

ABSTRACT

This paper describes the development of the New Zealand deer farming industry since its establishment in 1970. Currently (September 1982) there are an estimated 180,000 deer farmed on 1,700 properties. Management systems are basically adaptations of the successful pasture grazing systems used in the pastoral farming of sheep and cattle.

INTRODUCTION

Deer were first introduced into New Zealand in 1851. Over a 50 year period several more liberations of deer were carried out. Favoured by plentiful feed supplies, a mild climate and the absence of predators, the populations, particularly of red deer (*Cervus elaphus*) grew rapidly. By early this century the damage being caused to the native forest and grasslands was such that they were regarded as pests (Wodzicki, 1950).

DEER HUNTING TO FARMING

Initially, population control was attempted using ground shooters paid by the government. Subsequently, the recovery of deer carcasses proved economic as private individuals developed export markets for deer products. In the early 1960's venison was exported to Europe and the by-products such as antlers, tails, pizzles and sinews to Asian markets for processing as traditional medicines. Venison exports increased from 480 tons in 1962-63 to 4400 tons, ten years later. By 1979-80, exports had declined to about 1000 tons.

The major development in wild deer recovery has been the use of the helicopter. Initially, very large numbers of deer were shot from helicopters and their carcasses recovered, taken to Game Packing Houses, processed and packed for export. However, the hunting pressure achieved by helicopter shooting was such that the deer population declined dramatically. With this situation, the venison exporters developed an interest in the possibilities of farming deer to ensure a supply of venison for export. After much discussion and argument the government legalized deer farming in 1969. The first deer farm licence was issued in March 1970 but initially, growth was very slow so that by 1975 only about 25 farms with about 5000 deer had been established. However, in the next seven years the industry boomed and currently (September 1982) there are an estimated 1700 farms with a total of 180,000 deer. About 85% of the farmed deer are red deer with a further 14% fallow deer (*Dama dama*).

¹Invermay Agricultural Research Centre, Ministry of Agriculture and Fisheries, Private Bay, Mosgiel, New Zealand.

THE FARMERS ROLE

The enthusiasm of individual farmers has also been a very important factor in the development of deer farming. In the early days of deer farming the small groups of farmers found difficulty in communicating effectively with Government departments over such things as the organized slaughter of deer and wild deer capture. The need for a unified voice of deer farming was clear and this resulted in the formation of the New Zealand Deer Farmers Association (NZDFA) in 1975. This group now has over 1,000 members and has had a considerable influence on the way in which the industry has developed, especially through its dealings with Government interests.

THE RESEARCH ROLE

The establishment of a deer research unit at Invermay was a major step in the development of the industry. The research commenced in 1973 at a time when the industry was a very small one with about 2,000 deer being farmed. From this research effort has come much sound scientific and practical information of the basic factors influencing production from deer on farms. A feature of this research effort has been the close liaison with the deer farming community, especially through the NZDFA. This has developed through frequent discussions with farmers and others involved in the industry, and conferences, field days and on-farm research. Over the last five years, the involvement of the Government farm advisory services, private farm management consultants, private veterinarians and commercial companies with the NZDFA and the research groups has resulted in considerable interest in deer from the farming community. The establishment of small deer units at the Massey University Veterinary School and Lincoln College has provided opportunities for students to gain experience in deer handling, deer farm management and deer research. As well a small deer research unit has been established at Ruakura Animal Research Station in the North Island. The combined efforts of all concerned with deer has ensured that good advice is readily available to interested farmers.

Because the Invermay deer research project was the only one in New Zealand until 1979, it provided a strong single focus for deer farmers and for those contemplating deer farming. Research staff benefited from close personal contact with early deer farmers and the early research programme was aimed at establishing whether or not the farming of deer was a practical proposition — a question of profound interest to those contemplating buying deer. The early deer industry in New Zealand had research and extension combined with a practical farming operation in one unit at Invermay and this resulted in very direct channels of communication between the farmer and the researcher investigating problems. Indeed many of the practical problems of deer farming were faced at Invermay before most of the industry commenced operations.

The efforts of the farmers and the researchers resulted in the development of management techniques. The important topics for research then became those factors which would affect production.

RESEARCH FINDINGS

The ready availability of advice has encouraged new farmers into deer farming, the advice being very dependent on the experience with deer and a sound knowledge of the deer research situation. Key research findings which have had major impact on the industry are:

1. Deer are very efficient converters of grass to meat on high class grazing land; the use of such high-class land was in direct contrast to the traditional natural habitat of the deer (Kelly *et al.*, 1982).
2. The meat has a low fat and high protein content when the deer are slaughtered at young ages (Drew and Suttie, 1982).
3. The flavour and eating qualities of farmed deer and wild or feral deer are very similar (Forss *et al.*, 1979).
4. Basic information on body growth, reproduction and antler growth has been provided (Fennessy and Moore, 1981; Kelly *et al.*, 1982)
5. Guidelines on management procedures have been established to achieve high levels of production, e.g. parasite control and management at mating, calving and during lactation (Searle, 1982)
6. Information on feed requirements during various times of the year has enabled more efficient use of feed.
7. Comparisons of different deer species and hybridization of red deer with Wapiti are being carried out (Moore, 1981).
8. Guidelines to enable selection of superior stock for breeding which will improve the genetic merit of the deer herd (Fennessy, 1982).
9. Developments in grazing management systems have improved utilization of feed grown (Searle, 1982).
10. Development of methods for parasite control, especially lungworm (*Dictyocaulus viviparus*) has resulted in marked improvements in growth and health of young deer (Mason, 1979).

FARMER/RESEARCHER/ADVISER RELATIONSHIP

In the early years of deer farming there was very close link between the Invermay Research group and the small number of deer farmers. However, as the number of farmers increased this was no longer possible so that the responsibility of the research team is increasingly to provide information to the industry through the farm advisors and veterinarians as well as through seminars, field days, written articles in the farming press, radio and special publications such as Aglinks and "The Deer Farmer". In order to inform the farm advisors and veterinarians, several special courses have been held over the past five years. These courses have been addressed by research scientists, experienced farm advisors and veterinarians, farmers and people concerned with buying and marketing the products from deer. The result has been the ready availability from a well-informed and enthusiastic group of people of information on the important facets of successful deer farming.

During the period of early deer farming expansion, there was little attention to the seasonal feed requirements of the animals because most farmers had small numbers of deer in relation to the holding areas.

Eventually research projects were established to determine the feed requirements of deer and this aspect provides an interesting study of the farmer/scientist/adviser relationship. Fundamental pen feeding studies were carried out at the same time as outdoor feeding experiments on the research unit. The combined results widely published and within a few months some advisors were monitoring winter feeding levels and animal performance on commercial farms. Many farmers were keeping good records of their feeding systems. There was excellent feedback from the farming community to the research staff enabling more work to be done where necessary. The cycle will go round for some time yet but knowledge will progressively accumulate.

RESEARCH PRIORITIES

Regular meetings are now being held between the Council of the NZDFA representing the farmers and persons involved in research and extension. The aims of such consultations are to summarize existing investigational work and to provide an opportunity for representatives of the deer industry to comment as well as to raise new problems that have become apparent.

However, not all research should be directed at immediate farm problems. For example, there are important gaps in our knowledge of the basic physiology of antler growth. Consequently, if progress is to be made on the farm to improve the quantity and quality of the antler grown, an understanding of the factors responsible for initiation, growth rate and termination of growth will be very helpful. An understanding of quality also requires the cooperation of those involved in processing of velvet antler and an understanding of the pharmacological effects of antler.

Projects which may increase the efficiency of production such as the inter-breeding of Wapiti (North American Elk) bulls with red deer hinds for increased antler growth and meat production are also being carried out.

FUTURE OF THE INDUSTRY

Based on current trends, meat production will become increasingly important as the industry develops. It is estimated that by 1987 the national herd will consist of about 400,000 deer of which 225,000 will be breeding hinds, and that in 1988 about 60,000 deer are likely to be slaughtered for the venison trade.

CONCLUSION

The New Zealand deer industry has developed very rapidly over the past decade. Some of the important features in the success of this development have been: —

1. the identification of a market opportunity
2. research
3. innovative farmers
4. close contact between all involved in the industry

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