

Supplementing grazing beef cattle weekly or daily with whole maize grain

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An important question regarding supplementation of grazing beef cattle is how frequently this should be done. Responses of cattle to supplementation weekly with cereal grains are not as well documented as daily, probably because of the high risk of acidosis in cattle fed rapidly fermentable sources of starch. Successful weekly supplementation of cattle with barley containing virginiamycin to reduce the risk of acidosis has been reported by Zorrilla-Ríos *et al.* (1994). It is possible that feeding whole maize grain to cattle can reduce rate of ingestion, stimulate mastication and saliva secretion compared to ground grain and thereby reduce the risk of acidosis. It is also likely that the amount of forage available (FA) can affect animal response in relation to weekly or daily supplementation.

At the Experimental Station of the Agronomy Faculty in Paysandu, Uruguay, during August 2002, 36 grazing Hereford cattle (LW 169 ± 23 kg) allowed 2.5 or 5.0 kg of pasture DM/100 kg LW were fed whole maize (1 kg/100 kg LW) either daily (D) or weekly (W). Salt was added (200g/kg DM of offered grain) to maize fed weekly to reduce rate of grain intake. Daily supplements at 1200 h were group-fed in the paddock. Animals offered maize once per week had access to the supplement from a self feeder in the paddock. All cattle had access to water once per day for an hour (1200 to 1300 h). Samples of faeces and rumen fluid (100 ml) were collected three times during the trial for determination of pH approximately 4 h after grain

feeding. Statistical analysis of data on average daily gain (ADG), grain intake and pH were based on a model with main effects (S and FA) and an interaction (S x FA). There was no interaction ($P > 0.05$) between FA and S with respect to ADG, rumen or faecal pH. ADG was higher for calves grazing at the higher pasture allowance (0.52 vs 0.41 kg/d; $P < 0.01$). Daily supplementation produced higher ($P < 0.01$) ADG (0.61 kg/d) than weekly feeding (0.42 kg/d) or no supplementation (0.36 kg/d). Although both rumen and faeces pH were lower ($P < 0.01$) for calves supplemented weekly than for those supplemented daily, the observed values seemed not to be a problem affecting rumen function or indicating digestive disorder. No animals showed any adverse effects of weekly grain feeding or high levels of salt during the experiment. While calves offered the whole maize grain daily consumed 100% of the grain, the cattle fed weekly consumed 78% of grain offered. The main reason for reduced performance of cattle fed maize containing salt was probably reduced grain intake but it is possible that the high salt intake and restricted access to water also reduced pasture intake or feed utilisation efficiency.

Zorrilla Rios, J., Rowe, J.B. and Speijers, J.D. (1994).

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Table 1 Least square means for average daily gains (ADG), and rumen and faeces pH of calves grazing improved pasture supplemented daily or weekly with whole maize.

Supplementation	ADG (kg/d)	Actual grain intake (kg DM/d)	Rumen pH	Faeces pH
Control	0.363 ^b	0.00	6.32 ^a	6.63 ^a
Daily supplementation	0.607 ^a	1.79	6.37 ^a	6.56 ^a
Weekly supplementation	0.417 ^b	1.40	6.07 ^b	6.33 ^b

^{ab} Means in the same column not sharing superscript differ ($P < 0.01$)