

# Grain supplementation of growing rusa (*Cervus timorensis*) deer stags

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We (Hmeidan and Dryden 1998) reported that rusa stags fed on rhodes grass (*Chloris gayana*) hay lost weight, but adding barley (102 g/d) increased hay intake and liveweight gain. The effects of higher amounts of barley on performance, digestibility and substitution rate were investigated in the present study. Five growing rusa stags (liveweight  $68.0 \pm 6.94$  kg, mean  $\pm$  SD) were fed *ad libitum* on rhodes grass hay and randomly allocated one of five amounts of whole barley grain (g/d): 0 (RG0), 200 (RG2), 400 (RG4), 800 (RG8) and 1200 (RG12) in a 5x5 latin square design. Measurements were made of liveweight change, total and hay dry matter intake, substitution rate (SR) and total tract digestibility of organic matter (OM), crude protein (CP) and acid detergent fibre (ADF).

After 21 days of supplementary feeding, stags fed on rhodes grass alone lost weight, and digestibility of OM and CP were lowest while that for ADF was highest. There was an increase in liveweight gain and the digestibilities of OM and CP with increase in barley

level. Digestibility of ADF was negatively affected by the supplementation. Feeding barley at 200 g/d (RG2) resulted in a slight increase in hay intake, while higher supplementation levels significantly decreased intake of the basal diet, suggesting a substitution effect.

These results suggest that up to 1200 g/d of barley (RG12) can be offered to growing rusa stags fed on rhodes grass hay *ad libitum* with no obvious ill effects. However, the decrease in ADF digestibility suggests a negative effect on fibrolytic bacteria. Supplementing with 800 g/d (RG8) seems optimal for liveweight gain and substitution rate.

Hmeidan, M.C. and Dryden, G.McL. (1998). Effect of hay quality and grain supplementation on feed intake, liveweight and digestibility in young rusa deer (*Cervus timorensis*) stags. *Animal Production in Australia* 22, 383.

**Table 1** Intake, live weight, digestibility and substitution rate in growing rusa stags fed rhodes grass hay supplemented with whole barley grain.

	Treatments					SEM
	RG0	RG2	RG4	RG8	RG12	
Initial weight (kg)	72.5 <sup>a*</sup>	71.4 <sup>ab</sup>	71.2 <sup>ab</sup>	70.1 <sup>b</sup>	70.7 <sup>b</sup>	0.48
Final weight (kg)	71.8 <sup>b</sup>	72.4 <sup>b</sup>	73.0 <sup>ab</sup>	73.4 <sup>ab</sup>	74.5 <sup>a</sup>	0.55
Live weight change (g/d)	- 33.3 <sup>c</sup>	47.6 <sup>b</sup>	85.7 <sup>b</sup>	157.1 <sup>a</sup>	181.0 <sup>a</sup>	22.49
Total intake (g DM/d)	992 <sup>d</sup>	1203 <sup>c</sup>	1232 <sup>c</sup>	1383 <sup>b</sup>	1434 <sup>a</sup>	12.38
Hay intake (g DM/d)	992 <sup>a</sup>	1028 <sup>a</sup>	882 <sup>b</sup>	686 <sup>c</sup>	453 <sup>d</sup>	11.57
Substitution rate	—	- 0.210 <sup>d</sup>	0.313 <sup>c</sup>	0.439 <sup>b</sup>	0.549 <sup>a</sup>	0.04
Digestibility (%)						
Organic matter	54.5 <sup>d</sup>	58.9 <sup>c</sup>	60.9 <sup>c</sup>	66.5 <sup>b</sup>	72.1 <sup>a</sup>	3.81
Protein	34.6 <sup>e</sup>	45.0 <sup>d</sup>	49.4 <sup>c</sup>	55.9 <sup>b</sup>	61.5 <sup>a</sup>	4.04
Acid detergent fibre	50.6 <sup>a</sup>	46.9 <sup>ab</sup>	38.6 <sup>b</sup>	37.8 <sup>b</sup>	26.1 <sup>c</sup>	11.18

<sup>a,b,c,d</sup> Within rows, means of different superscripts are significantly different ( $P < 0.05$ ).