GROWTH RESPONSE OF MERINO HOGGETS FED DIFFERENT TYPES OF GRAIN

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A study was conducted to determine growth responses in hoggets grazing drought affected Mitchell grass pastures in western Queensland, and fed different supplements. Eighteen paddocks, each of 6 ha, were stratified into 3 replicates. These were severely drought affected, dry, rank pastures consisting mainly of stalk with some dry leaf (7.4 MJ metabolisable energy (ME)/kg; 4.3% crude protein (CP)) and approximately 1.75 t DM/ha. One hundred and eight hogget Merino wethers (approximately 18 months old), weighing 39 kg (s.d. ± 5.0), were stratified by initial liveweight and randomly allocated to paddocks. The nutrient composition of grains was aimed to supply 10 MJ ME/d as the upper level of supplementation for each treatment. Supplement treatments (ME (MJ/kg DM), CP (%) and planned maximum supplement levels (g/h/d)), were as follows: 1) corn (12.3, 9.1, 815), 2) lupins (11.5, 31.1, 870), 3) cottonseed (12.9, 20.4, 775), 4) sorghum (12.2, 8.1, 820); 5), sorghum (12.2, 8.1, 820). All supplements were fed on the ground except for sorghum in treatment 5, which was fed in troughs. Treatment 6 was dry pasture only (control). The corn and sorghum were treated with urea (0.8%) and sulphate of ammonia (0.2%) in water to increase their CP to 12%. Sheep were weighed and gradually introduced to the grains in the paddock commencing 28 October 2003. The grain was fed daily in increasing amounts during the first 14 days, and then increased every second day. Amounts of supplement offered were adjusted based on amount left uneaten. Animals were weighed prior to feeding each week over a 10-week period, with final weights recorded on 5 January 2004. Linear growth rates (ADG) were estimated by fitted spline analysis.

Table 1. The effect of supplements on supplement intake and linear growth rate (ADG) of hoggets.

	Control	Corn	Cottonseed	Lupins	Sorghum Ground	Sorghum Trough	s.e.d.
Supplement consumed (gDM/h/d)	N/A	471^{ab}	348^{a}	524^{bc}	593^{b}	440^{ac}	63
ADG (kg/day)	-0.073^{ab}	-0.042^{ac}	0.000^{d}	0.038^{e}	-0.034^{cd}	-0.082^{b}	0.0166

Means in rows with the different superscripts are significantly different (P<0.05)

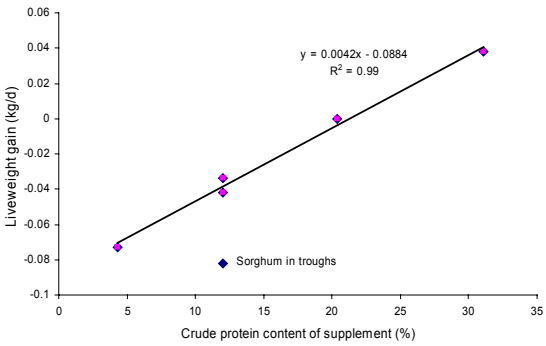

Figure 1. Effect of crude protein content of supplement, or control diet, on ADG.

Amounts of supplement eaten and growth rates are given in Table 1. For all supplements fed on the ground, liveweight gain was closely related to CP content of the supplement (Figure 1). Liveweight gain of animals fed sorghum in a trough was lower than when the same grain was fed on the ground, and was not consistent with the performance of other grains on the basis of CP content. Feed conversion (kg supplement/kg ADG) was just below 5 for cottonseed and lupins and approximately 15 for maize and sorghum fed on the ground. Lower intake of cottonseed than lupins is possibly due to the higher oil content of cottonseed. It is likely that when sorghum is fed in troughs, animals are able to eat the supplement more quickly than when it is fed on the ground, leading to subclinical acidosis.

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