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PUBLICATION DATE

01-01-1980

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McGregor, B. A. 1980, The influence of dietary protein concentration on the growth of Merino wethers, in ASAP 1980 : Proceedings of the Australian Society of Animal Production 1980 biennial conference, Australian Society of Animal Production, Melbourne, Vic., pp. 472-472.

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THE INFLUENCE OF DIETARY PROTEIN CONCENTRATION ON THE GROWTH OF MERINO WETHERS

B.A. McGREGOR*

The high productivity of crossbred lambs and hoggets on concentrate diets has been well documented. Less is known about the productivity of Merino lambs on similar rations although Searle and Graham (1972) have shown that Merino wethers were less productive than crossbreds with diets of either 14 or 23% crude protein (CP). McGregor and McLaughlin (1980) found that 3 to 6 month-old Merino lambs fed concentrate rations grew faster and more efficiently when rations contained 20% CP. In the present study, the food intake (DMI), growth (ADG) and production of yearling Merino wethers fed concentrate diets from 28 to 44 kg live weight was studied. Twenty-five wethers were allotted to give groups and offered *ad lib.* quantities of the diets shown in Table 1. Results are given in Table 2.

TABLE 1 Ration composition

Group	1	2	3	4	5
Barley (%)	88	81	72	64	55
Soyabean meal (%)	-	7	16	24	33
Hay (%)	10	10	10	10	10
Mineral premix (%)	2	2	2	2	2
Crude protein (%)	9.4	12.6	15.2	18.8	23.0
Digestible energy (MJ/kg DM)	12.2	12.6	13.1	12.6	12.9

TABLE 2 Mean production data (with SE) for each treatment group

Group	1	2	3	4	5
Dry matter intake (g/d)	950(146)	903(133)	977(38)	891(143)	1017(96)
Liveweight gain* (g/d)	114(37)	110(29)	140(27)	119(50)	133(34)
Clean wool growth (g/d)	8.4(1.5)	9.4(1.2)	8.5(1.3)	8.2(0.6)	8.4(1.3)
Live weight at finish* (kg)	38.9(2.3)	38.2(2.3)	40.0(0.6)	38.5(3.5)	39.7(1.0)
Carcass weight (kg)	19.5(1.5)	19.4(1.4)	19.5(1.2)	19.3(1.3)	19.8(0.6)

* Fleece-free

The highest mean ADG occurred in group 3 but discounting the poor growth of one wether in group 4 most animals in groups 3, 4 and 5 had similar ADG. ADG was highest in all groups between 30 and 35 kg live weight and averaged 178 g/d. Highest DMI occurred in group 5 and in all groups was highest between 35 and 40 kg live weight. Wool growth and carcass weights were similar in all groups. These Merino wethers failed to respond to increases in dietary CP above 15% even though they weighed only 25.7 (±1.3) kg, fleece-free, at 12 months of age. The growth rates attained in this study were similar to those which can be achieved by Merinos grazing spring pasture but less than normally obtained by crossbred sheep or Merino lambs on similar concentrate rations.

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