

## FEEDING GRAIN TO SHEEP IS SAFER WITH A DRENCH OF VIRGINIAMYCIN

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Virginiamycin has been shown to reduce the incidence of lactic acidosis in sheep when included in grain rations (Godfrey *et al.* 1995). In certain situations such as where animals graze failed or harvested crops containing sufficient grain to cause lactic acidosis, virginiamycin cannot be applied to the grain and administering virginiamycin to the animal is desirable. Oral administration of virginiamycin has been shown to reduce lactate levels in the rumen for up to 72 hours at high doses (P.J. Murray, pers. comm.). Preventing excess lactate accumulation and low pH during the first few days of grain feeding may allow the bacterial population in the gut to adapt to the high grain diet and therefore avoid acidosis.

In the experiment reported here, we examined whether a single drench of virginiamycin could be used to prevent lactic acidosis in sheep and the minimum single dose required to prevent acidosis.

Eighty Merino wethers weighing approximately 30 kg (SEM  $\pm$  0.4) were randomly allocated to individual pens in a shed with mesh flooring. Sheep were stratified on liveweight and randomly allocated to four treatments from within strata. The four treatments consisted of 0 (control), 40, 80 or 160 mg of virginiamycin administered as a single drench in 10 ml of water. Immediately after drenching sheep had *ad lib* access to wheat grain and were fed 300 g of chaff daily. Rumen samples were taken by stomach tube for pH measurement and lactic acid analysis. Animals suffering inappetance due to acidosis were withdrawn from the trial and encouraged to eat with lucerne pellets and lupins. Animals not responding to this treatment were euthanased. All animals withdrawn would probably have died under commercial conditions.

All doses of virginiamycin significantly reduced the number of animals which had to be withdrawn from the trial due to acidosis (Table 1). Mean pH was significantly higher for sheep receiving 80 and 160 mg of virginiamycin and mean rumen lactate concentration was significantly lower for sheep receiving 160 mg of virginiamycin (Table 1).

**Table 1** Number of sheep withdrawn due to acidosis, mean rumen pH and lactate concentrations 24 hours after drenching with virginiamycin and fed *ad lib* wheat

Virginiamycin dose (mg)	Number withdrawn	Mean pH	Mean lactate concentration (mmol/L)
0.0000	11 <sup>a</sup>	5.79 <sup>a</sup>	46.3 <sup>a</sup>
40	1 <sup>b</sup>	5.94 <sup>ab</sup>	33.6 <sup>ab</sup>
80	0 <sup>b</sup>	6.09 <sup>b</sup>	30.6 <sup>ab</sup>
160	0 <sup>b</sup>	6.10 <sup>b</sup>	16.4 <sup>b</sup>

Within columns values followed by a different superscript are significantly different at P = 0.05.

A single drench of virginiamycin can effectively prevent acidosis in sheep when given a severe grain challenge. Mortalities due to acidosis would have been prevented by 80 mg of virginiamycin which equated to 2.7 mg/kg liveweight in this case, however the virginiamycin dose of 160 mg (5.4 mg/kg liveweight) was more effective at lowering rumen lactate concentrations.

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