

THE EFFECT OF BENTONITE CLAY ON WOOL GROWTH, LIVEWEIGHT AND RUMEN FUNCTION

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Bentonite clays have been used to reduce the incidence of acidosis (Dunn *et al.* 1979). There have also been reports indicating that bentonites may increase both feed digestibility and wool growth in sheep (Fenn and Leng 1987). Responses to bentonite have been varied and this may be due to the different composition and properties of the bentonites used. It is not known to what extent the different characteristics may affect the biological action of the clays on ruminant digestive function. Three clays were tested to determine (1) whether they do affect wool growth and liveweight change and (2) whether this effect varies depending on the source of the clay.

The different sources of clays tested were from Queensland (Cudgen R. Z., Trufeel), and two others mined in Western Australia (Mingelco Ltd, Lake A and Lake B). Each of the clays was included at a level of 25 g/kg feed in two different diets.

Half the sheep were fed wheat chaff at 900 g/d and the remainder fed a pelleted ration of lucerne: lupins: barley (600:250:150) at 3.5 % of starting liveweight (32 kg; SE 0.3 kg). For each of the two diets, nine Merino sheep were allocated to each bentonite treatment group, and 12 to each of the two control groups (no bentonite). The experiment consisted of an initial period (eight weeks) during which all animals received their diet without bentonite, followed by an experimental period (nine weeks) in which the animals received their diets with bentonite. Animals were weighed weekly. Wool growth was measured by clipping a midside patch at the end of the initial and experimental periods. Rumen samples were taken by stomach tube during the last week of the experiment.

The three bentonite clays had no effect on rumen ammonia or volatile fatty acid (VFA) concentration in sheep fed wheat chaff. For sheep fed the pelleted diet, both Western Australian bentonites increased the molar proportion of acetate and decreased the molar proportion of propionate relative to the control group. None of the clays had any significant effect on liveweight change or wool production. It was concluded that under the conditions of this experiment there was no benefit of feeding any of the bentonite clays to sheep.

Diet	Liveweight gain (g/d)	Clean wool growth (g/d)	Rumen ammonia (mgN/l)	Total VFA (mmol/l)	% of total VFA	
					Acetate	Propionate
Pellets						
Control	138	13.4	235	129	60	26
Trufeel	135	13.3	193	138	62	23
Lake A	134	12.4	237	139	65	20
Lake B	150	13.5	185	148	66	22
SED	10	0.6	30	9	1.4	1.6
Chaff						
Control	8	4.8	164	89	71	17
Trufeel	12	4.5	166	95	70	18
Lake A	19	4.5	143	86	70	17
Lake B	24	5.0	139	84	72	16
SED	8	0.3	22	6	1.2	1.3

DUNN, B. H., EMERICK, R. J., and EMERY, L. B. (1979). *J. Anim. Sci.* **48**: 764.
 FENN, P. D. and LENG, R. A. (1987). In 'Recent Advances in Animal Nutrition in Australia', ed. D. J. Farrell. (University of New England Publishing Unit, Armidale).

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