, thereby making the cost of insurance enormous in comparison with that at present existing.

Insurance today has become very highly specialised and irrespective of the nature of the risk to be insured, it calls for expert guidance and advice.

Every prudent Dairyman realises that insurance is a necessity and that one important part he must play in his business and personal affairs is to select an Insurance Company that can offer him that degree of service and guidance which he so greatly needs.

A 'phone call or a letter to the Federation Insurance Limited, the company recommended by the S.A. Dairymen's Association, will ensure members of prompt and courteous attention to their enquiry.

CHEESE IMPORTS

In the matter of cheese varieties it is a case of "every one to his taste" as the range of types and names is almost innumerable.

Each European country has several varieties of cheese, corresponding to a particular district, and in addition there are cheeses made from milk other then cow's milk. The variety does not end with the name and taste; colour, shape, density, hardness, and texture also apply. Probably most Australians, when they think of cheese, think of cheddar, but it surprises many people to know that in Australia we produce virtually every type of cheese known in Europe (and frequently of a quality superior to that in the country of origin). Of the 105 million lbs. of cheese produced in Australia in 1960/61, 7 per cent was in varieties other than cheddar, such as Blue Vein (135,000 lbs.) and Edam (389,000 lbs.). **(We even went so far as to produce 265,000 lbs., or ½ oz. per head of population, of cottage cheese, the annual consumption of which in the U.S.A. is 15 lbs. per head.)**

Despite our ability to produce these other varieties, considerable quantities of cheese are imported into Australia from Europe, which represent a threat not only to our incomes as dairy farmers, but also to the health of our herds, as the possbility of introducing disease cannot be overlooked.

Is the reason for this unnecessary traffic a lack of enterprise on the part of cheese manufacturers in this country? How often do you see any variety of cheese, other than cheddar, advertised? How can our New Australians get to know that their national varieties are manufactured here in Australia (and probably a lot cheaper, too; the prices of some imported cheeses are fantastic)? Or is it due to an insufficiently high tariff rate? The highest tariff on imported cheese is 7d. per lb. which is pretty low compared with say the 57½ per cent on a homogenising machine (which is a type probably not made in Australia anyway), and the thousands of other items, many of which the farmer uses in his business, with tariff rates between 45 per cent and 65 per cent. One wonders how long this position would prevail with our secondary industries, who are prepared to run to the Special Advisory Authority on Tariffs each time a competitive breeze penetrates their tariff cocoon.

The amount of money we are losing from this lack of enterprise and protection is shown in the following table:—

AUSTRALIAN IMPORTS OF CHEESE, 1961-62.

Country of Origin.	Processed Pastes and Spreads		Blue Cheese		Cheddar and Epicure		Edam and Gouda		Parmesan		Other		TOTAL	
	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A
United Kingdom	3128	682	11665	4072	2410	544	—	—	—	—	1130	263	18333	5561
New Zealand	2250	366	36700	7976	375160	69104	—	—	—	—	24702	4497	438812	81943
Canada	—	—	—	—	712	187	—	—	—	—	—	—	712	187
Australia Reimported	36	6	—	—	1920	152	—	—	—	—	—	—	1956	158
Argentina	—	—	—	—	—	—	—	—	—	—	2198	475	2198	475
Austria	3389	645	—	—	—	—	—	—	—	—	1068	258	4457	903
Bulgaria	—	—	—	—	—	—	—	—	—	—	230877	32201	230877	32201
Czecho-Slovakia	7629	917	—	—	—	—	—	—	—	—	5601	661	13230	1578
Denmark	91980	19002	434433	88048	13840	2075	2382	277	—	—	890730	123150	1433365	232552
Finland	11314	1129	—	—	—	—	—	—	—	—	9356	1184	20670	2313
France	411	121	4484	2018	—	—	—	—	—	—	3645	1353	8540	3492
Germany	40660	7513	5925	1373	2004	293	40	10	—	—	32043	6652	80672	15841
Greece	9916	1730	—	—	—	—	—	—	—	—	140139	24980	150055	26710
Italy	19782	4204	26862	5705	—	—	108	21	695105	173154	320823	77494	1062680	260578
Netherlands	46080	7320	891	201	120	8	271001	42582	—	—	109162	16981	427254	67092
Norway	13100	2651	2084	401	1133	167	6409	851	—	—	9324	1583	32050	5653
Poland	29	4	44	4	—	—	16439	1498	—	—	9738	971	26250	2477
Switzerland	189689	47467	1488	490	—	—	—	—	—	—	65712	16225	256889	64182
U.S.A.	22	2	—	—	—	—	—	—	—	—	150	49	172	51
	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A	lbs.	£A
Total	439415	93759	524576	110288	397299	72530	296379	45239	695105	173154	1856398	308977	4209172	803947
Total Tons	196.2		234.2		177.4		132.3		310.3		828.8		1879.2	

We have been asked by the Chairman of the Metropolitan Milk Board to publish the following statement which sets out the Board's view of the various types of farm refrigeration so that producers and others will be aware of the official attitude on this matter.

METROPOLITAN MILK BOARD

DAIRY FARM REFRIGERATION

Marked interest has been, and is being, shown in dairy farm refrigeration and, during the past twelve months, the percentage of farms with refrigeration has increased from 1% to 8%.

The Milk Board has previously publicly stated that the insistence will be on quality at all times, irrespective of weather conditions, and that it has no intention, at this stage, of making farm refrigeration compulsory.

For the guidance of manufacturers of refrigerators, producers, and others interested in this field of work, the Board desires to express its views on the question of dairy farm refrigeration.

The immediate chilling of milk to 40° F., and storage at that temperature, undoubtedly provides the maximum protection, whilst the use of a refrigerated cold room for the chilling of milk which has been cooled by farm water only before being placed in the room is not nearly so satisfactory, as, with the slow rate of cooling of approximately 16 hours to reduce milk from 70° to 50° F., considerable bacterial growth occurs during the early hours of cooling.

Whilst the further method of chilling the milk by refrigeration and storing at atmospheric temperature is more effective than the cold room method mentioned previously, it cannot be considered as the ideal method. Overnight temperatures are frequently high and, as a result, the temperature of milk in an atmosphere of 80° F. will rise from 40°-68° in just under 12 hours.

As the major cost of ice-bank type refrigerators is involved in providing the cabinet, condenser, ice-bank and controls, it would certainly be sound policy to provide sufficient cold storage for the evening milk.

The Milk Board's Supervisory Staff are experienced in each of the classes of refrigeration mentioned above, and producers contemplating the installation of a system of refrigeration would do well to contact the Chief Supervisor at the Board's office, or the Supervisor for the district, for guidance on this matter.

BULK TANKER TRANSPORT.

What does bulk tanker transport mean to the dairy farmer?

Additional costs or additional profits? More or less labour? What type of unit is the best? Does the factory save money or not? And, most important of all, is there any likelihood of bulk tanker transport being introduced into the hills areas which comprise the greater part of our city milk area?

An attempt to answer these questions, at least in part, was recently made by the Australian Society of Dairy Technology at a Conference held in Melbourne on July 23 and 24, 1962.

The proceedings of the Conference have now been published by the Society and a copy is available on loan from this office for any member interested in reading the whole of the text. For others a summary of the material relating to those aspects affecting the dairy farmer is printed below.

SYSTEMS OF BULK MILK HANDLING.

The various systems of bulk milk handling in use in Australia fall into two distinct classes—the refrigerated and the non-refrigerated.

Non-refrigerated Systems.

These may be sub-classified as follows:—

(a) Non-insulated tanks, merely a stainless steel shell mounted on legs and provided with lids, dipsticks and outlet. The temperature of the milk in the tanks is under the influence of atmospheric conditions.

(b) Insulated tanks. In these the insulation of the walls and bottom tends to maintain a more constant milk temperature.

(c) Insulated, jacketed tanks. These have coils or channels bonded to the outside of the milk vessel and inside the insulation.

With each of the types of tanks, agitation of the milk is by means of a manually-operated plunger.

Refrigerated Systems.

There are three main types of refrigerated bulk units:

(a) Cold-wall cooling only. In this type all the cooling is carried out within the tank by means of refrigeration applied to the outside wall of the milk vessel. The refrigeration may be chilled water from a melting ice-bank or direct expansion.

With Ice Bank.

Where the ice bank type is used, the compressor making the ice runs for an appreciably longer time daily than the actual milk-cooling time. The reserve ice so accumulated is melted for milk cooling to achieve the required cooling rate. In some instances in Victoria, over-sized ice banks are used to gain maximum advantage of the cheaper night rate tariff.

With Direct Expansion.

In the direct expansion units the refrigerant liquid flows through a jacket attached to the outside of the vessel. With direct expansion tanks there is no reserve of refrigeration so the compressor must produce the entire refrigerating effect during the milk-cooling period. Compressors must, therefore, have on the average about twice the capacity of compressors employed in the ice bank system.

(b) Cold wall plus external cooling. With some refrigerated tanks most of the chilling of the milk is carried out using a milk chiller external to the tank. The temperature of the milk in the tank is controlled by means of a small "holding" chilling jacket or coils through which chilled water may be circulated.

In each of these systems the temperature of the milk in the tank is controlled by thermostat and mechanical agitation of the milk is necessary to obtain efficient cooling. In many instances compressors and/or ice banks are place

outside the room where the milk tank is installed. Because of the need to control milk temperature, tanks which are insulated but not jacketed are not likely to find general acceptance in Australia for use in refrigerated bulk milk handling.

ICE BANK OR DIRECT EXPANSION.

During the few years that bulk milk has been in operation in Australia the relative merits of the refrigerated system and the non-refrigerated system have been debated at length.

Manufacturers have in recent years improved the design, cooling efficiency, operating cost and the life expectancy of the refrigerated vat. Development has been along two clearly defined channels, the ice bank unit, and the direct expansion unit. Both are good and effective methods of cooling.

Ice Bank Coolers.

Ice bank cooling appeals to many because of two important factors: one, that under normal conditions it carries a big reserve of cooling potential in its ice bank and the other, that in many ice bank machines the cooling equipment is of a drop-in variety, which gives a quick and easy change-over in the case of breakdown.

If you want cheap and effective running for ice bank cooling, play safe, install plant that has a big margin of safety so far as capacity is concerned, and you will finish up with a good reserve of ice in all weathers, smaller power bills and a longer life for your working plant.

Direct Expansion.

Direct expansion did not come in for a great deal of consideration in the early discussions on refrigeration. I feel that the long delay in the introduction of direct expansion was something of a tragedy, because to-day it is considered by many to be the complete answer.

In the first place the cost of the unit has come back to a competitive bas with the ice bank plant. Tests conducted in Victoria and New South Wales sho that the cost of cooling a gallon of milk with direct expansion is only 50 p cent. of the cost with the most effective ice bank plant on the market. addition, it cools much quicker, and we have found that even the 500 gallo per day supplier has little difficulty in delivering milk to the tanker at 40° or less five minutes after he has finished his milking. This quick cooling mu help milk quality and prolong the life of the condensing unit, motor and agitat because of the greatly reduced working time. Of lesser importance is the loc tion of the condensing and power units outside the milk room which gives lower room temperature and keeps the milk room clean and tidy.

SHOULD PRE-COOLING BE USED?

The use of an ordinary bar-type water cooler for precooling milk prior going into the bulk vat is a contentious subject. Plant manufacturers conte that their plant is designed to cool the maximum capacity of the vat, with the prescribed standards of time, and such aids to cooling are unnecessary. Othe consider that the savings effected do not warrant the effort of cleaning th cooler and pump, and many consider the risk of airborne contamination to great. This may all be true in some areas, but in my experience in South Gipp land, where there is ample cold water for most of the high production seaso and where there may not be the same risk of dust and airborne worries, goo precooling cuts both refrigeration costs and cooling time in half for most of th year.

In a prolonged series of tests conducted in the north, the best avera figures produced under equal working conditions show that ice bank cooli from 90° to 40°, with milk straight into the vat, cost 0.432d. per gallon, whi direct expansion cooling under the same conditions cost 0.233d. per gallon. South Gippsland a full season's figures on pre-cooled milk, taken over an 18-b cooler with the best water available throughout the year, and cooled in the v to 40° shows:—

Ice bank cooling, 0.225d. per gallon;
Direct expansion cooling, 0.111d. per gallon.

FACTORY OPERATING COSTS.

The most important factor that a dairy company operating a refrigerate bulk system must face up to is operating costs. The margin for refrigerate milk varies from 1½d. to 3d. per lb. butterfat and is paid to compensate th farmer for his additional outlay in plant and running costs. To meet th the cost of collection must be cut to a minimum. Firstly, you must make fu use of your tanker fleet (a tanker with prime mover costs at least £7,000 and gear it to work at least 16 hours each day through the busy season. Th collection area is a fairly difficult one, with more than 50 per cent. in ver hilly country with narrow roads, sharp turns and steep grades; the longe round trip is 92 miles. 11,000 gallons per day per tanker would be well withi the capacity of our fleet. Coupled with the smaller hard-working pick-up fle comes the saving of tanker cleaning. It costs no more to clean the tanker th has delivered 5,000 gallons than to clean the one that has delivered 2,500 gallon

Frequency of pick-up is, however, the main avenue through which th refrigerated pick-up can hope to find its major saving, and it should be th objective of every factory to improve quality to a point where skip-a-day co lection would be possible immediately the flush is over and the capaci of the farmer's vat permits. Running costs of skip-a-day and once-a-day co lection of refrigerated bulk differ greatly from the once and twice-daily colle tions of water-cooled bulk. In the flush season the saving in road miles woul not be more than 25 per cent. but miles used in going into the farm a halved, and so are all other operations connected with pick-up. In the h after-Christmas period in Victoria, supply falls off quickly and this permi the refrigerated factory to pick up every second day. The water-cooled facto must continue twice-daily collections.

A greatly reduced number of road-miles are run each year and such time absorbing and costly functions as running from road to farm pick-up point, connecting hose, starting pump motors, reading dipstick and recording weights, taking samples and recording, and rinsing vat are cut by 62 per cent. At the factory the bulking of samples and washing of sample bottles are cut by the same percentage, and the number of tests for butterfat is halved for eight months of the year. In the office the reduced number of collections from the refrigerated farm reduces the number of entries on the farmer's account sales by the same percentage, with a corresponding reduction in costs of stationery and office staff.

Over the past six years my company's cost of collection and delivery into the separator vats has remained fairly constant at between 1.6d. and 1.75d. per lb. butterfat. This is good business when compared with a total cost of 4½d. to collect and tip can milk and it does enable us to pay a premium of 2d. per lb. butterfat with safety.

Changeover to Bulk Milk.

When changing to bulk from a can collection a logical approach should be to start with a defined bulk area, concentrate on it, and when completed shift to another selected area.

THE FARMERS' COSTS.

Assume a 90-cow herd with an annual production average of 280 lb. of butterfat and that the vat is a top-quality unit giving a maximum performance. (A smaller producing farm would give less favourable figures.)

The capital invested in a direct expansion vat would be in the vicinity of £1,300. Most factories purchasing refrigerated bulk milk pay at least a premium of 2d. per lb. butterfat which gives an extra return of £210. Power at ¼d. per lb. butterfat would cost £26 5/-. Depreciation is difficult to arrive at but assuming that the working portion of the plant has to be replaced in 12 years and the non-working portion in 25 years, and knowing the respective values are approximately 30 per cent. and 70 per cent. of the unit value, annual depreciation would be £69. Interest at bank rates would be £81 5/-. This leaves a balance of £34 out of which maintenance, say, £10, could be paid, leaving a direct balance of £24 as a result of the refrigerated system. This farmer has less quality worries and loses nothing in graded milk or loss of market milk contracts, and the less frequent use of his road cuts his road repair bill to a minimum. From this point onwards the advantages of bulk milk are common to both refrigerated and water-cooled systems, but a bulk vat for holding water-cooled milk costs from 25 per cent. to 50 per cent. of the price of the refrigerated unit and the lower interest and depreciation on this must be recognised.

QUALITY OF MILK.

Initial contamination of the milk has the greatest influence on the quality of milk leaving the farm. The success then of any method of milk handling on the farm, whether in cans or bulk, refrigerated or water cooled, depends to a large extent on the degree of contamination which the milk receives between the cow and the storage receptacle.

Efficient cooling may mitigate the effect of poor sanitation but no honest practice on the farm can significantly reduce bacterial contamination once it is in the milk. This initial contamination can be such that, without any further proliferation of bacteria, the quality of the milk is spoilt.

A stainless steel bulk tank presents relatively less surface area to be contaminated than do the equivalent number of cans, and its surface is easier to clean. In addition, bulk milk is transported in insulated tankers. It is, therefore, to be expected that, under similar conditions of production and storage, milk from bulk tanks should be of somewhat better quality than can milk. But there are so many other potential sources of contamination in the farm dairy that in many instances this inherent advantage can be masked.

Temperature of Cooling.

The temperature to which milk is cooled controls the rate of bacteriological deterioration after production and hence the length of time which milk can be

safely stored on the farm. In Australia, for the greater part of the year, the temperature to which milk can be cooled without refrigeration is not low enough to severely check the growth of bacteria. At such times milk should be collected twice daily. Even then some deterioration may occur before milk reaches the factory. Where refrigeration is used or in the winter months once-daily collection of milk is practicable. For less frequent collection, milk should be cooled to and held below 40°F. which calls for refrigeration. Experience overseas and in Victoria has shown that for every-other-day pick-up of milk, particularly for city supplies, temperatures above 40°F. often result in bacteria count problems, though not necessarily in problems with dye reduction times.

Where milk is refrigerated, cooling faster than is necessary to bring the temperature down to 40° F. within three and a half hours of the commencement of milking brings no significant improvement in the quality of the milk. So long as the blend temperature does not exceed 60° F., the periodic rise in temperature of the cooled milk in the tank during any subsequent filling periods has no significant effect either on the bacteriological or flavour quality of the milk. In practice blend temperatures much lower than 60°F. are obtained.

Effect on Quality.

There is a lack of concise impartial data on milk quality immediately before and after conversion. In parts of the United States where conversion was from refrigerated cans to refrigerated tanks, most reports claim some improvement in quality, but in the case of some producers there was either no improvement or a deterioration. In Scotland, where a long and comprehensive study was made, most suppliers produced refrigerated bulk milk of excellent quality.

In Victoria, where just over half the schemes have been conversion from non-refrigerated cans to refrigerated bulk, there has been a definite improvement in milk quality in these schemes. However, in some instances the improvement has not been as great as might be expected. This is possibly because:

1. The methylene-blue test is not really suitable for grading refrigerated milk and many producers, finding it easy to comply with this test, have let their standards of sanitation decline.
2. Rather than being below 40°F., the temperature of milk in refrigerated bulk tanks is often near 45°F. For a fractional increase in the power bill the practicability of every-other-day pick-up of milk for all purposes is being jeopardised.

Most of the factories collecting non-refrigerated bulk milk have put a considerable effort into securing improved standards of sanitation and cooling on the farm. These efforts have been largely successful, and, in many cases where it was feared the quality of milk might decline, an improvement has actually occurred.

In conclusion, one might say that coldwall tanks and other equipment used for chilling bulk milk are inherently satisfactory, but that more producer education is needed to ensure the maintenance of standards of sanitation and proper cooling. If this can be achieved, the quality of refrigerated bulk milk will be far superior to that of milk handled in any other manner. With non-refrigerated schemes given frequent enough collection, satisfactory but not outstanding milk quality can be obtained. With both systems there will be a need for constant quality vigil and producer education.

ECONOMICS OF COLLECTION.

Transport.

The extent of the savings that can be expected in transport from the introduction of bulk collection will vary from factory to factory, and will depend on:

- Point of pick-up of milk—at dairy or roadside.
- Load capacity of milk collection vehicles.
- Frequency of milk collection.
- What system of bulk collection is used—refrigerated or unrefrigerated.
- Cost per mile.

Where milk was being collected at the farm dairy on vehicles of 1,000 gallon capacity, twice a day for four months and once a day for eight months, a farm refrigerated bulk system with pick-up tankers of 2,000-gallon capac

will allow collecting once a day for four months and skip a day for eight months. Fifty per cent. of the miles travelled on can collection can be saved with a refrigerated bulk milk collection system, 12½ per cent. due to the reduction in frequency of pick-up and 37½ per cent. to load capacity. Frequency of pick-up can contribute a saving of up to 25 per cent. where the density of production is less or the distance longer, and where every third-day collection can be practised.

An unrefrigerated system will give no saving in frequency of pick-up. Any increase in the capacity of a vehicle that will delay the arrival of the milk at the factory must work against the interests of quality. If milk is not cooled to 65° in hot weather, the delay in delivering milk to the factory in operating a 2,000-gallon tanker would reduce the methylene-blue reduction time.

If the cost of carting milk in cans is 5.0d. per pound butterfat, the 50 per cent. saving in miles travelled would save 2½d. per lb. butterfat. If 1,500-gallon can trucks had been in use, the saving would be 1½d. If milk were picked up at the roadside prior to the changeover, the saving would be less by ½d. per pound.

These economies are based on the assumption that the cost per mile would remain constant, which is a reasonable assumption as the increased running costs are balanced against the lower depreciation of the larger tankers.

OTHER ADVANTAGES.

There are others which no attempt has been made to place a value on, such as:—

Fatigue.—With a 55-cow herd, the handling of 200 tons of milk and cans is eliminated.

Time of Milking.—This form of cooling and storage offers more latitude in emergency.

"SPOTLIGHT ON AUSTRALIA"

In our previous issue it was stated that the Australian Publicity Council expected to complete by mid-September 100,000 copies of a publication designed to present in an attractive form practically every phase of Australian primary and secondary industries, with a view to expansion of overseas markets.

An advance copy of this book has now been received and it is certainly an outstanding work. The general quality of the production, printing and illustration are superb, and apart from its aim as a medium for "selling" Australia overseas, it would be an invaluable asset to any school pupil, or in a school library.

Practically every phase of primary production is presented from the farm to processed products.

In secondary industry the book shows the wide diversity of manufacture, and covers also mineral production, building, merchandising, transport, education, and social services.

Probably the most spectacular portion of the book is that devoted to Australia's scenic wonders, which makes it particularly suitable as a gift for overseas friends.

The retail price is 52/6 from booksellers, or copies can be obtained through this office.

Improved Milking Methods.—There being no need to leave the bails at milking time, more attention may be given to better milking methods and care of the herd, with special reference to mastitis. Whilst there has been a value placed on labour saved, if this labour were directed towards increasing herd numbers the added income would far outweigh the allowance made.

Cooling Water Plant.—Care and maintenance on this plant no longer necessary.

Generally, it is a better way of life for the dairy farmer, and will ensure for him a more readily acceptable product by the consumer.

Weights and Grades.—The quantity of milk in the consignment is recorded at the farm from a dipstick reading, thus removing one of the greatest points of dispute between farmer and factory. The milk sample is taken at the farm and refrigerated, so that the methylene-blue or similar test is the same as when the milk was picked up.

DISADVANTAGES TO THE FARMER.

As is to be expected, the disadvantages to the farmer lie almost entirely in the capital cost, not only on the cost of the unit but also the cost of providing an all-weather, heavy-duty road plus cattle grids if the dairy is not on the road side. An important feature of the capital cost is the necessity to buy a bulk tank large enough for expectations; with the can system short-term and long-term productivity increases can be accommodated with extra cans, but with a bulk tank the programme must be decided a very long way ahead, so that increasing farm output or a better-than-usual season does not result in more milk than the tank will hold. Other disadvantages are the cost and inconvenience of having the tank periodically recalibrated as required by law, and also the variations in quantity of milk shown on the dipstick. The mixing of air with the milk during milking (which gradually passes out) can cause a reading of up to two gallons higher immediately after milking than when the milk is pumped into the tank. Variations in atmospheric temperatures can also cause changes in milk volume.

THE SOUTH AUSTRALIAN DAIRYMEN'S . . . Journal

Official Publication of the South Australian Dairymen's Association Incorporated

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PHOTOGRAPH BY COURTESY OF THE CHRONICLE

VYNETTE GADGET'S DAINTY

Holder of Australian Jersey Lifetime Production Record.

Owned by M. R. & J. E. McKENZIE, TOOPERANG.

PRICE 2/-

Printed by G.P.O. Adelaide

12/- per Year Post Paid

VYNETTE GADGET'S DAINTY

Holder of Australian Jersey Lifetime Production Record with 8,594 lbs. butterfat from 65 tons of milk, and winner of 23 Adelaide Royal Show ribbons and many country show awards. VYNETTE GADGET'S DAINTY is the dam of VYNETTE CHEERFUL DAINTY, holder of the South Australia All-breeds 53 Production record with 791 lbs. butterfat.

THE SOUTH AUSTRALIAN DAIRYMEN'S JOURNAL

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A NEW YEAR MESSAGE FROM THE GENERAL PRESIDENT

By the time this is published we will have entered into what will, I trust, be for all of us a year of prosperity and consolidation.

For our Association at least the year 1963 has commenced auspiciously. The honour which Her Majesty the Queen has conferred on me as General President of the Association is at the same time a symbol of the esteem in which the Association is, today, held by the members of the Government and the Opposition party and by the authorities with whom we come into daily contact.

In addition, we are now, as befits an organisation whose members make such a worthwhile contribution to the well-being of the community and the stability of the economy, occupying new office premises of a standard which reflects the status now accorded to the industry. Our membership continues to increase, having now passed the 1,800 mark, and we are also, as may be seen in more detail elsewhere in this issue, examining ways by which we can work more closely with our companion organization, the A.P.P.U.

For the individual dairy farmer the immediate prospect may appear far less attractive. Increased production and the uncertainty of export markets have resulted in prices which are the lowest for several years. However, despite low prices, the increased production per farm will mean that, in most cases, total revenue will not decrease, and the abrupt reduction in inflationary pressure brought about by the Federal Government's action two years ago is reflected in a degree of cost stability that has not been equalled in the post-war period.

Overseas there is cause for more optimism than we dared hope in recent years; the Australian Dairy Produce Board has been performing a task of unestimable value in opening markets in the Asian and Pacific countries; markets which, although small in relation to our total export volume, foreshadow greater things to come, but far outweighing this action in its present import is the possibility, in view of France's continuing obstruction, of Britain's turning back from the Common

WE WISH TO APOLOGISE TO OUR READERS for the delay in the publication of this December issue, caused by the closing of business premises during the Christmas period and the work involved in moving our premises to 13 Leigh Street.

Market towards the continuation of her traditional relationship with the other Commonwealth countries.

Nevertheless, welcome as such action will be, it will do no more than retain the *status quo*; it will do nothing towards solving the problem of the disposal of the unsaleable surpluses of dairy produce which have been accumulating, in other countries as well as in Australia, over recent years and which will continue to grow regardless of the outcome of the Common Market negotiations. The United States currently has surpluses of 155,000 tons of butter, 45,000 tons of cheese and 260,000 tons of non-fat milk solids, and cold storage space is completely exhausted; in Australia our own stocks of surplus butter and cheese are so great that we are seeking storage space abroad, and a similarly serious position exists in most other dairy produce exporting countries. Although we can try, through promotion, to increase the home consumption of dairy products, we must admit that our community is already adequately, if not over-, fed and such promotion may result only in retaliation from the producers of the foods which we seek to displace. It is, therefore, not surprising to find that dairying countries are engaging in increasing competition with each other in existing world markets, in many cases with financial assistance from their governments, thus leading inevitably to even greater problems and still lower prices.

Certainly in such circumstances a far saner approach would be some form of international marketing agreement coupled with a joint drive to expand the total world market, but, in the meantime, in the absence of such a scheme, and with, at present, little chance of its coming to pass, what positive action should the Australian dairying industry embark upon to prevent the further build-up of surpluses and the continued depression of returns?

We cannot contemplate seeking further direct financial aid from the Federal Government while we are not prepared to place some form of control upon continued expansion of the industry. There must be a limit to the humiliation we are prepared to inflict upon ourselves by our pleas for assistance. Although the Stabilisation Scheme has, in the sixteen years since its inception, been designed to bridge the gap between cost of production and receipts, its effect has been continually nullified by the increased production which it has engendered by reason of the expectations of higher price, whilst at the same time costs have risen even further as the amount of the subsidy has been capitalised into farm values.

The dairy farmer must not be deprived of the subsidy now, it is interwoven into his cost and capital structures, but for the future we must look to quite different remedies, preferably as a result of action from within the industry. Our own Milk Equalisation Scheme is an example, now of over 25 years' duration, of a successful form of regulation applied from within the industry, and Commonwealth Equalisation is the result of a similar action operating on the larger scale. **The initiative and spirit that led to these schemes are still present if we still have the will to use them.**

CAN YOU HELP?

A New Australian (Dutch) is very anxious to get into dairying. He has had no experience and would like a job on a dairy farm to gain experience before he tackles either purchase or lease. Married, with 2 small children. Contact this Office.

KEEP FRIESIANS

ELLENGOWAN MAYBELLE

AND THEY WILL KEEP YOU

Australian dairy farmers are this year honoring this 13-year-old Friesian, owned by Mr. W. E. Stone, of Wildes Meadow, who has a total production of 184,987 lbs. milk and 6,544 lb. butterfat, thus becoming Australia's

HIGHEST LIFETIME MILK PRODUCER

and the highest lifetime butterfat producer in N.S.W.

During the 1961/62 Herd Testing Year South Australian Friesians averaged **OVER 400 LBS. FAT PER COW,** a feat never previously achieved by any breed in any State in Australia

NO OTHER BREED CAN PRODUCE AN EQUAL QUANTITY OF MILK, BUTTER FAT, VEAL, AND BEEF

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THE FILLED-MILK FLOP

Just about five years ago filled milk (in which the butterfat has been removed and replaced by vegetable fats) was being hailed as a stepping-stone on the way to solving the world's hunger problem. Dairying countries had lots of low-cost milk solids which could not be sold, under-developed countries could supply vegetable fats; the mixture would have all the advantages of milk at a fraction of the cost.

Panic-stricken dairy countries passed legislation banning the new product, but a number of extensive processing plants were established in Asian and Pacific countries, among which the plant in the Philippines was considered to be a model.

Now, after five years, comes the news that in the Philippines consumers and medical authorities alike have condemned filled milk. Three Filipino scientists, A. Ballabriga, S. Sanz and J. M. Escriu, carried out extensive tests on groups of children who consumed filled milk and standard evaporated milk. The scientists reported: "We have investigated filled milk with fat content of 94% coconut oil and 6% corn oil. Even at low dilutions this product is not suitable for infants as it produces too many dyspeptic complaints. Bodyweight increase is unsatisfactory, and there is a higher incidence of inter-current infectious process leading to a state of dystrophy."

Commenting, Dr. Frank E. Rice, of Chicago, said: "The fat of cows' milk, in the light of modern nutritional knowledge, is significantly preferable to coconut oil. Milk fat carries with it important nutrients not present in coconut oil, and more closely approaches human milk fat in composition."

SYNTHETIC MILK

If filled milk was proved to be less than was claimed for it, what should be the industry's attitude to synthetic milk?

Synthetic milk is produced by chemical means from vegetable products, and a recent news report claimed that scientists in Britain had succeeded in making synethetic milk from cabbage leaves and similar waste vegetable products.

This is nothing new. Similar developments have been announced at least half-a-dozen times in the last twenty years, and we must remember that George Washington Carver, the great Negro scientist, made synthetic milk from peanuts at the beginning of this century.

In the latest reported effort the significant note is that the scientists concerned hope that evenually they will be able to produce synthetic milk at a price competitive with cows' milk. This, presumably, has been the goal of successive scientists since the days of Carver, and there is possibly little more chance at present of achieving this goal than previously.

Despite the possibility of a threat to the industry some time in the future, we must examine our consciences carefully before we support the Queensland Dairymen's Organisation which is seeking legislation in all States prohibiting the manufacture of synthetic milk. There is a danger of adopting the attitude of mind which caused early inventors to be burnt as magicians and which sought to destroy the mechanised looms and spinning machines which were the forerunners of today's mechanised world. After all, what would our attitude be to a move by vested interests to suppress some process for producing a cheaper substitute for some product which we buy for use on the farm?

Please note our change of address to—

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Statistics

PRODUCTION (000 gallons)

Month	1961	1962	Total since July 1 1961/62	Total since July 1 1962/63	Total since Jan. 1 1961	Total since Jan. 1 1962
October	4,515	4,631	14,911	15,521	29,353	31,383
November	4,063	4,487	18,974	20,008	33,416	35,870

SALES (000 gallons)

Month	Total since July 1 1961	Total since July 1 1962	1961/62	1962/63	Quota % 1961	Quota % 1962	C.M.B. 1961	C.M.B. 1962
October	1,544	1,587	6,070	6,242	34	34	1/8½	1/8½
November	1,533	1,582	7,603	7,824	38	35	1/10½	1/9½

INTERIM PRICES

(All prices are interim only and subject to adjustment by retrospective payment)

1962	Basic (per lb. butterfat)	C.M.B. (per lb. butterfat)	Total (per lb. butterfat)	3% (per gallon)	3.5% (per gallon)	4% (per gallon)	4.5% (per gallon)	5% (per gallon)
October	3/3	1/8⅛	4/11⅛	1/6¼	1/9½	2/0½	2/3½	2/6¼
November	3/3	1/9⅛	5/0⅛	1/6¾	1/9¾	2/0¾	2/4	2/7
December	3/3	—	—	—	—	—	—	—

SWEET CREAM SALES (lbs.)

Month	1961	1962	Total since July 1 1961/62	Total since July 1 1962/63
September	90,822	102,456	276,000	307,000
October	83,499	97,391	359,000	404,000
November	80,602	90,931	440,000	495,000

N.S.W. TIGHTENS MARGARINE CONTROL

In the October issue of the Journal we reported the threat to the industry caused by the continued flouting of the N.S.W. margarine quota, which, even at its legal limit, amounts to 9,000 tons out of the Australian total of 16,000 tons, and to the foreshadowed action by the N.S.W. Government to further increase table margarine quotas in that State.

Despite requests from industry leaders, the N.S.W. Government refused to give assurances that quotas were not going to be increased, nor would the Premier of N.S.W. grant an interview to the Chairman of the Australian Dairy Produce Board.

After three months of intense pressure from the industry organisations, primarily in N.S.W. but strengthened by representation from all other States, the N.S.W. Parliament has now passed a Bill amending the N.S.W. Dairy Industry Act by giving greater policing powers to the officers of the Department of Agriculture. This fulfils the promise which was eventually given to the dairy industry leaders by the N.S.W. Premier that there would be no increase in the existing State quota of 9,000 tons.

Before the Bill was introduced, the Australian Dairy Produce Board had stated that N.S.W. manufacturers had been illegally producing 4,000 tons of table margarine a year in excess of quota, and it was feared that Parliament intended to pass legislation to legalise this additional quantity, an action which, in the absence of more stringent control, would have led only to further flouting of the law over and above the new legal limit.

The amended Act now gives investigating officers power of access to licensed premises and to the books and records of margarine manufacturers. It doubles the maximum fine for breaches to £400 plus £40-a-day for continuation of an offence, and introduces a further penalty of up to six months imprisonment.

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When enquiring about advertised goods and services, say you read it in the Dairymen's Journal.

COST-OF-PRODUCTION SURVEY

MORE VOLUNTEERS WANTED

The aim of an efficient farmer is not production but **economic production,** not revenue but **net revenue,** and it must be a matter for considerable concern that so much of the activity of advisory bodies is concerned only with methods of increasing production rather than of increasing profits. There are masses of scientific data available on soil chemistry, nutrient requirements, pasture species and the like compared with the very small amount of information regarding the **economics** of farm practices, as to whether or not a certain technique **pays** better than some other technique, even if the total production is less.

Over the last four years the Metropolitan Milk Board has been carrying out a Production Cost Survey which is of vital importance to all dairy farmers. Not only does it provide the basis for city milk prices, but it is also accumulating data of immense value which may one day, be used to provide information on the economics of farm techniques; information which, if the lack of published material is any guide, is not being gathered in this form anywhere else in Australia.

It is essential to all licensed producers that this survey be as widespread as possible, to ensure that the figures on which our returns are based cover a representative cross-section of dairy farmers, and on the breadth of this cross-section will depend the validity of any subsequent economic analysis, and hence its worth to dairy farmers as a whole.

The Milk Board needs a much larger number of dairy farms in the survey than it now has. All information is confidential, and the work involved is slight; in fact, it may well be that the officers engaged on the survey will be able to assist you in reducing the work on your records.

Our case for fair prices must be based on facts, and facts can only be determined by a cost survey. It is therefore in your own interests at least to come into the Cost Survey and so enable a fair return to be calculated.

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Central Council Proceedings

ARTIFICIAL BREEDING STUDY GROUP

The Secretary reported that a meeting of the study group was held on September 17, when the problems encountered in the field were enumerated and discussed. There appeared to be wide divergencies in conception rates, and whilst there were many dairy farmers who were completely satisfied, some farmers had been forced back to natural mating, with the result that a large number in the A.B. areas, who were able to make use of the service, were holding back until they saw proof of its success. This was resulting in uneconomic operation of the scheme, which, ultimately, would have repercussions on the farmers already using the service, and prevent the spread of the service to other areas. Although official records were being kept, their accuracy was in some doubt, and in any case the complaints of a single farmer could upset the progress of the scheme to an extent that records could not cure. To assist the study group, the General Secretary had conferred for a considerable time period with Mr. Sedgwick, the producers' representative on the N.S.W. Milk Board. Mr. Sedgwick believed the greatest obstacle to successful A.B. was infertility which, in N.S.W., was either metritis, corpus leteus, trichomoniasis, leptospiros or vibriosis, and had outlined the appropriate treatment for each of these. Mr. Sedgwick had also emphasised the importance of precise insemination techniques.

Members of the group had agreed that the reported experience of farmers was not as satisfactory as had been hoped, and that there appeared to be wide divergencies in the programmes as recommended by vets. and inseminators. The approaches to infertility also seemed to differ.

Mr. W. Rose had then attended the meeting and conferred with members of the group, as recorded in the October issue of the Journal.

The study group had not at present made any recommendations.

Mr. Warwick said that one reason for forming the study group was the considerable ignorance and misunderstanding amongst dairy farmers generally concerning artificial breeding, what it could do, and how it could be used, and he believed the other members of the study group would agree that Mr. Rose had answered quite satisfactorily all the questions put to him. Consequently, the answers are now in existence but they have not been communicated to the farmer. The study group did suggest to Mr. Rose that it was most desirable that this information be disseminated much more widely. The present position was that the dairyman now had a new implement, but lacked the instruction book to tell him how to use it, and the study group had suggested to Mr. Rose that the A.B. Board put out a periodic news sheet of general information about A.B. and its techniques. Mr. Rose had agreed with this suggestion, but we have heard no more about it, and he moved:—

> "That this Association ask the Artificial Breeding Board to publish regularly a newsletter about artificial breeding, its techniques, the bulls use, statistical data, and other information which will assist the dairy farmer to make the fullest use of this medium."

Mr. Easton seconded the motion.

In the ensuing discussion members suggested that the distribution

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---

of such newsletters be restricted to users of A.B. and to those farmers not using A.B. but to whom it was available.

Mr. Gormlie said that for farmers not yet using A.B. the newsletter should set out the timetable which a farmer could use in adopting A.B., as to whether he should change over gradually or at once. He also believed that the study group should set out the sort of information which would be required, and maintain a continual watch on the subject.

The Chairman replied that Mr. Rose was at present very busy in getting the scheme established, but he believed that in the very near future the Board would be able to institute such a scheme.

The motion was carried.

PENICILLIN IN LIQUID MILK

The Secretary reported that the Milk Board had proceeded with its declared intention of suspending the licence of any producers whose milk showed a positive reaction to the penicillin test used, but it was reported that the number of suspensions resulting from this test was extremely low.

He had conferred with the Chief Inspector of Stock (Mr. W. S. Smith) since his return from overseas on the subject of the dye marker. Mr. Smith had stated that, although the International Dairy Federation had expressed interest in a dye marker, overseas authorities were surprised that Victoria should take a step that even the most developed dairying countries had not dared to take.

Mr. Nettle said that, during the course of his address, Mr. Smith had stated that 10,000 units of penicillin was sufficient treatment although the minimum quantity available for sale was 25,000 units. The efficacy of the 10,000-unit treatment was contradicted by a veterinary surgeon whom he had called in for treatment.

The Secretary said that the C.S.I.R.O. had a special panel studying mastitis and that he would seek an independent opinion from this panel on the question of penicillin dosage.

PROMOTION OF SALES OF DAIRY PRODUCE

The Secretary reported that the two resolutions on this subject emanating from the meeting of June 21, namely: "That the Milk Promotion Sub-Committee investigate the possibility of seeking from retail storekeepers and delicatessen proprietors their views on ways of increasing sales of dairy produce over the counter, and, if such views are practical and acceptable, take steps to put these recommendations into action" and "that the Milk Promotion Sub-Committee investigate the processing of second-grade cheese for the purpose of withdrawing it from competition with higher grade cheese on the home market, and of finding an alternative outlet in processed form, and that this resolution be also submitted to the Australian Dairy Farmers' Federation seeking the Federation's support on the proposal as a submission to the A.D.P.B.R.P.C." had been examined by the Milk Promotion Joint Committee.

Concerning the first, it was generally believed by the trade that the turnover of loose cheese of good quality in supermarkets and large grocery establishments was at a sufficiently high rate to prevent problems of wastage, and that there was ample range of varieties and sizes in prepacked cheese to satisfy the requirements of the smaller traders whose turnover was not rapid enough to allow the use of bulk cheese without the risk of wastage through mould and dissication.

In the presentation of cream, there were indications of satisfactory moves in the near future.

The opinion of Mr. Hedley Clark, executive officer of the A.D.P.B. had been sought concerning the merits of this resolution. Mr. Clark had commended the principles underlying the resolution, and had pointed out the Board's inability to do more than create a national image and advise and recommend on methods, the actual carrying out of the task of promotion and presentation being in the hands of the

industry. To this end the Board was carrying out continuous research into these factors, but had no power to implement its findings.

The Joint Committee accepted Mr. Clark's views, but considered that no further action was warranted.

The second resolution had been considered by the A.D.F.F. and passed on to the Cheese Manufacturers' Federation for comment, but the Cheese Federation had replied that second-grade cheese was not suitable for "processing". At the annual meeting of the A.D.F.F. it had been explained that the intention was not to "process" the cheese in the sense that Kraft cheese is "processed", but to use some method of manufacturing the second-grade cheese into a saleable product which would not compete with the better grade table cheeses.

Although the A.D.F.F. Executive had agreed to take up the matter again with the Cheese Federation following this explanation, the Joint Committee had considered the subject to be of sufficient importance to warrant independent action, and moves were now being made to explore the relevant legislation to see what amendments were necessary to require all cheese to be graded, and all packaged cheese to be true to grade and type. From this would follow moves to control the sale of second-grade cheese in a manner similar to that in use for butter. At the same time Mr. Czulak, of C.S.I.R.O., was being asked to undertake research into a suitable method for making second-grade cheese into a saleable product not in competition with table cheese.

The Chairman commented that the problem of the disposal of second-grade cheese cut across vested interests, who, naturally, wanted to get as much money as possible for themselves and for their suppliers, but the cheese manufacturers in this State, whose level of cheese quality was the highest in the Commonwealth, realised the danger, and we could expect complete co-operation from them.

The Secretary added that the Joint Committee had also considered the subject of school milk, which was probably of even greater importance to our members, and he had been instructed by the Joint Committee to again analyse the milk returns from all schools, which he did two years ago, and to contact the Parents' and Friends' Associations of a representative sample of those schools which appeared to have a very low consumption per head of free milk, preferably by personal contact, and endeavour to ascertain the reasons for such low consumption, for example, the attitude of the teachers, whether the milk is too warm, or contains a cream plug, or whether homogenized milk or cartoned milk was preferred, whether milk was sold in the tuck shop (in high schools and colleges), the extent of competition from aerated waters, and the possible demand for flavoured milk.

SWEET CREAM SALES

The Secretary reported that sweet cream sales had increased by approximately 24% since the price reduction in April. However, it was generally believed that the price reduction has caused a considerable increase in the sales of Victorian cream. The Minister of Agriculture had expressed the opinion that it would be desirable, to amend legislation in this State to allow the use of approved thickeners with a lower butterfat cream, and had asked the Metropolitan Milk Board to make a recommendation as to the form such amendment would take.

A special sub-committee had been appointed by the Board of Directors of the Metropolitan Milk Equalisation Committee to confer with the Milk Board on this matter, and it had been agreed between the Milk Board and the sub-committee that regulations be amended to allow three grades of cream, namely, 18% minimum butterfat, to be

called "coffee cream"; 35% minimum, to be called "cream", and 48% minimum, to be called "rich cream", and that the use of permitted thickeners be allowed. The use of thickeners would not be specifically limited in the regulation to any one grade, but the 35% cream would be the only one thickened.

The Executive had resolved that the General Secretary be instructed to watch the position of sweet cream marketing and to report to the Executive Committee from time to time.

Further negotiations had since taken place on the matter of legislation.

The Secretary added that it was believed that the largest Victorian exporter **alone** was selling in S.A. and the Eastern States as much as ten times our own sales, which meant that this was "big business" in regard to money, techniques, and promotion, and it was a big job for us to tackle.

Mr. Schubert suggested that we should examine the possibility of increasing viscosity by a refrigerating process.

Mr. Spicer said that there was a possibility that the Victorian cream was being subjected to a process of the Dahlenburg type, to increase its viscosity, and asked whether these techniques had been tried locally.

The Secretary replied that Mr. Schubert's and Mr. Spicer's suggestions were valuable, but our powers were limited to making pious resolutions. We did not know whether the Dahlenburg process was used in Victoria. Recent British work, as reported in the latest issue of the British Dairy Tech. Journal, had shown that refrigeration made a great contribution to viscosity. However, he had given details of

the Dahlenburg process to our own merchants, who had been unable to increase viscosity by this means.

Mr. Harper said that the Association's ability to achieve anything in the field of techniques was obviously limited, and he moved:—

"That this Council concurs with the resolution made by the Executive Committee (that the Secretary General Secretary be instructed to watch the position of sweet cream marketing and to report to the Executive Committee from time to time) and that the Secretary's reports be made available to the Council."

Seconded by Mr. Spicer and carried.

Mr. Seeliger asked whether there was any control over the sales of "mock cream", either loose or in cakes sold as "cream cakes".

The Secretary replied that the Food and Drugs Act stated that "the use of the word 'cream', or expressions or devices which imply or suggest the presence of cream or the equivalent of cream, shall not be applied to any preparation to be a substitute for cream, nor shall the word 'cream' be applied in the description of any food containing such a substitute". If members could find examples, the Association would be prepared to bring such cases before the authorities.

TRANSPORT OF MILK

Mr. Goodrich said that new regulations were now in force requiring truck drivers to keep their blinds down at all times except when actually loading, but there appeared to be little effort on the part of truck drivers to comply. If the regulations were nonsense, and the use of blinds had no effect on milk quality the dairy farmer was wasting money on useless blinds and on the extra time taken by the driver; if the regulation made sense, they should be enforced.

The Chairman said that, because of the inconvenience and time wastage caused, which could result in later unloading times at the depots, he believed that the advisers had been given discretion in this matter.

Mr. Harper said that there had been some opposition from drivers in the last few weeks, and the granting of discretionary powers to advisers would probably result in reasonable observation of the regulations in hot weather. The regulation was designed to protect us and we should not be worried about this at all, the amount of delay would be slight, but there are almost certainly better methods which could be used.

Mr. Warwick moved:—

"That the matter be investigated by the Executive and their findings reported to Central Council."

Seconded by Mr. Turner and carried.

HERD-TESTING PROPOSAL

Mr. Hannam stated that the proposal for "do-it-yourself" herd testing had come from the U.T.V. District, and that a pilot scheme was now operating among six farmers. Each farmer was providing his own test bucket, scales and test bottles, and would deliver the samples himself to the factory, where it would be tested free of charge. The only additional requirement was a simple chart or formula for calculation. If the demand became greater than the factory could reasonably handle, it was proposed that the group would pay for the services of a tester in his time off.

ACCOMMODATION

The Secretary had reported to the Exeuctive that the premises in Pirie Street were no longer avilable, having been leased in the meantime. However, he had later been advised of the possibility of having to vacate our offices some time in the near future. The President and Senior Vice-President and he had examined alternative accommodation and discussed the matter with the merchant directors of M.M.E.C. Ltd.

After examination of the proposed accommodation, the Executive had agreed that the President and Secretary move to secure the required accommodation at 13 Leigh Street.

The Chairman said that he believed the proposed action was wise, not only from the point of view of convenience of the members, but also because of adjoining tenants who were sometimes disturbed by the noise of meetings.

At the suggestion of Mr. Spicer and Mr. Loechel, the meeting was then adjourned to allow the members to inspect the new premises.

On re-assembling, Mr. Faggotter moved:—

"That this Council endorses and commends the action of the Executive in obtaining accommodation in 13 Leigh Street."

Seconded by Mr. Green and carried.

CO-OPERATION WITH A.P.P.U.

A resolution had been received from the South Coast District:—

"That there be an interchange of delegates between A.P.P.U. and S.A.D.A. Central Council meetings."

The Secretary reported that the Executive had examined this proposal carefully and had finally resolved that it be a recommendation to the Central Council that consideration of this matter be left in abeyance until the South Coast delegates had further examined the position. Since then a letter had been received from the A.P.P.U. advising that a resolution had been passed by the Dairying Committee of that Association "that this Committee considers that when matters of vital importance to the industry are concerned, we seek the interchange of views or delegates with the S.A.D.A. in order that a uniform approach may be obtained, and that the S.A.D.A. be requested to reciprocate accordingly". The text of this letter had been made known to the South Coast delegates for their consideration whilst re-examining the original resolution.

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Mr. Warwick formally moved the resolution from South Coast adding that he spoke as a member of the A.P.P.U. and as a representative of the younger members of the Union, who felt that the S.A.D.A. was the logical organisation to represent all dairymen in South Australia, and that, if unity were going to be achieved, it must be achieved from the bottom rather than be imposed from the top, so that the sooner there was some form of "working together", even on the lower levels, and an understanding of the problems and of what the other fellow is thinking about, the sooner would we have the unity that is so essential to the efficient representation of the dairying industry in this State.

He believed that, in accepting this resolution, we had nothing to lose, but would start to work towards some sort of understanding and unity with the other sections of the dairying industry in this State, and he sincerely hoped that this resolution would be carried unanimously. He asked members to bear in mind that the A.P.P.U. were our neighbours and fellow dairy farmers, and in many cases were members of that organisation rather than ours by the chance which led the Union organiser to contact them before our own organiser had done so. In view of this, it was most unfortunate that in so many cases in the past the organisations had adopted opposite recommendations and contrary views.

Mr. Hannam seconded the motion.

The motion was then debated at length, many members supporting the opinion that the A.P.P.U. was tending away from a "one big

union" principle towards a greater degree of autonomy for commodity sections.

Mr. Easton then moved an amendment:—

"That this Council is sympathetic towards the views expressed and suggests that a Liaison Committee be formed comprising four representatives of each organisation." This was seconded by Mr. Turvey.

The amendment was carried.

The Chairmen then called for nominations for the personnel of the Committee, which were as follows: The General President, Mr. Warwick, Mr. Turner, the General Secretary.

DAIRY INDUSTRY ACT

NEW REGULATIONS ISSUED

New regulations, which represent probably the most important change in State dairy legislation in recent years, have now been made under the Dairy Industry Act, and will be of great importance to all dairy farmers other than those licensed by the Metropolitan Milk Board.

(Note that under the Metropolitan Milk Supply Act holders of milk producers' licences are specifically exempted from the operations of the Dairy Industry Act.)

The most important changes, to the dairy farmer, are those relating to the grading of milk and the payment by grade for milk and cream. Under the new regulations, grading of milk is now to be carried out

by the methylene blue test. The factory is required to test by methylene blue once in every eight days, and to grade the milk accordingly:—

Choice Grade	4 hours
First Grade	3 to 4 hours
Second Grade	Less than 3 hours

Of interest to licensed milk suppliers is the fact that, although the methylene blue test is taken only once in each eight days, if the result of the test is below "first grade" (3 hours) the result must be made known to the supplier as soon as possible, and the milk from that supplier is tested on each succeeding day until it comes up to "first grade" or better, after which the testing reverts to the normal frequency of one test in each eight days. Whilst the milk is testing at "choice" or "first grade", payment for all milk received from the time of the test until the next test is at the rate appropriate to that grade, but when the test falls below "first grade", and is consequently tested each day, the payment for each day's milk is at the rate appropriate to the grade determined on that day.

The payments for milk are scaled according to grade thus:—

First Grade	Not more than 98% of the current price for choice grade.
Second Grade	Not more than 85% of the current price for choice grade.

WANTED TO LEASE.—A small dairy property. Apply this office.

MONOPOLIES AND RESTRICTIVE PRACTICES

In his proposals for legislation to control monopolies and restrictive practices, the Federal Attorney-General, Sir Garfield Barwick, has laid the foundations of one of the most important pieces of legislation since Federation, and whatever the color of our political thinking, we can all echo the words of Mr. Freeth, when he introduced the proposals before the House of Representatives, "that we are greatly indebted to the Attorney-General for the painstaking research and investigation which he undertook in the preparation of this document."

In our relatively young country we have achieved considerable industrial development and a high standard of living, but these achievements have been greatly handicapped by the existence in Australia of a degree of monopoly power and trade restriction which is probably unique in the free enterprise countries of the world, and, in fact, it may well be argued that in this country the term "free enterprise" is appropriate only to the small-trader section of the economy.

This is probably the chief reason for the stagnation and depression that threatens such a large part of the economy today.

The difficulties under which primary producers labor, and about which we so frequently complain, namely, the burdensome tariff rates, excessive prices for spare parts, the high costs of machinery and equipment, and the like, are not themselves the cause of our problems, they are merely the symptoms of an absence of competition that reveals itself in the high price-levels and the "mark-up mania" that are forcing our products out of the world markets and are leaving our home consumers so little to spend on the produce of our farms.

The U.S. economy has been built on a tradition of competition of which the Sherman and the Clayton Acts have been the mainstays for over 60 years. In Great Britain the history of similar legislation dates only from 1948, but even in that short time it has shown how effective it can be.

Sir Garfield Barwick's proposals embody all that is best in the U.S. and U.K. legislation, and also contain many improvements, whilst at the same time recognising the peculiar problems which confront Australia due to her relatively small population.

The history of "anti-trust" legislation in other countries demonstrates the extreme difficulties that underlie this type of legislation, the U.S. and U.K. acts have been assailed on all sides, and each weakness patched up only after long and tedious argument. The Attorney-General's proposel legislation has taken note of these weaknesses and appears to be of an extremely coherent character.

It is vital that it remain so. Already the forces of Big Business are moving to destroy its effectiveness. There is a danger, too, of the legislation being blocked by State Governments standing on their "sovereign rights" dignity.

The proposals are practical and reasonable, and show a nice balance between protection of the public on the one hand and the necessity for some degree of co-operation between enterprises on the other hand. Unlike the U.S. legislation, it does not seek to destroy mere size, and recognises that in Australia the number of enterprises the nation can support in any particular industry is limited by the size of our market. Unlike the U.K. legislation, it covers not only saleable goods, but includes services also.

Adopted as a whole, the proposals will lead to legislation which could be a model for the free world. Patched and emasculated by pressure from Big Business exercised through those whose duty it is to represent the people, it will become another deadletter Act.

Public support is therefore essential, both from individuals and organisations, whose vocal support will greatly strengthen Sir Garfield Barwick's hand.

MORE NEWS OF THE CALIFORNIA MASTITIS TEST

Since the publication last year of Mr. Tim Warwick's experience with the Schalm test for mastitis, we have, as a result of requests from dairy farmers, imported a number of these test kits from the U.S.A.

To some extent we may consider ourselves to be pioneers in the use of this test in Australia as, up to now, no mention of the test has been seen in industry publications in this country, and the only information we have been able to gain has been direct from the U.S.A., through Dr. Rosanove, of the Mayo Clinic (but now in Melbourne), through the Australian Embassy in Washington, and from N.A.S.C.O., the manufacturers of the kit under licence from Dr. Schalm, of the University of California.

We have now learned that the well-known Australian authority on mastitis, Dr. D. Murnane, D.V.Sc., has, with Dr. Schalm's consent, modified the test to suit Australian conditions, and the kits and reagent are now being manufactured by I.C.I.A.N.Z. and will be marketed by them early in February under the title of the Rapid Mastitis Test (R.M.T.).

The test, which is simple as well as rapid, may be applied to suspected cows whenever necessary or as a routine test to the herd at, say, monthly intervals.

The great advantage of the R.M.T. lies in its ability to detect "sub-clinical" cases, that is, cows who may be carriers of the disease, and able to infect other cows in the herd, and yet not show any of the recognised symptoms themselves. These "sub-clinical" cases may persist for months or longer before clearing up, or may clear up spontaneously, or may flare up into an active case, but whilst they are "sub-clinical" they are never recognised and so never treated. Until the development of the Schalm test, laboratory examination of quarter samples from every cow in the herd was the only method of detection. Laboratory testing still remains the most positive method, but the Schalm test now gives every farmer a method of rapidly diagnosing his own "sub-clinical" cases as well as gauging the severity of more obvious clinical cases.

For the diagnosis and control of "sub-clinical" mastitis, Dr. Murnane suggests using a monthly routine check, at which the "quarter scores" are recorded and kept for comparison each month. By this means the owner can see for himself how the herd is progressing.

If the total herd score is declining he is on the right track; if it is increasing, either hygiene or the milking machine is at fault.

As a guide it can be said that if a herd has less than 10% of quarters giving positive reactions of all degrees, the hygiene and milking techniques are excellent. If 20% of quarters (or more) are giving positive reactions it is time the machine was checked and the milking shed hygiene tightened up.

It is of interest to note that, at least in Victoria, farmers have been using a "home made" version of the Schalm test with ordinary household detergent as the reagent. As the chief constituent of the Schalm reagent is trietharolamine sulphonate, a chemical closely allied to household detergents, such a method will give a fair approximation of the "swirl pattern" of the test, but the color indication of the Schalm reagent, due to the use of bromcresol purple, as a measure of the acidity or alkalinity of the sample is, of course, not present. As the price of the reagent is relatively low, and the amount used quite small, it would be foolish to attempt to economise in such an important matter by the use of any other than the correct reagent.

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REPORTS FROM PARLIAMENT

In the speech by which he opened the Annual Conference of the National Farmers' Union of Australia in Canberra on November 13, 1962, the Prime Minister referred to the necessity for primary producers' organisations to act as pressure groups in relation to the Government. The Prime Minister used these words: "It is essential . . . that you should never let us forget about your problems. Never be afraid to maintain pressure on the political mind. It is an age of pressure, and I don't mind, and I hope that you will continue to realise that my door is always open when you have views that you want to put to me".

The Minister of Agriculture used almost identical phrases at the opening of the Annual Conference of the Milk Producers' Association in September.

These invitations to primary producers must not be ignored, because they indicate the value that Governments place on industry participation in the formation of Government policy. Whilst the debates on legislation concerning our industry are followed with great interest by dairy farmers and their organisations, they occur only at long intervals, and the legislation itself is the crystallisation of Government policy during the preceding period.

If we are to make a positive contribution to Government intervention in the industry's affairs it is vital that we keep abreast of Government thinking in the intervals between major legislative moves and one important way in which we can do this is to follow closely the questions asked in Parliament concerning the industry; the questions and the corresponding answers are valuable, not only as sources of information, but as indications of the attitudes of the individual members, and of the official policies of the Government and the Opposition concerning the industry.

It will, consequently, be the practice to publish, in future issues of the Journal, summaries of the questions asked, and the answers given, on matters relating to the dairying industry, in both Federal and State Parliament. A few examples from the last session of each Parliament follow.

FEDERAL

Margarine

Mr. McGuren asked was it a fact that the standard combat ration for the Australian military forces provided for one ounce of margarine per man per day, but made no provision for butter?

The Minister for the Army (Mr. Cramer) stated that the policy of the Army was to use as much butter as possible, but that margarine was used in certain packs because of its keeping qualities.

Mr. Hayden asked what quantities of butter and margarine were used in the past 5 years by Commonwealth Hostels Limited?

The Minister for Labor and National Service (Mr. McMahon) gave figures showing 804 tons of butter and 448 tons of margarine, adding that only butter was served with meals or used as a spread for sandwiches.

STATE

Powdered Butter

Hon. K. E. J. Bardolph asked about the possibility of seeking Eastern trade markets with the newly developed product, "powdered butter"?

The Chief Secretary (Sir Lyell McEwin) replied that the main use for powdered butter was in products such as ice cream, cake

mixes, frying batter and white sauce. It could not be reconstituted into normal butter. Its chief feature was its readiness in mixing with other ingredients and the fact that it did not melt in hot weather. Because of the processes involved, it would not be cheaper than butter. Its subsequent importance would depend on economic factors and successful promotion. The Australian Dairy Board was trying to find markets for it. Powdered butter was not likely to affect the butter industry in S.A.

"A Geneticist Talks With Australian Breeders"

Some time after Dr. Hagedoorn's visit in 1949 the C.S.I.R.O. published the text of his lectures under the title of "A Geneticist Talks with Australian Breeders", a book which created considerable interest at the time. This interest has again been aroused in the eastern States and a condensation of Dr. Hagedoorn's lectures was recently printed in the N.S.W. Milk Board Journal.

Because of the interest expressed by readers in her comments on the Ruakura Experiment in the August 1962 issue of this Journal we asked Mrs. Margaret Robertson of Vale Royal to summarise this condensation and to evaluate it in terms of the progress in genetics in the 14 years since Dr. Hagedoorn's visit.

"Dr. Hagedoorn's series of lectures was given in 1949, over 13 years ago, and, although the basic genetic principles he used have not altered, more extensive experiments have since been carried out, the results of which would, no doubt, have caused him to modify some of his views. In particular, certain aspects of 'correlation' have been investigated more thoroughly. A 'correlation' exists between two characteristics when a change in one of the characteristics causes a change in the other. Dr. Hagedoorn said that the only quality which seemed to be positively correlated with production was size. However, later research has shown a significant positive correlation between type and production.

"The June, 1956, report of the Type Committee of the American Dairy Science Association states that there is a positive correlation of .15 between the type of a dairy cow and her production; that is, if type is improved by 100%, production should increase by 15%. Thus, if breeding for production, far greater progress will be made if one culls for both type and production at the same time.

"Because Dr. Hagedoorn's belief that type has little to do with production is now known to be incorrect, his remarks about the agriculture show have to be modified somewhat. Although a show cow may not be genetically pure, there is still, statistically, a far better chance of breeding a high-producing and eye-appealing cow from her than from a cow which has several bad faults, and is thus obviously genetically impure."

Margaret G. Robertson,
Vale Royal Jersey Stud,
O'Halloran Hill.

SITUATION WANTED—By youth, 18 years, with farm background. Leaving standard, seeking experience on large, high-producing dairy or mixed farm. Apply this office.

"A GENETICIST TALKS WITH AUSTRALIAN BREEDERS" (a Condensation)

Genetics

A gene is the unit of inheritance which is transmitted in the germ cells. The genes, singly or with one or more other genes, determine the make-up of the hereditary characters of the individual plant or animal. The gene is unchanging.

Chromosomes are bodies which can be seen under the microscope and are found in the nucleus of the germ cell. They are the carriers of the genes, which are linearly arranged and may be likened to a chain of beads on a thread.

When I speak of purity I mean genetic purity, which is quite different from which is commonly known as breed or pedigree purity. The latter refers to a breed in which the individuals are of the same type, because of a common ancestry and have not been mated with animals of another breed.

Genetic purity is more precise, and follows the results of Mendel's work, the basis of which is—

(1) That inheritance has to be studied from the behaviour of hereditary units of the individuals. These units are the genes and are pure.

(2) The germ cell of the offspring carrying its inherited characters has a double structure, consisting of one gene transmitted from its maternal parent and another gene from its paternal one. Thus each parent is equally responsible for the make-up of the progeny.

Each hereditary unit or gene is associated with another related gene, as with the wool colour of the Merino sheep, where the associated genes are those which convey the characters for "whiteness" and "blackness". If both the genes which the lamb obtains from its parents carry the gene for "blackness" or "whiteness" it will be genetically "pure" for that particular colour and will be a "homozygote" (or "homozygous"). If the lamb inherits a gene for "whiteness" from one parent and a gene for "blackness" from the other, it is genetically "impure" and is said to be a "heterozygote" (heterozygous").

Progeny Testing

In the breeding of animals, judging the breeding value of individuals by the quality of their offspring is called progeny testing.

In special cases, as with dairy cattle, by artificial insemination one male can be made the parent of thousands of offspring, and progeny testing as a means of finding the most productive sires becomes of special value and significance in breeding schemes aiming at the purification and all-round improvement of families within a breed.

In selecting breeding stock, breeders in the past have always tried to find the best individuals, because they believed that the best animals would re-produce themselves and thus produce the best progeny. However, the high excellence of the parents is rarely transmitted to the offspring, nor does the next generation come up to the average quality of the group of parents. To a small extent this must be due in part to the fact that the best animals selected as parents were so good because of favourable circumstances and that the comparisons were made between the selected individuals of one generation and the unselected animals of the next generation. But this is not the whole explanation. The fact is that some individuals are good because they inherited a good set of inherited factors or genes, but are unable to pass this combination on to their offspring as they may be impure

(heterozygous) in respect of several important factors, and can only hand on such a factor to one-half of their germ cells. The fact that in many instances the final effect of one dose of a certain inherited factor (gene) is as great as that of a complete double dose in a homozygote (an animal pure for that gene) makes it possible to go on breeding with individually good but highly impure breeding stock. Dominance, as we call this phenomenon, makes it impossible to find by inspection the best breeding individuals for transmitting their qualities merely by selecting them according to how good they are or how well they produce.

When we want to select a sire, we cannot find the best one by looking at the quality of his mother. The young male may have had a very good but impure mother, but he also had a father, and we generally know very little about the hereditary composition of that father.

The final proof of the pudding is in the eating, and when the progeny of a sire is old enough to be tested, that test will tell us how good the sire was. This final test is really of very much greater practical value than any method of appraising a breeding animal before the actual quality of the sire has been seen.

Nucleus Breeding Schemes

For the most profitable results a high standard of uniformity should be the aim. Without progeny testing and close breeding, real uniformity is not achieved. Corrective mating does not achieve this, for the mating of opposites to correct faults does not eliminate them, it merely tends to hide them temporarily. This is because most of the faults remain hidden as recessive factors, which continue to recur in the offspring, though not apparent in the sire or dam, if progeny testing and close breeding among the groups bred for the production of sires are not practised as a means of eliminating them.

With cattle in general, the herd is simply closed to the introduction of breeding stock from without. Such a herd is then known as a closed herd and by selecting the young bulls to be progeny tested as sons of the best sire of the preceding generation, the potential variability in the herd is reduced continually, although the purification of a closed herd will take five or six generations.

The best advice that I can at present give to a dairy farmer is to buy his bulls from a breeder who is working to keep his breeding line pure.

The Value of First Crosses and Hybrid Vigour

In dairy cattle, hybrid females are often of great value as milkers. They, however, have to produce calves before they give milk, and the difficulty is, what is going to happen to the calf? From the standpoint of the farmer milking the hybrid cows, this cross-breeding may seem desirable. But the calves from such crossbred mothers must be very variable, and if raised as dairy cows may bring great disappointment.

For this reason the cross-breeding of dairy breeds cannot be recommended unless the progeny are to be sold for slaughter. If we do have crossbred cows, the best way to go on with them in a breeding scheme would be to use a beef bull, sending the progeny to the butcher.

It must be realised that the good results obtained by the crossing of two breeds depends upon the results of the good work the breeders of those pure breeds have done. Even if we want to use two breeds

for the production of hybrids, it is necessary to go on with the improvement of the parent pedigree breeds.

Inbreeding

Inbreeding is the relative absence of crossing or the introduction of outside "blood". The effects of inbreeding to a great extent result from the fact that it isolates the group or strain or bloodline.

Inbreeding will often result in the production of individuals that show some undesirable quality, and so may appear to be a cause of "degeneration". However undesirable such unexpected individuals may be, we never witness a general degeneration of inbred progeny. In genetic terms, this degeneration caused by inbreeding is due to the production of individuals with undesirable recessive qualities.

Inbreeding, i.e., mating individuals who have some ancestor in common increases the chance of joining two animals who are both impure for the same inherited factor.

Nevertheless, blind inbreeding should never be lightly undertaken. Even if we combine inbreeding with selection for some special quality the result may be that the group becomes pure in regard to some undesirable point that had not been watched. The only correct way to lower the potential variability of a group of animals by inbreeding is to do this inbreeding in a series of parallel lines and to select that group which at the same time gives the best average quality in the offspring and the least amount of "degeneration".

(To be continued.)

JAPAN ENTERS THE "JEEP" FIELD

It has been noted with interest, that Mr. I. R. Elliott, General President of the South Australian Dairymen's Association, has recently purchased a Toyota Land Cruiser.

The impact of Japanese four-wheel drive vehicles in the last 12 months on the Australian market has been noticeable and it is not an uncommon sight to see them on our roads.

Enquiry as to the popularity of Toyota Land Cruisers reveals many interesting facets.

Geosurveys of Australia Limited recently crossed the Simpson Desert on a seismic survey for Beach Petroleum Limited, using two Toyotas. They were so impressed by their performances that they have since purchased further units, which speaks for itself.

It was revealed that two State Government Departments have recently purchased Toyota Land Cruisers. This also speaks highly of the acceptance that these vehicles have gained in such a short time.

Specifications of the Land Cruisers which are avalable in five models are as follows:

Six-cylinder engine.
Bore and Stroke, 3½ in. x 4 in.
Displacement 237.3 in.
Maximum B.H.P., 135 at 3,800 r.p.m.
Compression Ratio, 7.5.
Electrical System, 12 volt.
Transmission—Three forward speeds and one reverse with transfer case.
Front wheel drive may be engaged while in motion without using the clutch.

AUSTRALIAN RECORD

Vynette Gadget's Dainty, who completed her 1962 lactation with 638 lb. fat, has established an Australian Jersey lifetime production record with 8,594 lb. fat from 13 lactations. This is only 341 below the all breeds' lifetime record. Dainty was 14 years and 7 months when she finished her lactation on September 1.

Breeders and owners are Messrs. M. R. & J. E. McKenzie of Tooperang, S.A.—Stud breeders and holders of many blue ribbons and production records.