CARCASS COMPOSITION AND ENERGY DEPOSITION IN LAMBS FED BARLEY OR FISH MEAL DIETS

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Fish meal contains proteins resistant to degradation in the rumen and when used as a supplement in diets for young sheep fish meal can promote rapid liveweight gains with reduced carcass fatness (Ponnampalam and Hosking 1994). However, fish meal fed as a sole supplement is expensive and poorly accepted by sheep. This study was undertaken to test the efficacy of a pelleted fish meal mixture, formulated to improve palatability and ease of feeding.

Cryptorchid Romney Marsh x Merino lambs were drenched for the control of helminths and allocated by weight to one of three groups. Two groups (n=6 lambs/group) were then randomly assigned to diets consisting of a chopped oaten hay:lucerne hay mixture (3:1) fed ad libitum and supplemented daily with either whole barley grain or fish meal pellets (FMP) at the rate of 1% liveweight. The FMP were prepared by extruding fish meal and milled lucerne hay (1:3 w/w) through a 10mm die. Intake and liveweight gain were monitored over a 10 week period. The lambs were then humanely killed and dissected. Carcass gain and composition were determined by reference to the third group of animals killed at the commencement of the study (Sainz et al. 1994). The supplements were approximately isoenergetic and provided 50 and 164 g/d rumen undegraded protein (UDP) for barley and FMP supplements, respectively.

	Barley	FMP	sem	Significance (P)
Initial liveweight (kg)	26.8	26.8	1.73	
Final liveweight (kg)	34.7	43.3	1.57	<0.01
Carcass weight (kg)	15.6	18.5	0.86	<0.05
Fat content	4.1	4.1	0.39	ns
Protein content	2.4	3.1	0.13	<0.01
Carcass energy content (MJ)				
Protein	58	73	3.1	<0.001
Total energy	220	234	17.2	ns

FMP increased liveweight and carcass weight by 25% and 19%, respectively. Fat content (kg) in the carcass was similar for each diet while protein content was increased 30% by FMP. Overall energy retention in the carcass was similar for both diets although FMP resulted in significantly more (26%) energy retained as protein. Variations in energy deposition in the carcass parallelled differences (P<0.001) in ration intake. DM intakes were 1.12 and 1.44 kgDM/day (sem 0.034) for barley and FMP diets, respectively. The results confirm the effectiveness of FMP for delivery of high UDP mixtures and the role for such supplements as a potent means for the manipulation of body growth and composition through the diet.

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