

IMPRESSIONS OF ANIMAL PRODUCTION IN SOUTH AFRICA WITH PARTICULAR REFERENCE TO BIOLOGICAL RESEARCH*

I.W. McDonald

*C.S.I.R.O. Division of Animal Physiology Prospect, New South Wales, Australia***

In the title of this paper the accent is on "impressions"; it would be quite impossible for anyone to evaluate the national problems of this country and arrive at soundly based opinions after such a brief period of study. However, it is hoped that the reactions of an outside observer may be helpful in stimulating within the Society discussions that may lead to further advancement of the animal sciences and of animal production in South Africa. During the past half century, South African investigators have made very great contributions to both animal health and production – contributions of importance not only nationally, but to knowledge that can be applied in many other countries. There is no reason to doubt that the coming decades will see equally important developments; discussions that will assist the planning of future work will be repeatedly needed.

There is a general tendency to overlook the fact that animal husbandry is a part of agriculture. Even the highly intensive systems of pig and poultry production, to which we are rapidly becoming accustomed, are part of agriculture – it is merely that the animal production is spatially separated from the land on which the feedstuffs are produced. It can be confidently predicted that large-scale, "factory-type" production of pigs and poultry will steadily increase in this country; the managers of these enterprises will have little difficulty in acquiring technical information from all the advanced countries of the world, and will have relatively little need for local research and development work. Of course, small-scale production will also remain on very many farms; it is doubtful, however, whether such forms of production merit any great expenditure of resources on research, as the use of advanced technology will be difficult or impossible on such farms.

Our special interest for the future lies in the pastoral industries. Here we face the difficulties that each farm represents an ecosystem of great complexity and that the study of the pastoral system needs an inter-disciplinary approach. It is doubtful whether any country has successfully resolved the problems involved in organizing the integrated research teams needed for pastoral research. Specialist research has been so successful in arable agriculture that most workers find difficulty in accepting the very different problems posed by pastoral systems. At this

time we can simply note the difficulty and endeavour to work towards improved arrangements.

As mentioned earlier in this Conference, we must be prepared, in future, to modify our production systems to produce the type and quality of commodities that the markets need; it is no longer sufficient to produce what we can and hope that a remunerative market for the product can be found. Again, compared with arable agriculture, the pastoral system presents far greater difficulty in producing efficiently the precise commodity needed for a given consumer demand.

Agricultural production in South Africa seems to me to present a truly daunting dilemma. On the one hand most of the production derives from farmers of European descent; many of these farmers have land of insufficient productivity to yield an adequate income; many farmers will have to leave the land; others will increase the size of their holdings, will need to develop higher skills, and will have to be serviced with improved technical information from research and extension workers. On the other hand, for political and sociological reasons, there is the trend to increase the number of Bantu farmers with very small areas of land, small incomes, and unsophisticated technologies. The contrast is enhanced by the historical situation that the major European farming is in the lower rainfall zones, while the Bantu developments are largely in the higher rainfall areas. Clearly, this situation poses unique problems for national research, development and extension work – and, clearly, a long time will be needed to resolve these problems.

A matter of great importance for the future is the question of national self-sufficiency in food production – especially foods of animal origin. Of course, many countries would welcome the opportunity of exporting foodstuffs to South Africa; however, few countries will adopt an official policy of restricting food production in favour of importing cheap foods – to my knowledge, only Sweden has so far adopted such a policy, which can only be successful when adequate income from exports can be assured. If it can be assumed that South Africa will aim at self-sufficiency, it seems inevitable that much more effort will

*This paper records the substance of an address to the South African Society of Animal Production at the termination of a five week visit to South Africa, sponsored and arranged by the Society; it represents a continuation of the first day's proceedings of the 1971 Conference on June 9th. The author takes this opportunity of expressing his deep appreciation to the Society for its invitation and to the very many members who have helped to make the visit both instructive and memorable.

**Postal address: P.O. Box 239, Blacktown, N.S.W., 2148, Australia

have to be expended in studying the problems of increasing the productivity of land in the high rainfall regions. For very good reasons, the emphasis in past years has been on the drier regions, where the scope for increased production is now small; there is no reason to doubt that production in the high rainfall zones can be greatly increased above the present levels.

As a foreign observer, I see another very difficult problem your country is experiencing: in effect, you must draw the whole of your intellectual talent from only about 20 % of your population. Probably no other highly developed community is confronted with such a problem and it seems evident that it will be a long time before this situation is changed. Two consequences are noteworthy. Firstly, it will be difficult to continue recruiting talented young people to the animal sciences – so many other avenues will be open to them; I would pose for you the following questions concerning research staff: Is enough effort being made to recruit talented workers from other countries, and in particular, to attract expatriot South Africans back to their homeland? Is there adequate opportunity to promote staff on the basis of personal merit as opposed to responsibility for other staff or for administrative duties? Is there any impediment to a worker moving from one organization to another in order to fulfill his ambitions? Secondly, the human resources available must be used as efficiently as possible. No doubt there are many ways in which existing talents could be used to better effect; my own experience in South Africa has been too limited for firm opinions to be formulated. However, Dr. Bonsma examined this question in his Presidential address at Bloemfontein and has made numerous recommendations for study by the Society. My only comment is to agree with Dr. Bonsma that there is a strong case for an "Agricultural Research Council" to guide the development and integration of research resources.

My observations lead me to suggest that there is an imbalance in the resources used for research in animal production. No doubt there are good political and historical reasons for the present situation, but I venture the opinion that, relative to the amount of laboratory research, too much resource has been allocated to field stations. From personal experience, I know how expensive it is to finance the basic facilities on field stations and I would seriously question the policy of having few, or even no, professional officers located at field stations. While granting that the field stations can play a useful role in extension, it is stressed that most of the new developments will come through the professional workers in the research laboratories and the universities; inadequate resources for these workers will slow down the acquisition and application of new technologies.

Another impression of significance to me is the very large numbers of breeds of cattle and sheep in this country. No doubt we would have had the same situation in Australia had it not been that the importation of animals

has long been inhibited by quarantine regulations. I take it for granted that where there is a multiplicity of breeds, it is likely that many have no special advantages to offer. In itself, this is harmless enough, but it has several unfortunate consequences: (a) the rate of genetic improvement in each breed is likely to be slow; (b) an enormous amount of effort can be expended in breed comparisons – comparisons that may, in the end, prove to be of very dubious validity; (c) there is a tendency to preserve an accent on "fancy points" at the expense of emphasis on productive characteristics; and (d) there is a danger that a farmer will look to a change of breed to improve productivity when, in fact, he should be critically examining his farm management and husbandry. If there is a solution to the problem of multiplicity of breeds, I do not know of it.

This country shares with most others of the so-called "western world" the very difficult problem of deciding just what the extension services of the Department of Agriculture should be aiming to achieve. Much technical information and advice now flows to farmers from commercial organizations. A new profession of agricultural consultants is offering its services to individual farmers and, as mentioned above, we have to recognize that many of the present farmers have inadequate resources and will either have to leave their farms or accept a declining standard of living. Again, no ready solutions are available – clearly it is necessary for all groups who are interested in animal production to give serious consideration to the policies that are most likely to fit the future requirements of a steadily changing agricultural system.

In both our countries we are currently confronted with the question of control of research policy for the animal industries. There has been a tendency to have an increasing influence played by representatives of farmers' interests exerted either through industry funds or advisory committees. The desirability of this trend is at present under critical review in Australia and I expect that similar examination will be necessary in South Africa. It is my own opinion that the scientists themselves are best capable of deciding the directions that research should take; it is not difficult for these scientists to keep in touch with the needs of industry and to receive the opinions of leaders in the farming community.

I have been particularly impressed with an apparent difference between our two countries in our attitude to research on pasture improvement. In those parts of Australia where rainfall is adequate for the growth of crops, very great increases in pasture and animal production have been achieved by the use of fertilizers and introduced plant species for pasture improvement. This is especially true of the southern regions with predominantly winter rainfall where, until recent years, most of the research has been concentrated. In the more difficult tropical and subtropical areas with predominantly summer rainfall, major research programmes are under way to solve the special problems of these regions. By contrast, it seems to me that

in South Africa, too much emphasis has been placed on the preservation of the so-called "natural pastures" and only a few workers have concentrated on modifying pastures to enable increased animal production. I believe that great scope exists here for fruitful research.

As one who has always been interested in South African research on animal health and production, I would make a plea for the publication of all your scientific papers in the English language. It is probable that many of you underestimate the interest taken in your work by scientists in other countries. These scientists, at least those in the western world, rarely have any difficulty in handling publications in English, French, German or Spanish; translations can usually be readily obtained. Hence I conclude that, as English is an official language here, it should present your scientists with very little inconvenience to

publish research papers in that language.

My observations and conversations during my visit here have served to confirm that our countries have a great many common problems in the field of animal production. While much can be achieved by reading each other's literature, it remains true that great benefits can accrue from exchange of visits. I am particularly grateful for the opportunity afforded me to see so much of South Africa and South-West Africa and feel that I have obtained an insight into your problems that could never have been gleaned from reading alone. In both our countries, we have tended to look to the northern hemisphere when an opportunity arose for travel – I believe that we should now encourage much more visitation between the countries of the southern hemisphere where we have so much in common in our agricultural problems.