

## GROWTH OF LAMBS GIVEN A ROUGHAGE DIET AND ISOCALORIC AMOUNTS OF VARIOUS SUPPLEMENTS

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A feed supplement is included in a diet to alleviate nutritional deficiencies and to increase production, however, not all feeds act as a true supplement since often the feed added will substitute part of the nutrient supply from the basal diet. The important distinction therefore is whether the feed material has a supplementary effect or a substitution effect.

Eight Merino x Border Leicester wether lambs (initial live weight  $19.3 \pm 0.32$  kg) were allocated at random to each of eight diets. The lambs were given free access to a basal diet of (g/kg) 600 oaten chaff, 360 sugar, 30 urea, 10 minerals, and supplemented with either meatmeal, fishmeal, whole soyabeans extruded at  $143^{\circ}\text{C}$ , cracked oats, cracked sorghum, cracked maize, or maize plus 4% oil (w/w) extruded at  $170^{\circ}\text{C}$ . The amount of each supplement offered was calculated to provide energy equivalent to that in 100 g meatmeal. The experiment was conducted over 56 d. The results are shown in the Table.

Table 1 Performance of lambs given various supplements

	SUPPLEMENT							SEM	
	Control	Meat- meal	Fish- meal	Extruded Soya- beans	Oats	Sorghum	Maize oil		Extruded Maize oil
Intake of basal diet (g DM/d)	639	661	604	652	560	497	418	604	43
Liveweight gain (g/d)	75	148	154	143	112	88	81	136	14
Wool growth (g/d)	5.0	7.6	8.3	7.7	5.8	6.8	5.3	6.3	0.74

Supplementation with the bypass protein containing meals (meatmeal, fishmeal and extruded soyabeans) either maintained or increased intake of the basal material, increased growth rate by 73 g/d and increased wool growth by 2.9 g clean/d. Conversely, supplementation with cereal grains (maize, sorghum, oats) reduced intake of the basal diet and yet maintained the same growth rate as in the control lambs, indicating ME intake was unchanged by these supplements. By comparison, the extruded maize/oil supplement maintained intake of the basal material and increased ME intake as indicated by the additional 61 g/d growth in lambs on that diet. That wool growth was not increased by the maize/oil supplement indicates that this supplement did not increase the outflow of microbial protein, since wool growth is an index of protein supply to the animal. It is postulated that the maize/oil supplement was digested postruminally thus increasing ME intake whilst having little effect on appetite. Further research is necessary to define production responses to providing energy postruminally and to develop processing means to reduce the ruminal fermentability of energy containing supplements.

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