

**Viable Pastures for Saline Land – Puccinellia and Tall wheatgrass**  
**Luke Fitzpatrick, Malcolm McCaskill (DPI Vic) & Michelle Hebart (SARDI)**

Sustainable Grazing on Saline Land (SGSL) is a national research initiative, which aims to develop productive and sustainable options for saline areas of farms. This paper summarizes an economic evaluation of early results from South Australian research utilising puccinellia pastures and a case study of a Victorian producer who has adopted Tall wheatgrass pastures on saline discharge areas. The objective of these analyses was to determine how the profitability of renovated saline pastures compares to continuing with unimproved volunteer pasture.

**Puccinellia Pasture Research (South Australia)**

When well managed, puccinellia-based pastures follow a typical winter-spring growth pattern but are often utilised in summer as seed-free pastures of moderate nutritional value. Puccinellia is tolerant of moderately saline and highly waterlogged conditions, where it may be grown in companion with similarly tolerant legume species. Two years of research data has demonstrated that sowing puccinellia pastures increased the maintenance carrying capacity of saline land from an initial 2.4 DSE/ha to 6.7 DSE/ha.

A multi-year gross margin model was used to determine profitability of pasture production systems operating a self-replacing wool flock. Establishment cost for puccinellia pastures was estimated at \$175/ha, with the greater stocking rate resulting in an \$86 per hectare improvement in wool enterprise gross margin per year. Thus, investment in pasture improvement payed for itself within 2 years. With an expected lifespan of at least 10 years, the annual rate of return on capital invested in pasture renovation was calculated at 47% p.a.

**Tall Wheat Grass Pasture Case Study (Victoria)**

Tall wheatgrass (TWG) pastures grow most strongly in spring and summer, and is of moderate nutritional value when pasture is maintained in a leafy phase through rotational grazing (Smith et al., 1994). The experience of Hamilton farmer Michael Blake measured the historical carrying capacity on a paddock of saline land at 2.5 DSE/ha. After sowing Tall wheatgrass, carrying capacity increased as the pasture sward improved, reaching 15 DSE/ha by the third year.

On light-medium soils, the establishment cost of TWG pasture is (ca.) \$300 per hectare; on heavy/compacted soils greater tillage requirement results in a higher cost of (ca.) \$400 per hectare. On the Blake property, paddock subdivision was required to facilitate rotational grazing of the TWG pasture to maximize its value. Modelling of multi-year gross margins for a self-replacing wool flock showed that gains in carrying capacity resulted in annual increases in gross margin per hectare up to a \$162/ha by year 3. On the Blake property, with heavy-compacted soil, the return on capital investment was 25% p.a., with a payback period of 4.1 years.

Reference: Smith, K.F., Lee, C.K., Borg, P.T. and Flinn, P.C. (1994). Yield, nutritive value and phenotypic variability of tall wheatgrass grown in a non-saline environment. *Australian Journal of Experimental Agriculture Vol 34*, 609-14.