

Feed intake by sheep offered sugarcane bagasse supplemented with proteins

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A pelleted commercial alkali-treated sugarcane bagasse, Fibremax® (Fibretech Developments Ltd, QLD, Australia), is low in crude protein (2%) and high in fibre (86% NDF). Dietary protein supplementation is a strategy used to improve low quality roughages for ruminants (1). The present experiment evaluated the effects of three protein supplements (cotton seed meal, soybean meal and fish meal) on feed intake by sheep offered Fibremax® ad libitum.

Sixteen Merino wethers, 14-16 months old and weighing from 26 to 33 kg body weight (BW), were allocated into four groups based on a completely randomised block design. One group was offered Fibremax® alone (control). The others were offered Fibremax® supplemented with fixed amount (273 g DM/head/d) of soybean meal (SBM), cottonseed meal (CSM) or fish meal (FM). Supplements were isonitrogenous (64 g N/kg DM) and isofibrous (421 g NDF/kg DM) based on the CSM values. Small amount of urea and/or ground Fibremax® were added to SBM and FM to achieve matching with composition of CSM. The Fibremax® diet and the supplements were offered in two equal daily meals at 0800 and 1400 h. Water was available at all times. Dry matter intakes (DMI) were measured daily and BW were monitored weekly.

	Fibremax®	SBM	CSM	FM	sed*
DMI (g/day)					
Fibremax®	303 ^a	552 ^b	697 ^b	303 ^a	73.4
Supplement	0	272	274	275	
Total	303 ^a	824 ^b	971 ^b	578 ^c	73.7
ADG (g/day)	-37 ^a	34 ^b	40 ^b	0.7 ^c	25.4

* Standard error of differences

Different superscript on the same row denote significant differences (P<0.05)

DMI of sheep on Fibremax® alone was low and insufficient to sustain BW. CSM and SBM supplemented diets significantly increased intake of Fibremax® and resulted in significant weight gain. The FM supplemented diet did not result in an increase in Fibremax® intake but was able to sustain BW.

Different protein sources despite similar nitrogen (N) content gave different animal responses. This is presumably due to the nutrient balance within the diets particularly the availability of N for rumen degradation. Vegetable proteins are highly degradable in the rumen compared to animal protein (2). This is confirmed in the present experiment where the animal responses to CSM and SBM were better than that from FM. In conclusion, the intake and utilisation of Fibremax® can be enhanced by adding vegetable protein supplements.

1. Minson DJ. Forage in ruminant nutrition. San Diego, California: Academic Press, 1990.
2. Ørskov ER. Protein nutrition in ruminants. London: Academic Press, 1982.