Farm Production & Practice

Ministry of Agriculture and Fisheries

170

Deer Farming Feeding Requirements

Red Deer

A knowledge of the feed requirements of farm animals can assist greatly in farm planning, especially with regard to supplementary feeding. Current information on the feed requirements of red deer in N.Z. is used here to budget for a hypothetical situation.

For the hypothetical deer farm outlined here the year has been divided into four seasonal periods:

- Autumn: 65 days, March—May (rut).
- Winter: 100 days, May—August.
- Spring: 100 days, September—December (velvet antler growth, late pregnancy).
- Summer: 100 days, December—March (lactation).

The maintenance requirements of red deer in winter outdoors in southern South Island is about 50% higher than that of deer indoors. The estimated maintenance requirements for deer of 90 and 150 kg over the year are given in Table 1. The requirements are given as metabolisable energy and as pasture dry matter.

The metabolisable energy (ME) content of a feed is a useful expression of feed quality. It is the energy in food which is available to the animal. ME values for a number of common feeds are given in Table 2. High quality feeds (e.g. spring pasture) have a high ME content, and in most situations animals can also consume greater quantities of such feeds.

Liveweight patterns

The general patterns of liveweight of stags and hinds on which the calculations of feed requirements are based are shown in Figures 1 and 2.

Young calves show a low rate of gain over the autumn/winter period following weaning at 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 in the autumn, followed by a slight weight loss in the winter. This 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.

Adult hinds show weight gains in late pregnancy and during lactation, with a period of weight loss during the winter.

The actual pattern of weight change will vary from farm to farm, depending on feed supply and other management factors. For example, farmers with plenty of pasture during winter may choose to wean later (after the rut) and their hinds may maintain weight over the winter while gaining less weight during lactation (summer).

Energy requirements

The seasonal energy requirements of stags and hinds are given in Table 3. The requirements for the standard stock unit, a 55 kg ewe rearing 1.1 lambs to weaning, are also given for comparison.

Compared with a ewe rearing a single lamb, the periods of relatively high energy demand by red deer are in the winter for stags and during the summer lactation for hinds.

Such periods of relatively low energy demands in spring, but high energy demands in winter and summer have important implications for deer farmers here, where there is generally a marked seasonal pattern of pasture production characterised by a high rate of spring pasture growth.

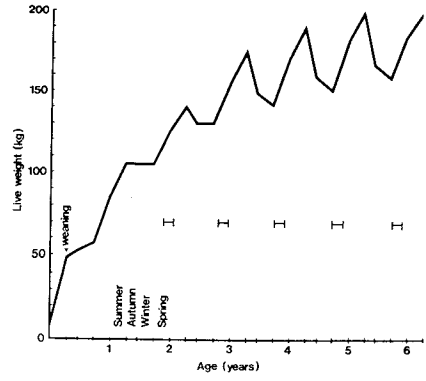

Fig. 1: Weight change pattern of red deer stags.

aglink

3/5000/12/83: FPP 257
1st revise

Information Services, MAF, Private Bag, Wellington, N.Z.

Table 1: Estimated daily maintenance requirements of red deer

	Live weight			
	90kg		150kg	
	ME (MJ)	kg Pasture DM	ME (MJ)	kg Pasture DM
Autumn	22	2.0	32	2.9
Winter	25	2.3	37	3.3
Spring	20	1.8	29	2.6
Summer	18	1.7	27	2.6

Feed budget

The use of a feed budget (Table 2 and 3) is illustrated in the following example. A farmer has 50 adult velveting stags to be wintered in a plantation for 80 days. There is plenty of good quality meadow hay available, and some barley. From Table 3, the energy requirement for stags during winter is 35 MJ ME/day. From Table 2, the ME contents of good meadow hay and barley are 9 and 12.5 MJ ME/kg DM respectively.

Table 2: Dry matter (DM) and metabolisable energy (ME) contents of feeds.*

	DM%	ME (MJ/kg DM)
Ryegrass/white clover pasture		
Autumn	15	10.8
Winter	15	11.2
Spring – short	15	12.0
– mixed length	15	11.2
Summer – leafy	18	10.3
Meadow hay		
Young leafy	85	9.0
Mature	85	8.0
Weathered	85	7.0
Lucerne hay		
pre bloom	85	10.5
mid bloom	85	9.0
weathered	85	8.0
Grains		
barley	85	12.5
wheat	85	12.5
oats	85	11.5
Deer nuts	85	10.8

* Detailed feed tables are presented in Ulyatt et al (1980).

Table 3: Metabolisable energy requirements of red deer (MJ ME/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 1.1 lambs to weaning (standard s.u.)	13	10	28	11	1.0*

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

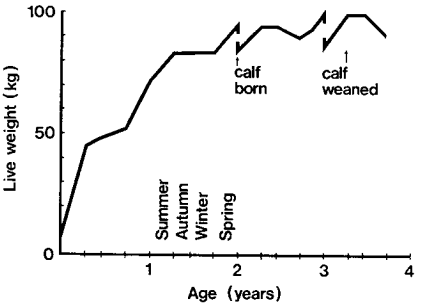

Fig.2: Weight change pattern of red deer hinds.

In real feed terms, the energy values convert to 7.65 and 10.6 MJ ME/kg of hay and barley respectively (i.e. for hay 9 x DM% (0.85, see Table 2) = 7.65.

If the stags are to obtain half of their energy requirements from hay and half from barley they would need to be fed:

- 2.3 kg hay/stag/day (i.e. 17.5 ÷ 7.65), and 1.65 kg barley/stag/day (i.e. 17.5 ÷ 10.6).

Allowing for 15% wastage of hay and 3% wastage of barley would increase the amounts offered per day to:

- 2.65 kg hay/head/day (i.e 1.15 x 2.3), and 1.7 kg barley/head/day (i.e. 1.03 x 1.65).

For 50 stags, the quantities to be offered would be:

- 133 kg hay/day (5-6 bales depending on weight), and 85 kg barley/day.

For the 80 day winter this would amount to:

- 400-500 bales of meadow hay, and 6.8 tonnes of barley.

The simple feed budget can be used in many ways by deer farmers. For example, the costs of various feed combinations can be calculated and the most economic system of supplementary feeding adopted.

Further reading

Ulyatt, M.J; Fennessy, P.F; Rattray, P.V; Jagusch, K. T; (1980) In Supplementary Feeding, Ed. K.R. Drew and P.F. Fennessy. N.Z. Soc. Anim. Prod. Occ. Publ. No. 7.

P.F. Fennessy
Scientist
MAF Research
Invermay Agricultural Research Centre