LIVEWEIGHT CHANGE AND WOOL GROWTH IN YOUNG SHEEP GRAZING A MIXED SALTBUSH AND BALANSA CLOVER PASTURE

H.C. NORMAN [A], *D.G. MASTERS* [A], *R.A. DYNES* [A], *D.A. HENRY* [A], *M.J. LLOYD* [B]

[A] CSIRO Livestock Industries, Private Bag No 5 Wembley, WA 6913
[B] 'Bundilla' Lake Grace, WA 6354

In south-western Australia, 10% or 1.8 million ha of the farmed area is affected by dryland salinity and a further 6 million hectares are threatened (National Land & Water Resources Audit 2001). For much of this area reclamation is not a realistic option and the challenge is to find a use for the land which will provide an economic return and/or meet the environmental requirements of the broader community. There is increasing interest in combinations of shrubs and pasture plants to manage water tables and provide good quality animal feed at the same time. The aim of this study was to determine performance of sheep grazing a mixed saltbush (*Atriplex spp*) and balansa clover (*Trifolium michelianum*) pasture.

The study was carried out in a 25 ha paddock at Lake Grace (350 km south-east of Perth). The topsoil salinity during summer was low (3 dS/m EC_e) but the ground water (257cm below the soil surface) was very saline (49 dS/m EC_w, cf. seawater 55 dS/m EC_w). The site had been recently re-vegetated and consisted of saltbush rows (wavy-leaf – *A. undulata*, old man – *A. nummularia* and creeping – *A. semibaccata* species) separated by inter-rows of sown balansa clover and volunteer capeweed (*Arctotheca calendula*). The total width of the rows was 12 m, of which approximately 4 m was saltbush and 8 m inter-row. The saltbushes (54% wavy-leaf, 31% old man and 9% creeping) covered approximately 30% of the paddock. Of the 70% of the paddock that was inter-row, 59% was balansa clover, 23% capeweed, 7% annual ryegrass (*Lolium rigidum*) and 5% pearlwort (*Sagina apetala*). On February 5, 2001 (day 0), 200 weaner sheep (36 ± 0.5 kg) were introduced to the paddock, 50 of these sheep were weighed on days 0, 19 and 74. Fifteen of the group were dyebanded on days 0, 19 and 74 for estimation of wool growth. From days 30 to 74 supplements of pea straw (*in vitro* digestibility 55.1%, crude protein 3.7%) were fed at the rate of approximately 150 g DM/day.

Saltbush on offer averaged 1626 kg DM/ha over the full 25 ha at the start of grazing. Non-saltbush biomass totaled 575 kg DM/ha before grazing. The sheep preferentially grazed the non-saltbush component of the pasture and removed only 54 kg DM/ha of saltbush in the first 19 days compared to 335 kg/ha of non-saltbush pasture. After 74 days of grazing, the inter-row contained only a few ungrazed heliotrope (*Heliotropium curassavicum)* and samphire (*Halosarcia spp*) plants and feed on offer had been reduced from 575 kg DM/ha to effectively 0 kg DM/ha. The saltbush component dropped from 1626 kg DM/ha to 1005 kg DM/ha.

The weaners gained 80 ± 10 g/day for the first 19 days grazing and grew 8.3 ± 0.6 g/day clean wool. Over the next 54 days they lost 8 ± 4 g/day liveweight and grew 7.8 ± 0.4 g/day clean wool. Average staple strength of the fleeces at shearing (October 27, 2001) was 27.9 ± 1.4 N/ktex.

In conclusion, at the stocking rate of 8/ha, the young sheep were able to grow at a moderate rate when balansa clover was available between the saltbush rows. A similar weight gain from a mixture of hay (80%) and lupins (20%) would require the sheep to be fed approximately 1.3 kg/day and cost $0.30/sheep.day (first 19 days) or 0.7 kg/day and cost $0.16/sheep.day (day 19-74) (Freer *et al*. 1997).

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Email: Hayley.Norman@csiro.au