

Weekly Supplementation of Weaner Steers With Cereal Grain and Virginiamycin

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Cereal grain is a cheap and easily stored source of metabolisable energy. However its widespread utilisation as a supplement has been constrained by the high risk of acidosis associated with its use. Virginiamycin (STAFAC, Smithkline Beecham Animal Health) is an antibiotic effective against lactic acid producing bacteria in the rumen (*Streptococcus bovis* and *Lactobacillus* spp) (Nagaraja *et al.* 1987). It allows the feeding of grain to cattle without an introductory period and without the risk of acidosis (Zorilla-rios *et al.* 1991). Zorilla-rios *et al.* (1991), using penned animals, showed no reduction in growth rate or feed conversion ratio associated with feeding cattle a restricted amount of grain with virginiamycin once weekly compared to daily. This experiment aimed to compare three levels of supplementation of cereal grain and virginiamycin fed out weekly, with a pasture control in order to establish a response of weaner steers on dry annual pastures.

Virginiamycin was added to the ration at 40 g/t for week 1 then 20 g/t thereafter. The trials were performed over 84 days in autumn in the Esperance district on the south east coast of WA. The four treatments were; a control plus three levels of cereal supplement which were iso-energetic across sites. Barley was fed at 10.5, 21 and 31.5 kg/week and oats

at 12.5, 25 and 37.5 kg/week. The supplements also included up to 1.5% urea applied as a liquid to the whole oats or through the mix-all to the hammermilled barley in order to raise the crude protein of the supplement to a maximum of 14%.

Supplementation of steers with a limited amount of cereal grain on a weekly basis was successfully undertaken without incidence of clinical acidosis. The response to the weekly supplement amounted to a kg of extra liveweight gain per 9 kg of barley and 11.9 kg of oats. The slightly lower response to oats may have been due to the lower initial liveweight of these steers, therefore having a higher dietary protein requirement. A lower crude protein and ME of the supplement may also have resulted in a higher rate of pasture substitution.

References

- Nagaraja, T.G., Taylor, M.B., Harmon, D. and Boyer, J.E. (1987) *Journal of Animal Science* 65, 1064-76.
- Zorilla-rios, J., May, P.J. and Rowe, J.B. (1991) Recent advances in Animal Nutrition in Australia (Ed D.J. Farrell University of New England, Armidale).

Table 1 Supplement quality ;MJ ME/kg DM (ME) and Crude Protein % (CP), initial liveweight (kg), liveweight gain on pasture only (g/day), response to supplements in terms of grams of liveweight gain /MJ/day of supplement (g LW/MJ) and supplement conversion ratio (kg supp/kg LW response) of weaner steers supplemented weekly with grain and virginiamycin at Esperance.

Site	Supplement		Init LW	Pasture LW gain	Supplement Response		Supplement conversion ratio	
	ME	CP			g LW/MJ	P-value		
1	oats	9.4	12.7	234.1	96.8	8.91	0.027	11.9
2	barley	11.4	13.8	270.9	144.9	9.85	0.34	8.9
3	barley	11.4	14.0	273.4	148.2	9.65	0.0009	9.1