

DIGESTIBILITY AND DRY MATTER INTAKE IN SHEEP GIVEN TRITICALE STRAW WITH AND WITHOUT RED GRAPE MARC

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Grape marc is a by-product of wine making. Its feed quality varies widely and is usually low, with metabolisable energy values ranging from 3-12 MJ/kg DM and crude protein (CP) ranging from 5-36% of DM (NSW Agriculture 2004). Anecdotal evidence suggests that grape marc has been used as a cheap substitute for poor quality hay during drought. However, there is little information on performance of animals fed diets containing the product in Australia. The aim of this trial was to measure the effects of grape marc fed with *ad libitum* straw on *in vivo* digestibility and DM intake in sheep.

Twelve 10-month old Merino ewe lambs (30 ± 5 kg liveweight) were allocated to 1 of 3 treatment groups (n=4 per treatment): 0, 150 and 350 g fresh Shiraz marc (47.1% DM; 125 g CP/kg DM), obtained from the Dookie Campus winery, with *ad libitum* triticale straw, chopped to 2-5 cm lengths (87.7% DM; 24 g CP/kg DM). The lambs were housed in standard digestibility cages, and intake and faecal weights were recorded daily for 10 days after a 7-day adaptation period during which animals were introduced to their treatment diets. Digestibility calculations were based on total intake and faecal output for each lamb over 10 days. The lambs were weighed 3 times, on days 0, 6 and 10 of the faecal collection period.

Lambs consumed all of the grape marc on offer. Lambs fed the 350 g/d of grape marc had significantly higher total DM and CP intakes, even though the diet fed to this group had a lower *in vivo* digestibility. There were no significant differences between any of the groups for straw intake. Total digestible DM intakes were also not significantly different between treatments (Table 1), but there was a significant relationship between level of marc and total digestible DM intake ($r^2 = 0.34$; $P=0.046$).

Table 1. The effect of grape marc supplements on intake, digestibility and liveweight.

	Fresh marc (g/d)			l.s.d.
	0	150	350	
Marc intake (g DM/d)	0	71	165	n/a
Straw intake (g DM/d)	332	320	418	ns
Total DM intake (g/d)	332 ^a	393 ^a	583 ^b	114.5
Digestible DM intake (g/d)	135	155	191	ns
Total crude protein intake (g/d)	7.9 ^a	16.8 ^b	30.6 ^c	2.7
DM digestibility (%)	39.7 ^a	39.3 ^a	32.8 ^b	5.0
Liveweight change (g/d)	-215 ^a	-196 ^a	-89 ^b	105.1

Values in a row with different superscripts are significantly different ($P<0.05$)

Despite the lower *in vivo* digestibility of the ration in sheep given 350 g/d grape marc, the extent of liveweight loss was significantly reduced when compared with 0 and 150 g/d. This could be attributed to higher overall CP and DMI in this group. In addition, we observed that grape marc was highly palatable and this may have influenced intake. Red grape marc typically has relatively high tannin concentrations and low rumen degradability of crude protein (Fegeros and Kalaisakis 1987) and this may also have had some influence on performance. Grape marc may be a useful supplement for sheep, but further work is required to understand its digestion and nutritional value.

FEGEROS, K. and KALAISSAKIS, P. (1987). *World Rev. Anim. Prod.* 13 (3), 17-22.

NSW AGRICULTURE (2004). 'Nutritive Values of Feeds (Feed Evaluation Database).'

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