

PROSPECTS AND ISSUES IN DEER FARMING IN NEW ZEALAND

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ABSTRACT

The New Zealand deer farming industry has grown dramatically in the last 20 years so that there are now about one million deer on farms. The future of deer farming is totally dependent on developing the markets for deer products, particularly venison and velvet. The emphasis on product quality is thus the key to the future. Animal health issues are dominated by the control of bovine tuberculosis which while having a very low prevalence (less than 1%) has the potential to become a major problem. Animal welfare issues are dominated by velvetting and drug availability concerns. The New Zealand deer farming industry has a bright future with high quality products and highly co-operative industry participants, with marketing being the key issue of the 1990's.

INTRODUCTION

The New Zealand deer farming industry has grown steadily since its inception in 1970, so that there are now an estimated 600,000 breeding females on farms (April 1991) with total deer numbers at June 30 1990 of 961,000, of which 631,000 were females (see Figure 1). About 7% of New Zealand's farmed deer are fallow (*Dama dama*) and the remainder are red deer (*C.e. scoticus*) and their hybrids with European red deer and North American wapiti. The increasing population is also reflected in the increasing numbers of animals going for slaughter (Figure 2) and the volume of venison exported. There have also been considerable increases in the value of total exports, particularly that of velvet antler (Table 1).

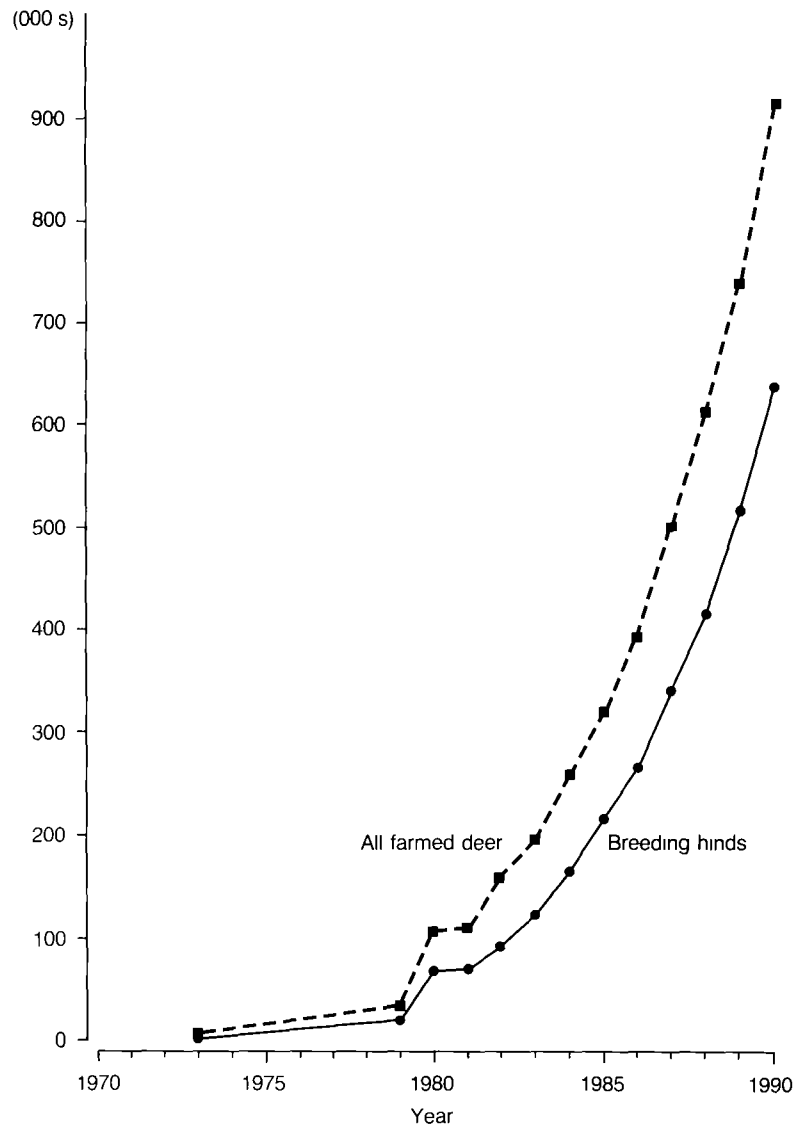
Table 1: Export returns (\$NZ, mn) for velvet antler and venison and export tonnages of venison for the December years of 1987 to 1990 (sources: GIB 1988-1991).

	Export Returns (\$NZ)			Export Volume of Venison (tonnes)
	Velvet	Venison	Total	
1987	12	27	40	3,148
1988	14	32	47	3,525
1989	33	41	76	3,755
1990	49	50	101	4,709

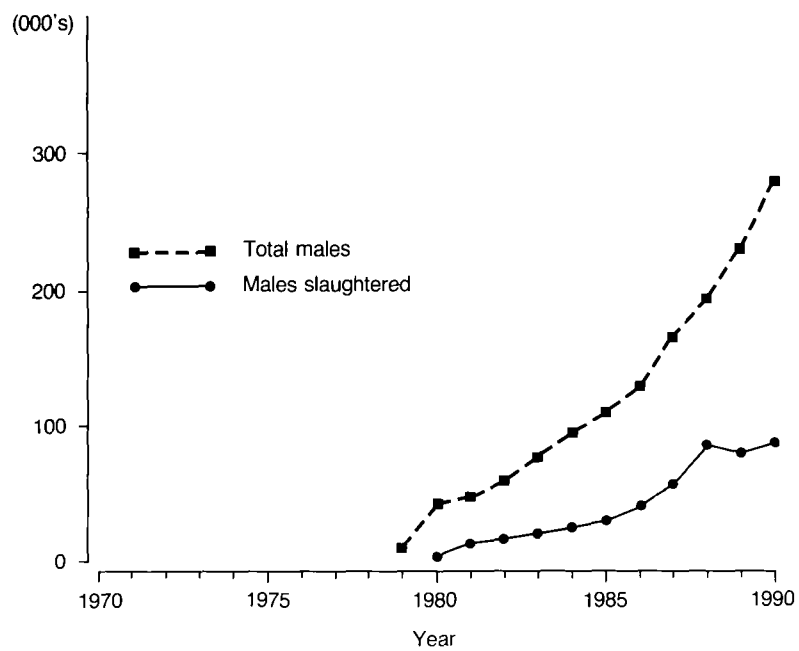
BACKGROUND

The early years of the New Zealand deer farming industry were driven by an insatiable demand for more animals. The formation of the NZ Deer Farmers Association in 1975 provided a focus which stimulated interest in deer and the development of the deer industry. This, coupled with the option to defer taxation for investment in agriculture, resulted in very high prices for breeding hinds and consequently the development of very effective methods for live capture of deer from the feral (wild) state, particularly by Tim Wallis and the Alpine Group. For example, in the 1979/80 season, 20,000 to 25,000 feral deer were captured (see Fennessy and Taylor 1989). The establishment of deer slaughter plants with both ante- and post-mortem inspection in the early 1980's was a key factor which underpinned the development of the industry. As deer numbers increased, prices tended to fall, a decline which was exacerbated by a change in the basis of taxation on farm animals. Over the last two years, prices have fallen further with prices now being dependent entirely on expected product prices. In fact, many would say that prices for young hinds have fallen well below reasonable prices in the last few months, in part a consequence of imposed livestock taxation which is still prejudicial. A major change over the last two years has been the dramatic increase in the number of hinds slaughtered from virtually nothing in 1988 to 13,500 (15% of the kill) in 1989 to 45,500 (37% of the kill) in 1990. Although the numbers are substantial, they are small compared with the total number of breeding females. They also represent some long delayed culling decisions.

Growth in farmed deer numbers



Growth in farmed male deer and those slaughtered



PRODUCTS

Venison

The future of the New Zealand deer industry is dependent on the development of markets which will pay acceptable prices for high quality venison. Total venison exports exceeded 4,700 tonnes in 1990, which is only marginally greater than the record 4,300 tonnes exported in one year in the early 1970's. The critical difference is that the vast majority of the 1990 exports were from farmed deer, whereas the earlier exports were made up entirely of wild-shot venison. Europe is still the main market, taking about 75% of the 1990 exports with 12% going to the USA. Of that going to Europe in 1990, about half went to Germany. The German market, which is the main international market for venison, is experiencing major changes with the influx of cheap venison from eastern European countries, a result of their search for overseas hard currency.

The New Zealand Game Industry Board (GIB) is the deer industry body charged with responsibility for promoting and assisting in the orderly development of the deer industry and products derived from deer. It is funded by compulsory levies on venison (both farmed and feral) and velvet antler. The GIB supports market development, particularly for venison in the New Zealand local market, Germany, the US and more recently in Japan. The GIB is also actively involved in product development, particularly the development and implementation of a quality assurance programme for venison and an associated quality mark. While the GIB has, in the past, largely concentrated its advertising and promotional expenditure on trade users, it is now looking at the retail trade and consumers as well. The development of an industry quality mark (Deermark) is the focus of the GIB marketing strategy for New Zealand venison. The quality approach covers the whole production chain from the farm, transport, slaughter, through to processing. The approach is receiving very strong support from the whole industry, particularly the key processing sector.

The industry now has a relatively large base with something over half a million females mated in 1991. Consequently, the number of progeny available for slaughter annually means that venison production is expected to increase quite rapidly with industry estimates reaching 20,000 to 25,000 tonnes in mid 1990s. Clearly, international market development is the issue of the 1990s. The Deermark concept with its emphasis on quality is the basis for the future of the New Zealand venison industry.

Velvet antler

The velvet industry is in a very different situation. It is essentially dependent on the single market of South Korea. Production and exports have increased rapidly over the past few years. Prices rose rapidly to reach a peak in the late 1970s before halving in price to around \$100/kg for the top grades in 1980. Over the years through to 1987, prices rose gently followed by large rises in 1988 and 1989 and a considerable fall in 1990/91. Prices for the top grades are now around \$160/kg. While the Korean market continues to absorb the increased New Zealand production and that from other countries now involved in deer farming (including product from the USSR reindeer herd), the future is not at all clear. The relationships between the New Zealand industry and the Korean importers/marketers are maintained by high level contacts between the GIB and the Korean Pharmaceutical Traders Association. The quality of New Zealand processing is regarded very highly by the Korean market but the New Zealand product from red deer is smaller than the preferred Russian and Chinese velvet which is from larger species of red deer or wapiti. The peculiarities of the velvet trading market do not always allow the identification of the product and the country of origin. It is suspected that a proportion of the New Zealand harvest is in fact marketed as Chinese or Russian velvet. A country or brand identification strategy will be important for the future. However, recent developments in the New Zealand industry with improved management and genetic improvement among red deer and the greater use of larger strains of sires such as some of the European deer and North American wapiti means that the size of the NZ velvet antler is increasing. The perception of velvet quality and its association with size and shape indicates that traditional measures of quality, rather than pharmacological activity, dominate the market. There is now considerable effort going into improving the quality of the NZ velvet. The development of a new objective grading system based on size, shape and stage of growth, which came into operation for the 1990-91 season, is a very positive step. While New Zealand red velvet is much smaller than the Russian and Chinese wapiti-type velvet antler, the emphasis on quality is proving to be a very positive influence in the market place. In the longer term, the prospects for a larger velvet antler market lie in expanding the market base to include non-traditional markets. Certainly velvet antler has pharmacological effects, but whether these effects are unique to velvet antler is an open question at this stage.

(see Fennessy 1991). Overall the emphasis on quality means that the prospects for the top end of the New Zealand velvet industry are very good

Other products

Other products from deer such as hides, which are a fashion product, and the traditional by-products are subject to fluctuations in demand. This is especially so with tails, pizzles and tendons with their markets in the traditional medicines industry, mainly in Hong Kong (Kong and But 1985). A significant improvement in the quality of hides in the top grades is anticipated as part of the quality assurance programmes ensuring quality production from farm to slaughter. First grade skins account for less than 10% of all hides through physical damage. Improvement in handling and yard designs are warranted.

PRODUCTION ISSUES

Developments

As the deer industry has moved into both male and female slaughter, live trading values reflect good premiums for genetically superior breeding stock. A commercial venison production tier has now developed as many farmers have accepted deer farming as a realistic diversification to other livestock with a little associated glamour. New interests in particular have readily embraced the concept of hybridisation of red hinds with larger species for efficient venison production. Farm development or expansion now commonly involves a deer fenced perimeter with cheap sub-divisional fencing and management systems based on large mob sizes, controlled rotational grazing and supplementation with silages rather than expensive supplements. There is a keen interest in newly developed pasture species whose production is better suited to deer seasonality and feed demands, with the realisation that venison production, if input costs are carefully controlled, is arguably the easiest and most profitable livestock return in agriculture at the present time. Velvet antler production appears to be emerging again as a specialist operation requiring an older, carefully selected herd for good profitability.

Production efficiency

The focus on production efficiency has sharpened considerably in the past few years. This is apparent in the enormous interest in the larger strains of European red deer and North American wapiti for use as sires over the smaller New Zealand red deer which were mainly of British origin. This changing focus is reflected in the 1990 deer farming statistics which indicates that wapiti hybrids now account for 8.5% of the total farmed deer and fallow deer at 7%. Both the wapiti x red F1 hybrid which is about 50% larger than the NZ red deer, and the so-called NZ wapiti (the natural hybrid which has developed and survived in the Fiordland region since the release of the Canadian wapiti about 80 years ago) are meeting an increasing demand as farmers seek to increase the size of their deer to meet the spring market with yearling animals. There is a demand for carcasses of over 50 kg, which is a difficult target to meet with straight red deer of less than a year old. With growth rates 20% to 30% higher, it becomes a manageable target with the equivalent of 1/4 bred wapiti.

The move into the larger European deer as sires is developing and will eventually fill a niche similar to the wapiti x red hybrids. However, many of these strains are still going through the herd building stage. Some of the recently imported European strains are probably only marginally larger (if at all) than the local deer but others, such as the Hungarian and Yugoslavian deer, are genetically larger. Although accurate figures are difficult to come by, it seems that these latter strains are probably 40% to 50% larger than the local New Zealand red deer. That is they are about the same size or slightly smaller than the Canadian wapiti x New Zealand red F1 hybrid.

Breeding technology

There is increasing interest in artificial insemination (AI) and embryo transfer to accelerate the development of these new strains of deer. Pregnancy rates of greater than 50% are normally achieved using laparoscopic intrauterine insemination with frozen semen in hinds under anaesthesia. The major difficulty is with semen collection which is carried out using electro-ejaculation on anaesthetised stags. The developments in animal breeding technology are potentially very important for the import/export of genetic material.

ANIMAL HEALTH ISSUES

Traditionally deer have been regarded as very healthy animals, being relatively free of serious diseases. Under the more intensive farming conditions, a few diseases are emerging as being potentially problematical. The most important of these is bovine tuberculosis, not because it is at a serious level (prevalence <1%) but because it has the potential to cause serious problems if not controlled. The primary difficulty in Tb control is the endemic infection in possums (*Trichosurus vulpecula*) and other wild animals (eg, deer and pigs) in certain areas. It is now accepted that it is impossible to eradicate Tb in the short term, and therefore the current emphasis is on controlling the spread of Tb from endemic areas in both cattle and deer by a compulsory test and slaughter policy with movement control of infected herds and strategic possum poisoning operations. Test and slaughter relies primarily on skin testing to detect infected herds. The blood test for Tb (and in certain restricted cases, the CCT) is used to clarify issues of non-specificity.

Malignant catarrhal fever continues to cause sporadic losses of up to 1% of the national herd. It probably continues to account for one third to one half of all losses, primarily in adult deer. It is regarded as unknown in fallow deer. Yersiniosis is still the most common cause of death in young deer in their first winter, but a killed multi-strain vaccine, which has been shown to give significant protection in studies at Invermay, is now undergoing field trials throughout New Zealand. Other diseases such as lungworm, clostridial infections, foot abscesses, fading wapiti syndrome, facial eczema and copper deficiency are of importance for some farmers. However, overall animal health issues are dominated by bovine tuberculosis.

ANIMAL WELFARE ISSUES

The animal welfare issue of prime interest relates to the harvesting of velvet antler from stags. The Animal Welfare Advisory Committee (AWAC) has recently drafted a code of conduct for velvet antler removal; this is currently being finalised. The AWAC includes representatives of the NZ Deer Farmers Association, the NZ Game Industry Board, the NZ Veterinary Association, the Government and animal welfare groups. The issues of velveting and drug availability are therefore under review. There is general acceptance among both veterinarians and deer farmers that velveting is a vitally important welfare issue. It is possible that in the future all velvet antler removal will be required to be done under veterinary supervision and that all velvet sold will require certification signed by the supervising veterinarian indicating that velveting has been carried out according to the code of conduct.

The issue of drug availability to farmers needs to be resolved, especially with the increasing number of crush systems which allow velvet antler removal using physical restraint and local anaesthetic. The possibility of training of deer farmers to administer local anaesthetics and remove velvet antler is currently being discussed by veterinarians and deer farmer representatives. In the near future it is likely that changes to drug classification may tighten the conditions under which anaesthetics such as xylazine can be used or dispensed. This may upset some deer farmers but will find support among the many veterinarians who do not favour the wide availability of general anaesthetics to deer farmers.

PROSPECTS

The future of the New Zealand deer industry is dependent on the further development of markets for the products. Quality is the critical objective. There is strong evidence of more co-operative approach from the major parts of the industry with the GIB representing farmers, processors and marketers working co-operatively with two more selective groups, namely the Deer Farmers Association and the Deer Industry Association (representing the processors). While we are very optimistic about the future marketing of quality deer products, it is clearly the issue of the 1990s.

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