

AUSTRALIAN ANIMAL PRODUCTION IN THE 1970's

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This Eighth Biennial Conference of the Australian Society of Animal Production marks the beginning of a new decade. The Society has now been in existence for twenty years - a period of tremendous development in the science and practice of Animal Production.

Livestock population changes from 1950 to 1970 illustrate these advances very graphically. Beef cattle numbers have risen from 9.7 to 17.6 million, an increase of 82 per cent; dairy cattle numbers have dropped from 4.9 to 4.3 million, a decline of 12 per cent; sheep numbers have risen from 112.9 to 181.3 million, a 61 per cent increase; and pigs from 1.1 to 2.4 million, an increase of 114 per cent.

When we view these movements by States, we find that the southern states have experienced a major lift in beef cattle numbers ranging from 117 per cent in New South Wales to 309 per cent in South Australia. By comparison, the increases in Queensland of 37 per cent and in the Northern Territory of 14 per cent are slight. Victoria and Tasmania have had substantial increases in dairy cattle numbers, but these have been more than offset by the declines in the other states. The sheep population rose substantially in all states except Queensland where there was a 4 per cent fall due to drought conditions. Western Australia showed the greatest increase in sheep numbers with over 200 per cent. Australia's pig population increased in all states, the increase ranging from 25 per cent in Queensland to over 400 per cent in South Australia.

These population figures are generally paralleled by similar increases in production. Beef production over the period has risen by over 50 per cent. It is interesting to note that, despite the decline in numbers of dairy cattle, total production of whole milk has increased by over 20 per cent. When viewed on a per cow basis, this increase is more or less uniform over the states, Queensland, New South Wales and Victoria recording similar percentage increases.

Thus the whole country has experienced a substantial lift in productivity in the animal industries with the greatest lift occurring in the southern states. This has been associated with the development of improved pastures, more efficient utilisation of pastures and better husbandry, particularly for beef cattle and sheep. The improved production per dairy cow has also been associated with these factors, but there has also been an effect due to breed changes to meet the milk consumption needs of increased population rather than to produce butterfat for export. Pig production has also moved to meet the needs of the increasing population.

These results indicate that the livestock industries have acquired sufficient technology to increase productivity. This has been particularly evident in the grazing industries with a major emphasis on development and increased investment, following research results in land clearing methods, timber treatment and pasture

establishment. The Southern States have experienced these advances, whereas the tropical parts of Australia are only beginning to enter this development phase. There is still a need for more research information on pastures to fully utilise the extensive areas being developed and those still capable of being developed. There was a long lag between the earliest steps in pasture development and the general adoption of the practice over a region in the southern states. If this is repeated in northern Australia, then one can expect development of northern Australia to improved species and methods to extend over much longer than 20 years. The natural seasonal fluctuations in these northern areas would certainly act against any acceleration of development and would most likely retard it. I would expect development in northern Australia to be slower than in the Southern States due to the need for acquiring more research information and the higher risks associated with seasonal fluctuations and droughts.

These developments over the past twenty years have been associated with relatively little or no marketing problems. Australia's population growth has produced an increasing home market for rural products, though this has not matched the increase in rural production. The Bureau of Agricultural Economics estimates **that** rural production has risen by 3½ per cent a year over the past decade, while domestic consumption has risen by only 2 per cent a year. These increases do not appear substantial, but the result over time has been that the incomes of livestock producers have become more sensitive to supply and demand conditions in overseas countries. This is particularly the case for beef and butter producers in Australia as a whole. Thus future overall returns may not be as stable as previously experienced.

Gruen and co-workers (1965) examined the impact of market forces on agricultural supply and demand over the period to 1980, and found that wool production would increase by 9 per cent, beef by 25 per cent and whole milk production by 2.5 per cent over the period. These projections would appear to be reasonably reliable although they may be optimistic for wool production. Accepting these projections as valid, they are substantially below the rate of development experienced over the last 20 years. Even the rate of beef cattle expansion is half that experienced over the last 20 years. Since these projections were developed, there have been marketing problems with wool and wheat, with the result that producers are looking to beef as an acceptable alternative. This could result in increased expansion of beef at the expense of these other products.

The overall prospects for beef would also seem to be more favourable than other rural products. Present levels of production can be absorbed reasonably readily by the international and domestic markets. The United States markets are more remunerative, and at present handle a major share of exports. However, it is most likely that most of Australia's increased production will have to be directed towards other overseas markets which are less remunerative than the United States.

The implications of this trend for those interested in research and extension into animal production are clear. Firstly there will be a need for a closer relationship between economic and technological evaluation of research results. Very often, one assumes that because a result is sound from a technological viewpoint, it will automatically be economic. This does not necessarily apply and criteria need to be developed to **meet** these dual requirements. Furthermore, an economist

may not consider it necessary to insist on the same high levels of probability in considering a result worthwhile which the production specialist would require before it is considered acceptable. These serve to illustrate the fact that there is a need to have a continuing dialogue between the production specialist and the economist. This Biennial Conference has a number of papers prepared either by economists or in collaboration with economists. I consider that this is a very heartening trend and trust that this will continue and develop.

Obviously the association must extend beyond evaluation of results, and move into the realm of design of experiments. It will become increasingly desirable to involve the economist at this early stage. However, we must of course recognise that experimentation into a certain aspect of production must reach a particular stage before it is possible to establish an experiment which can produce a result capable of economic evaluation.

Up to date, we have usually been carrying out experiments to determine whether or not production can be increased. In the present situation, there is a need to consider alternative experiments which may not increase production, but may make production more economic or more efficient without increasing production levels. Close collaboration with an economist is even more essential in the design and interpretation of this type of experiment.

To date there has been a tendency for economists to criticise animal production scientists for not utilising them in design and evaluation. This is valid, but there is also a need for a greater understanding on the part of the production economist of the strictures in design and operations of animal husbandry experiments. It is unlikely that elaborate and expensive response surface techniques readily used in fertiliser experiments can be applied to animal work. Some modifications in design and approach are required to make the two disciplines more compatible.

Another aspect which animal husbandry research workers must pay more attention to in the future is the needs of specific markets. With marketing becoming more critical, it will be necessary for the animal research and extension worker to become more aware of the requirements of the specific markets we are endeavouring to supply or to gain access to. There has been a dearth of market research in Australia, particularly on the animal side. This needs to be rectified, and links should be developed between the market researcher and the production economist and animal husbandry specialist.

A pressing problem requiring liaison between production specialists, economists and marketing specialists is that of grain surpluses. There has been quite a deal of discussion about utilisation of these surpluses by feeding to livestock. I would like to see some rather critical evaluations made of the merit of using the green fodder for grazing stock rather than assuming the additional costs of harvesting the grain and feeding out. There are a number of alternatives which need careful examination before this method of disposal of grain should be advocated.

The other matter which requires more attention by the production specialist and the economist is the matter of drought. Most husbandry research has been centred around drought feeding, and very valuable research has indeed been done. Some economists have also looked at the economics of drought feeding on a broad

scale. The University of New England is attempting to utilise all available information on costs of alternative drought strategies for the guidance of the individual stockowner. The present drought has highlighted the need for closer liaison between the economist, the husbandry research worker and the extension officer to provide readily available information on all drought strategies. Too many graziers have suffered severe financial losses due to adopting the incorrect drought strategy. It is *encumbent* on us to provide them with adequate integrated information on these strategies so that their relative merits can be assessed for the individual property.

In conclusion, I would like to urge members of the Society to rise to the challenge of the next decade; to undertake a more critical assessment of research needs to meet the changing husbandry scene; and to develop a more effective liaison with these other disciplines associated with the animal industries of Australia.