

**PERFORMANCE AND DIGESTION RESPONSES TO MONENSIN SODIUM
BY HERBAGE-FED CATTLE AND SHEEP**

G.C. FILE*, R.H. WESTON, D.E. MARGAN** and R.H. LABY*****

The effects of monensin sodium on various aspects of performance and digestion in cattle and sheep have been studied.

Forty-eight Hereford steers (c. 290 kg) were divided into four groups receiving either no additive or continuous release capsules (Watson and Laby 1978) providing (i) monensin, (ii) elfazepam (Baile 1979) or (iii) monensin + elfazepam. The animals grazed spring pasture comprising mainly white clover, fescue and phalaris for 127 days. Mean daily liveweight gain in the first 56 days for the steers receiving monensin (c. 57 mg/day) was 980 g similar to the corresponding value of 962 g with the other three groups. During the remaining 71 days the daily gain was higher with the group receiving monensin (c. 143 mg/day) than with the other groups (680 g vs 540 g, $P < 0.05$). The volatile fatty acids in rumen liquor from steers receiving monensin contained proportionately more propionic and isovaleric acids and less acetic and butyric acids ($P < 0.05$).

In a second study 20 steers (c. 413 kg) received continuous release capsules providing monensin (c. 195 mg/day), 10 steers received capsules with no additive and 10 were untreated. During a grazing period of 99 days in autumn on the same pasture as above, the animals receiving monensin showed higher daily liveweight gain (212 g vs 149 g, $P < 0.05$).

Two groups of 10 crossbred lambs (c. 25 kg) were offered 1 kg daily of a pelleted mixture of lucerne and oat hay (4:1) for 42 days. The group given continuous release capsules providing c. 12 mg monensin per day showed higher daily liveweight gains (93 g vs 78 g, $P < 0.05$) than the control group; relative to a preliminary measurement period, wool fibre diameter increased more with the monensin than with the control group (9.0% vs 3.6%, $P < 0.05$).

The effect of monensin on digestion was studied in Corriedale lambs fed 1 kg daily ground and pelleted lucerne hay diets containing 0, 11 or 24 ppm monensin. Organic matter digestion was not affected by monensin. At 11 ppm monensin increased the amount of crude protein digested in the intestines ($P < 0.05$) but no change was shown at 24 ppm. However, at 24 ppm significant increases ($P < 0.05$) occurred in rumen volume, molar proportion of propionic acid and the ammonia concentration in rumen liquor.

The studies indicate that monensin as delivered by continuous release capsules can effect increases in the performance of herbage-fed ruminants. The role of change in digestion in enhancing performance is difficult to assess as level of monensin administration seems important in determining the digestion pattern.

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* N.S.W. Dept of Agric., Agricultural Research Station, Trangie, N.S.W. 2823.

** CSIRO, Division of Animal Production, P.O. Box 239, Blacktown, N.S.W. 2148.

*** CSIRO, Division of Animal Production, P.O. Box 312, Clayton, Vic. 3168.