EFFECT OF DRY FEED TYPE AND VIRGINIAMYCIN PRIOR TO CHANGE TO GREEN PASTURE ON THE WOOL STAPLE STRENGTH OF MERINO WETHERS

A.C. SCHLINK[AB], C.M. OLDHAM[CB], J.T.B. MILTON[D], S.G. GHERARDI[CB] and R.A. DYNES[AB]

[A] CSIRO Division of Animal Production, PO Box Wembley, WA 6014
[B] CRC for Premium Quality Wool, Fitzroy, Vic 3065
[C] Agriculture Western Australia, Baron-Hay Court, South Perth, WA 6151
[D] Faculty of Agriculture, The University of Western Australia, Nedlands, WA 6907

The type of supplement fed prior to an abrupt change from dry to green pasture has been shown to influence the degree of metabolic disturbance in sheep (Annison *et al.* 1959). The point of break in a wool staple frequently coincides with the change from dry to green feed. This experiment aimed to modify ruminal disturbance on changing from dry to green feed and to observe the effects on staple strength.

Sixty Merino weaner wethers (37±0.3kg) were stratified on liveweight and randomly allocated to one of four treatments (hammermilled hay, or 50% hammermilled hay:50% oaten grain; with or without 40 mg/kg virginiamycin). The sheep were fed the treatment diets in individual pens to maintain liveweight for 28 days. On day 29 all sheep were released on to green pasture and for each of the next 14 days were offered their maintenance ration in individual pens for one hour at 0800 and then returned to green pasture. Rumen and blood samples were collected prior to and after release on to green pasture. Dry feed intake and refusals were recorded daily and liveweights weekly. Dye bands were placed in the wool when the experiment commenced and on release to green pasture. The sheep were shorn three months after the release to normal grazing, and staple strength and point of break were determined. Data are presented in Table 1.

Table 1. Rumen pH and D-lactate(mmol/L), plasma D-lactate(mmol/L) and wool staple strength(N/ktex) of sheep fed dry and green feed with and without virginiamycin

	Hay		Hay : Oats	
Virginiamycin:	-	+	-	+
Dry feed				
Rumen pH	6.8 ± 0.1[a]	6.7 ± 0.1[a]	6.5 ± 0.1[b]	6.5 ± 0.1[b]
Rumen D-lactate	7.4 ± 3.1[a]	6.4 ± 1.6[a]	0.5 ± 0.3[b]	0.4 ± 0.2[b]
Plasma D-lactate	0.27 ± 0.10[a]	0.20 ± 0.05[ab]	0.06 ± 0.02[b]	0.05 ± 0.01[b]
Green pasture				
Rumen pH	7.0 ± 0.1[a]	7.1 ± 0.1[a]	6.7 ± 0.1[b]	6.8 ± 0.1[b]
Rumen D-lactate	0.08 ± 0.04	0.20 ± 0.10	0.47 ± 0.19	0.23 ± 0.08
Plasma D-lactate	0.03 ± 0.01	0.07 ± 0.02	0.04 ± 0.01	0.06 ± 0.03
Staple Strength	36 ± 2[a]	37 ± 2[a]	41 ± 2[b]	41 ± 2[b]

Rows with different superscripts are significantly different ($P<0.05$)

There was no effect of feed type or virginiamycin on liveweight gain and all sheep gained weight on return to pasture. During the 14 day supplementary feeding period on pasture, sheep fed the hay ate 347 g of the 774 g DM offered and those fed hay:oats ate 531 g of the 675 g DM offered: virginiamycin had no affect on the intake of either ration. Including oats in the diet prior to and during the abrupt change to green pasture significantly increased wool staple strength. The point of break was at the time of release to green pasture. Inclusion of oats lowered rumen pH in both the dry and green phases of the experiment. The change from all dry to some green feed raised rumen pH and lowered rumen and plasma D-lactate concentrations. The addition of virginiamycin to the diet did not significantly affect rumen pH, rumen and plasma D-lactate concentrations or staple strength.

The inclusion of oat grain in the maintenance ration improved staple strength with daily feeding but the mechanism was not determined. The changes in rumen parameters warrant further investigation of the value of virginiamycin with grain fed at less frequent intervals.

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