Pig husbandry research in Western Australia

N W. Godfrey

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4

Part of the Animal Experimentation and Research Commons, Other Animal Sciences Commons, and the Veterinary Preventive Medicine, Epidemiology, and Public Health Commons

Recommended Citation
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol10/iss9/13

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact library@dpiwd.wa.gov.au.
PIG HUSBANDRY RESEARCH IN WESTERN AUSTRALIA

By N. W. GODFREY, Research Officer, Animal Division.

In the past it has not been possible to undertake research work with pigs on any appreciable scale in Western Australia. A small herd has been maintained at Denmark Research Station for some years as a demonstration side-line unit, run in conjunction with the dairy herd. A number of very useful trials have been carried out with the Denmark herd, but its size has limited the comprehensiveness of the type of research work that could be undertaken.

In keeping with industry trends, pig research has recently become specialised in this State with the establishment of the Pig Research Station at Medina, some 20 miles south of Perth.

The Medina Pig Research Station

This 80 acre property was purchased about six years ago with the intention of developing a research centre capable of conducting investigations into all aspects of the pig industry. It was also intended that work at Medina would be mainly concerned with intensive pig raising methods rather than the traditional extensive systems. Extensive management would still be used on the station if required in the future, although it is extremely difficult to control experimental work under such conditions.

Almost half the property has been subdivided into a total of 35 small paddocks and sown to both perennial and annual pastures, including five acre of lucerne. Much of this area can be irrigated from the station’s bore. Water is reticulated to all the paddocks and to the various buildings.

The property is bounded by a 6 ft. security fence through which there is only one access way.

Buildings

The developmental work so far completed at Medina is mainly the construction of a pig fattening house, a feed preparation shed, workshop, surgery, manager’s residence and several small outdoor shelters. Additional pig housing facilities are planned for the future.

The pig fattening house contains 32 small pens and can accommodate the progeny of about 30 sows in half-litter sized groups. This building provides for some temperature control by means of an insulated roof, air exhaust fans and an automatic water misting device for cooling the atmosphere within the shed under heat-wave conditions. Automatic feeding was not considered for this building as its use in delivering a variety of experimental rations would be strictly limited. Instead, each pen is provided with a self-feeder which can be used for both ad. lib. and restricted feeding systems.

The feed preparation shed, with its various bulk storage bins and silos, is able to hold a year’s supply of grain and other ration ingredients. Provision is also made for the storage of prepared ration mixes within the building. This facility is essential for nutritional research work envisaged for the future. All rations used will be milled, mixed and perhaps pelleted at Medina and only the basic ingredients will be brought in.

The workshop has already proved useful in producing items of equipment such as sow feeders, self feeders, farrowing crates, gates, shelters, hurdles and much of the specialised equipment used in the artificial rearing programme.
The surgery was built to provide a specialised facility for the artificial rearing of young piglets produced by the hysterectomy operation. Its design provides the environmental and disease control necessary for the early life of these colostrum-deprived baby pigs. It allows sterility to be maintained during all stages of this procedure, thus ensuring the disease-free conditions required.

The need for pig research
As there exists a great wealth of information on many aspects of pig production from overseas sources, how should the Pig Research Station function? Feeding standards have been developed in Europe and North America and can be applied with considerable precision to pigs in those environments.

It has been found that the principles of breeding, feeding and housing developed overseas, although useful guide lines, invariably require modification, if not complete reassessment, before they can be practically applied in Australia. The average American pig grows on a diet based on corn and soya bean meal which is quite different from the wheat meat-meal mixtures presented to Australian pigs. Progressive methods of housing evolved in the relatively cool English climate cannot be directly applied to W.A., where the dissipation of heat in summer is a major housing problem. Even the current breeds of pigs in Australia differ from their ancestors in a good many characteristics. Also, rations based on feedstuffs and industrial by-products available locally require evaluation under research station conditions. Lupin meal is a good example of a local food not likely to receive attention from research workers outside the State.

Again, the wide distribution of the Berkshire breed is peculiar to W.A. As this breed may have potentially valuable genetic material it deserves inclusion in any future experimental cross-breeding programmes. Its role in producing hybrid breeding stock needs investigation, and this is not likely to be examined anywhere else.

A research centre such as the Pig Research Station is also needed to gain experience with various husbandry techniques such as artificial breeding, synchronisation of oestrus, and artificial rearing of young piglets.

Again, the nutrition of breeding stock is a subject on which knowledge is very incomplete.

There is an obvious need for local research into many aspects of pig production, and the Pig Research Station has considerable potential value to the pig industry of W.A.

Breeding stock
It is a policy at Medina to develop a herd of high performance pigs which will
have equal numbers of the three major breeds in Western Australia—Berkshire, Landrace and Large White. The size of this herd will depend on housing facilities, but the eventual aim is to bring the herd up to 120 breeding sows.

The selection of breeding stock will be based on performance-testing techniques in which growth rate and carcass quality are taken into account. The ultrasonic measurement of back fat depth in the live pig now gives a reliable estimate of carcass quality. By this means superior strains of pigs can readily be detected before slaughter, and instead can be retained as breeding stock. If, in addition, there is a rapid turn-over of breeding stock, it should be possible to develop the required high-performance herd at Medina in a fairly short space of time.

Minimal disease pigs

Mention has already been made of the surgery which is concerned with the production of minimal disease pigs by means of the hysterec­tomy operation. Much of the work so far at the Pig Research Station has been concerned with the development of this technique.

Piglets “born” in this manner have no contact with the sow or any other ordinary pigs. If suitable security measures are taken they should remain free of a number of important pig diseases, especially those which rely on pig-to-pig contact for their transmission. Certainly, it is possible to eradicate both internal and external parasites and virus pneumonia by this method.

A number of hysterec­tomy operations have been performed on near full-term sows at Medina during the past year. The progeny have been raised on a number of artificial rearing systems and, despite the numerous difficulties encountered, the nucleus of a minimal disease (M.D.) herd has been established. Apart from the M.D. pigs, no other stock are kept on the property, and in future this will be considered a closed herd. Several more hysterec­tomy operations are planned for next 12 months to increase the range of genetic material available for selection.

Only the first generation of M.D. pigs is produced by this method. Subsequent generations are farrowed naturally, and the first natural farrowing of M.D. pigs at Medina is due in November this year.

M.D. pigs and research

The main reason for establishing an M.D. pig herd on the Research Station is to avoid the complications which diseases bring to experimental work. The variable incidence of disease is extremely difficult to allow for in the design and conduct of pig experiments under intensive conditions. Control by means of the hysterec­tomy operation enables greater economy in research and more reliance can be placed on the results.

Every effort will be made to ensure that the M.D. status of this herd will be maintained.

Commercial M.D. pigs

As many pig farmers are aware, a number of commercial M.D. piggeries have been successfully operating in the Eastern States during the past few years, and one has recently been opened in W.A. It seems the M.D. pig is valuable for the exclusion of certain diseases in large intensive units, a number of which have remained free of disease breakdowns for five years under Australian conditions. However, there is still not enough evidence to warrant whole-hearted recommendation of the use of such pigs to all farms. Many other management techniques are available for effective disease control in pig herds in this country.

The future

The immediate aims at the Pig Research Station, are to consolidate the numbers of basic breeding sows required for the future M.D. herd. Additional in-pig sows of high performance will be purchased from time to time as they become available and their progeny, produced by hysterec­tomy, will be used to augment the station's blood lines.

Performance testing of all growing stock will be a routine procedure used to rapidly build up the quality of the breeding herd.

Feeding trials will be started as soon as sufficient second generation M.D. stock become available. These can be combined with the breeding and selection programme.