

## SHEEP PRODUCTION FROM SALINE LAND – PRODUCTIVITY FROM OLD MAN AND RIVER SALTBUSH AND THE VALUE OF GRAIN AND STRAW SUPPLEMENTS

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Old man (*Atriplex nummularia*) and river (*A. amnicola*) saltbush are widely used in commercial grazing systems on saline land in Australia. In a Mediterranean-type climate, saltbush provides green feed in autumn when annual pastures are dead and feed is scarce. Saltbush provides a good source of crude protein, however, the high salt content of leaves (up to 30%) will limit feed intake (Masters *et al.* 2001). Sheep grazing saltbush are likely to require a low salt understorey or supplement for them to grow adequately. The aims of this experiment were 1) to quantify the differences in liveweight between sheep grazing saltbush alone and those offered a supplement of barley straw or barley grain, and 2) to compare the productivity of sheep grazing monocultures of old man and river saltbushes.

In 2003, sixteen 0.75 ha plots of 10 year old saltbush (8 of old man saltbush and 8 of river saltbush) were fenced at Yealering (230 km ESE of Perth). All plots contained an average of at least 600 kg DM/ha of saltbush and less than 100 kg DM/ha of understorey biomass. Grazing with weaner Merino wethers (13.3 sheep/ha) commenced in mid April 2003. Liveweight and condition were monitored every 14 days for 50 days. For each saltbush species, 4 of the 8 plots did not receive any supplement, while sheep in the remaining plots were offered a supplement of either barley straw (2 plots - 350 g/head/day) or barley grain (2 plots - 175 g/head/day) fed 3 times per week.

The sheep grazing old man saltbush gained significantly more weight than those grazing river saltbush ( $P < 0.05$ ) however, condition score change was not significantly different (Table 1). There were no significant differences associated with addition or type of supplement, although there was a trend towards an interaction between saltbush species and supplement ( $p = 0.13$ ). At the time grazing commenced, old man saltbush averaged 652 kg DM/ha of 'edible' biomass (leaves and stems  $< 3\text{mm}$ ) and river saltbush averaged 552 kg DM/ha ( $P > 0.05$ ).

**Table 1. Mean liveweight change of weaner Merino sheep after grazing saltbush plots, with or without supplements, for 50 days in autumn 2003.**

Saltbush species	Supplement	Weight change (kg) $\pm$ s.e.	Condition change $\pm$ s.e.
Old man	Barley grain	2.4 $\pm$ 0.08	-0.3 $\pm$ 0.14
	Barley straw	1.6 $\pm$ 0.86	-0.4 $\pm$ 0.41
	No supplement	0.9 $\pm$ 0.77	-0.4 $\pm$ 0.08
River	Barley grain	-0.6 $\pm$ 0.44	-0.1 $\pm$ 0.02
	Barley straw	-0.6 $\pm$ 0.65	-0.5 $\pm$ 0.06
	No supplement	0.6 $\pm$ 0.26	-0.3 $\pm$ 0.06

The superior performance of sheep grazing old man saltbush was unexpected, since sheep given a choice will graze river saltbush first. Analysis of samples collected prior to grazing indicated that old man saltbush had less fibre and more salt ( $22.0 \pm 0.42\%$  neutral detergent fibre (NDF),  $8.1 \pm 0.55\%$  acid detergent fibre (ADF), 28% ash) than river saltbush ( $46.7 \pm 0.26\%$  NDF,  $16.4 \pm 0.10\%$  ADF, 17% ash). The old man saltbush would have provided more digestible organic matter per plot, although the salt content could have limited intake. Old man saltbush has larger leaves and a more upright growth habit than river saltbush, and this combination may have resulted in higher intake rate and bite size. The results on supplement benefits are less clear. Sheep fed the river saltbush did not respond to supplementation at all, suggesting feed substitution was occurring. The trend towards an interaction indicates there was a benefit in supplementing sheep grazing old man saltbush.

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