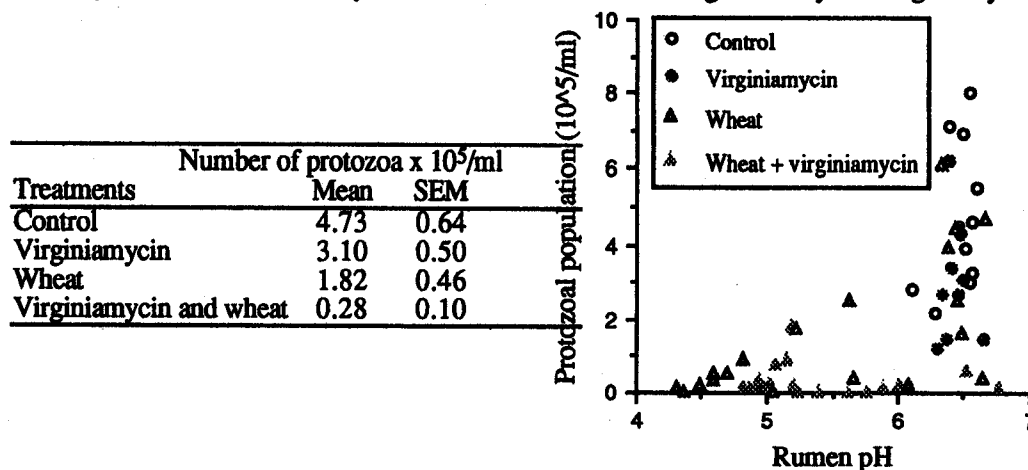


## THE EFFECT OF VIRGINIAMYCIN AND WHEAT GRAIN ON RUMEN PROTOZOAL NUMBERS IN SHEEP

P. J. MURRAY, J. B. ROWE and S. W. WINSLOW

A number of studies have shown significant improvement in animal production can be achieved following removal of protozoa from the rumen of sheep and cattle (Bird 1988). Defaunation can be achieved using surfactants or through feeding high grain diets (Kreuzer and Kirchgessner 1988). Low rumen pH is considered the primary factor in decreasing protozoal numbers under these conditions (Purser and Moir 1959). On the other hand restricted feeding of high concentrate diets tends to increase protozoal numbers (Eadie et al. 1970). Feed antibiotics have been found to decrease the protozoal population density under some conditions. Graham et al. (1984) found a decrease when the ionophore 139603 was fed and Nagaraja et al. (1991) found a similar response to virginiamycin. Feeding large quantities of grain in combination with a feed additive such as virginiamycin is a practical option for supplementary feeding and this study investigated the effect of this combination on rumen protozoa.

There were four treatments: control n = 10; virginiamycin (80 mg/d) n = 10; ground wheat given via stomach tube (day 1 500 g; day 2 750 g; day 3 750 g; day 4 1kg) n = 20; ground wheat containing virginiamycin to provide 80 mg/day. All sheep received wheat chaff ad libitum. Rumen samples were taken by stomach tube three days after the last drench of wheat grain slurry and virginiamycin.



The doses of wheat had a much greater effect than virginiamycin on reducing protozoal density although virginiamycin and the doses of wheat both reduced the concentration of rumen protozoa. Even with a very high 'intake' of grain, not all animals had complete defaunation and the lactic acidosis resulting from feeding this amount of grain is not a practical option for defaunation of sheep.

- BIRD, S.H. (1988). In 'The Roles of Protozoa and Fungi in Ruminant Digestion', pp. 233-246, eds J. Nolan, R.A. Leng and D.I. Demeyer. (Penambul Books: Armidale NSW).
- EADIE, J.M., HYLDGAARD-HENSEN, J., MANN, S.O., REID, R.S., and WHITELAW, F.G. (1970). *Br. J. Nutr.* 24: 157.
- GRAHAM, C. A., EDWARDS, S. R., CUMMING, G. J., and LEES, P. C. (1984). *Aust. Soc. Anim. Prod.* 15: 683.
- KREUZER, M., and KIRCHGESSNER, M. (1988). In 'The Roles of Protozoa and Fungi in Ruminant Digestion', p.189-198, eds J. Nolan, R.A. Leng and D.I. Demeyer. (Penambul Books: Armidale NSW).
- PURSER, D.B. and MOIR R.J. (1959). *Aust. J. Agric. Res.* 10: 555.
- NAGARAJA, T.G., GODFREY, S.I., ROWE, J.B., and WINSLOW, S.W. (1991). *J. Anim. Sc.* 69 (Suppl. 1): 533.