ENERGY REQUIREMENTS OF YOUNG GROWING RED DEER HINDS

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INTRODUCTION Although the energy requirements for maintenance and production have been known for stags for some time, (1) these data have not been available for hinds. Estimates of energy requirements for hinds have been based on those for young growing stags (2). However young hinds grow more slowly than stags (3) and the applicability of the equations derived for stags, for hinds is not clear. The aim of this study was to measure growth and food intake in a group of young hinds and to calculate energy requirements for maintenance and production.

MATERIALS AND METHODS Nine red deer hind calves, who had been bottle reared to induce tameness were penned indoors in 2 groups from May when they were 5 months old until the following May. They were fed to appetite a pelletted ration containing 46% barley, 35% lucerne, 15% soybean meal and 4% minerals and vitamins. The ration supplied 11 MJ ME/kg DM and 26 g nitrogen/kg DM. Group food intake was recorded. The hinds were weighed weekly.

RESULTS Food intake. The hinds intake was relatively constant over the late autumn to early winter of life (Table 1). It began to increase in September and was greatest from November to January. Intake fell in autumn.

Liveweight Gain. This largely paralleled intake; the hinds gained little weight during the winter and grew rapidly during the summer. Aged 15 months the liveweight range of the hinds was 71-101 kg with a mean of 85 kg.

Energy requirement. ME intake for each hind was estimated as the mean intake of the group. The common (pooled across animals) regression relationship between ME intake (MEI) (MJ/$kg^{0.75}$/day) and liveweight gain (LWG) (g/$kg^{0.75}$/day) was

$$LWG = 18.34\ MEI - 9.56$$
$$r^2 = 0.423\ RSD \pm 3.15\ (n=251)$$

This means that the hinds required 0.52 MJ ME/$kg^{0.75}$/d for maintenance and 55 MJ ME/kg LWG for production.

DISCUSSION The annual pattern of voluntary food intake of the hinds resembled those published for stags except that amplitude was lower; the liveweight gain patterns were also similar in the two sexes. At 15 months of age all hinds had exceeded the threshold weight for mating of 70 kg (2) and indeed were very well grown for their age. The estimate of the maintenance energy required for young growing red deer hinds was close to the value of 0.57 MJ ME/$kg^{0.75}$/day calculated for similar aged stags. However the calculated ME requirement for liveweight gain for the hinds was 55 MJ ME/kg compared with 37 MJ ME/kg for stags. This may be due to the difference in the composition of liveweight gains between hinds and stags. A young stag over the weight range considered here lays down very little fat. In contrast hinds lay down a greater proportion of fat and this might explain the difference in ME requirement for growth. Hinds require to be fed better than stags to achieve similar liveweight gain. This factor should be considered in farm energy budgets.

Table 1. Mean daily food intake (kg) liveweight gain (g) and age in months

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Sed
Food intake	1.4	1.3	1.2	1.3	1.6	1.9	2.1	2.0	2.0	1.5	1.7	1.6	1.6	0.11
Liveweight gain	141	114	54	68	146	131	146	186	100	83	87	-8	5	22.2
Age	5	6	7	8	9	10	11	12	13	14	15	16	17	

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