

BALANSA CLOVER IMPROVES WOOL PRODUCTION ON SALINE PASTURES

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Dryland salinity affects at least 8,000 wool producers in Australia (LWA 2005). The Sustainable Grazing on Saline Lands (SGSL) program has focused on improving pasture and livestock production on saline areas but the economic drivers within sheep enterprises demand that wool production and quality are also considered. This paper builds on the improvements in animal and pasture production on saline land shown by Hebart *et al.* (this conference), by comparing wool production and quality on unimproved saline pasture with that on improved saline pasture, with and without fertiliser inputs and balansa clover included in the sward.

Experimental treatment details are as for the previous paper (Hebart *et al.* this conference). Wool samples were taken from the mid-side prior to shearing in December 2005 and were analysed by Australian Fibre Testing for fibre diameter (FD), yield, staple length (SL), staple strength (SS) and position of break (POB) by AWTA approved methods. Greasy fleeces were weighed at shearing and converted to clean fleece weight (CFW) based on the yield of the mid-side samples. CFW/ha was calculated using the CFW/head, stocking rate and plot size. Treatment differences were analysed by ANOVA.

Table 1. Mean wool production and quality for sheep grazing unimproved, improved, improved with superphosphate (SP), urea (U) and balansa clover (BC) pastures.

| Pasture Type | CFW (kg/ha) | CFW (kg/hd) | FD (micron) | Yield (%) | SL (mm) | SS (Nktex) | POB (mm) |
|----------------|--------------------|--------------------|-------------------|--------------------|------------|---------------|-------------|
| Improved+SP+BC | 24.76 ^a | 4.13 ^a | 20.6 ^a | 67.8 ^a | 87.7 | 23 | 50 |
| Improved+SP+U | 22.08 ^b | 3.68 ^b | 18.9 ^b | 70.5 ^{ab} | 82.9 | 20 | 49 |
| Improved+SP | 18.83 ^c | 3.77 ^{ab} | 19.1 ^b | 69.4 ^{ab} | 83.4 | 24 | 53 |
| Improved | 18.73 ^c | 3.75 ^b | 19.0 ^b | 71.6 ^{bc} | 80.6 | 25 | 54 |
| Unimproved | 11.65 ^d | 3.88 ^{ab} | 19.2 ^b | 74.3 ^c | 81.6 | 25 | 49 |
| F Prob | *** | * | *** | *** | ns | ns | ns |

ns denotes not significant, *P<0.05 and ***P<0.001

Values within a column with the same superscript are not significantly different (P>0.05)

A change in pasture type from unimproved (predominantly barley grass (*Hordeum marinum*), halophytes and summer weeds) to puccinellia-dominant 'improved' pasture with or without fertiliser had a minimal impact on the measured variables such as, CFW, FD, Yield, SL, SS and POB. However, wool production per hectare was significantly increased as the degree of pasture improvement increased from unimproved to puccinellia-dominant (improved) to puccinellia and balansa clover- dominant (Improved+SP+BC). Superphosphate (Improved+SP) and Urea (Improved+SP+U) also significantly improved production. These effects are due largely to the higher pasture availability in the improved pastures (Hebart *et al.* this conference) being able to support increased stocking rates. When combined with the increased liveweight gain per hectare also evident in this experiment (Hebart *et al.* this conference) the increased wool production per hectare is likely to result in a strong economic argument for improvement of these saline pastures. The increase in FD through the inclusion of balansa clover in the pasture mix, which is undesirable, may be able to be managed by further increasing stocking rate on these productive pastures to reduce the amount and diameter of wool from individual animals.

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