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INTRODUCTION

Over 80% of New Zealand's deer farmers have been operating for 3 years or less and in fact 70% have been operating for only 2 years or less. In the North Island three quarters of the deer farmers have been in business for 2 years or less. These statistics imply that there will be much inexperience in the husbandry of deer and a lack of knowledge about feeding requirements.

Early information from Invermay suggested that the seasonal pattern of feed requirements for deer would match up quite well with the seasonal pasture production on our farms. Our thoughts at that time were based on the limited information of seasonal weight change patterns in deer. Static or decreasing winter body weight implied reduced feed requirements.

As a result of recent more extensive and comprehensive feeding experiments with both indoor fed and grazing deer we now have a much better appreciation of seasonal feed demand.

STAG FEEDING

The general seasonal pattern of live weight change is seen in fig. 1. Young calves show a low rate of gain over the autumn/winter period following weaning at about 100 days of age, with a high rate of gain during spring/summer when the animals are 9–15 months of age.

Older stags have a considerable and unavoidable weight loss during the rut followed by a slight weight loss in the winter. The winter loss can be minimised by high levels of feeding. This practice is recommended since it appears that groups of deer under nutritional stress are more susceptible to disease outbreaks. Stag requirements are high during the winter for three main reasons:

- The animals are not well insulated against low temperature, wind and rain. Windy wet conditions are particularly bad from the point of view of heat loss.
- The basic body heat production in deer is considerably higher than in sheep and cattle and this elevates the feed requirement.
- Winter feeding comes immediately after the rut and with the substantial depletion of body tissue reserves the animal is more vulnerable to feed shortage than if it had been entering the winter in a fat condition.

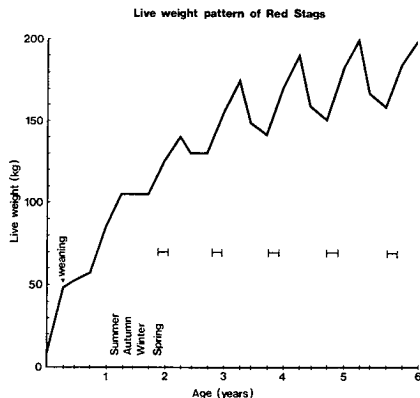


Fig. 1: Live-weight pattern of red stags.

Stags grow fast during spring and summer partly because their feed consumption rises but also partly because they do not need to use much of the feed energy to maintain body heat. Table 1 shows the seasonal feed requirements of stags and hinds and relates these two to the requirements of a ewe rearing a single lamb. The units of metabolisable energy in megajoules are used because this system has been adopted in many countries for livestock feeding. The deer farming industry being very progressive in outlook, should be using the latest developments in all fields. ME feed units are explained in a very readable form, together with a table of values for various feedstuffs, in "Supplementary Feeding" which was recently published by the New Zealand Society of Animal Production.

HIND FEEDING

The vital season in the feeding of hinds is summer, when there is a high demand for lactation. Table 1 indicates that 47 MJ of ME is required in summer. This is almost five times the feed required to maintain a 55 kg ewe. In

Table 1: Feed requirements of red deer (MJ metabolisable energy/day).

	Autumn	Winter	Spring	Summer	Annual stock units
Stags					
3–15 months	16	19	27	26	1.4
15–27 months	24	28	31	30	1.8
Older stags	19	35	42	38	2.2
Hinds					
3–15 months	15	18	22	21	1.2
Older hinds	23	22	24	47	1.9
Ewe rearing lamb (standard stock unit)	13	10	28	11	1.0*

*One su requires about 540 kg pasture DM per year.

many parts of New Zealand it is difficult to provide large amounts of high quality pasture during summer because of dry conditions.

It is, therefore, most important to keep the pasture short and vegetative in late spring by keeping the hinds during November at a high stocking rate. These procedures will avoid a standing hay crop in January/February which is of such low quality that hind milk production will be low, leading to poor 100-day calf weights. A penalty imposed on early calf growth may mean that some hinds do not achieve a satisfactory mating weight at 16 months of age and this may reduce calving percentage.

In conclusion, the high winter feed requirements of stags and high summer feed requirements of hinds can cause problems in farm management because these straddle the peak of maximum spring pasture production. The technique of conserving surplus high quality spring feed as silage to be used in late summer as a buffer against feed shortage could be very valuable. The reduction in returns from velvet antler during the last year probably means that many farmers selectively reduce the size of their velvetting herds and therefore improve their winter feed situation.

QUESTIONS AND ANSWERS

- Q: Were the wapiti animals which were crossed with red deer of the same strain as the straight wapiti with which they were composed?
- A: All wapiti sires were captured from the wapiti area in Fiordland. We know nothing of their genetic origin.
- Q: How are the benefits of wapiti crossbreeding going to be passed on to the deer farming industry?
- A: Mainly in the form of information, but there are likely to be sales of New Zealand wapiti from Invermay as these become surplus to our requirements.
- Q: Are there any health problems with wapiti run on improved pastures?
- A: These can be with the purebred wapiti in that nutritional scouring can occur when animals are fed entirely on lush pasture. Roughage such as lucerne or hay will assist. This problem is not seen in red wapiti hybrids.
- Supplementary questions raised during panel discussions:
- Q: How do Invermay's calf weaning weights compare with those common in the North Island?
- A: Our calves are weaned pre-rut at 3 months of age and

usually weigh 48–50 kg. This is 6–8 times heavier than red deer of similar age in the northern North Island area.

- Q: Is the loss of weight in mature stags during winter worth worrying about?
- A: Yes, if you are interested in low mortality and good antler velvet weights in the subsequent season.
- Q: Is compensatory growth in body weight reflected in antler growth?
- A: Compensatory spring body growth after autumn-winter weight loss will almost inevitably occur and antler growth under normal New Zealand farming conditions will not be affected.
- Q: What are the likely consequences in terms of velvet antler production of an antler casting date as early as July 20?
- A: This is a bit earlier than normal for a mature stag and will lead to velvet harvest in late September/early October. The consequence of this is that there is a good chance of good quality regrowth if the first cut is not taken at too late a stage of maturity.
- Q: Is there any quality difference between venison from wapiti and that from other species of deer?
- A: The answer is unknown, although wapiti game meat in the United States is reputed to be a preferred product.
- Q: What is the relative size of Canadian and New Zealand wapiti?
- A: Probably half as big again as wapiti raised in Fiordland. It is too early to tell how the New Zealand wapiti raised on farms under good feeding conditions will compare in size to the Canadian animals.
- Q: Has there been any new work done on Tb in deer?
- A: There is still difficulty in being sure about the reliability of the test even when carried out at the correct site, in the neck. It will, however, be in the deer farmers' interest to purchase only Tb tested stock.
- Q: Has any work been done with Ralgro implants and, if so, with what effect on velvet antler growth and live-weight gain?
- A: The small amount of research we have done on this topic showed that Ralgro inhibited or delayed the casting of antler buttons and gave a small live-weight response.
- Q: Were the seasonal weight gain figures obtained at Invermay based on *ad libitum* feeding?
- A: The information is based on the typical seasonal pattern seen in normally farmed deer on pasture at Invermay.