

Identifying and developing forage resources for saline discharge areas.

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Introduction

The Cooperative Research Centre for Plant-Based Management of Dryland Salinity was established in July 2001 to develop profitable new strategies for agricultural land use that both mimic the water-use patterns of native vegetation and better utilise land degraded by salinity. An important objective of Subprogram 5 is to identify and develop new and better varieties of forage species for saline and waterlogged discharge areas. The subprogram involves scientists in Western Australia, South Australia, Victoria, New South Wales and the Australian Capital Territory.

Methods

Components of this subprogram include:

1. a background scoping study to catalogue discharge environments across Australia and to identify potentially valuable germplasm of grasses, legumes, herbs and shrubs,
2. a workshop to establish standard salt and waterlogging tolerance screening techniques in the greenhouse and field,
3. a greenhouse screening program to evaluate the salt and waterlogging tolerances of a large range of native and introduced germplasm,
4. a nationally co-ordinated field evaluation program using material identified from the greenhouse studies and from earlier research.

Results and Discussion

Field evaluation of potentially valuable salt and waterlogging tolerant material commenced this year, funded by the Grains Research and Development Corporation. Initially, seven discharge sites have been sown (three in Western Australia, three in Victoria and one in South Australia); however, this number will expand considerably over subsequent years, and will include sites in New South Wales. Up to 60 entries of mainly grasses and legumes but including some shrubs have been established at each discharge field site this season. Measurements made at these sites include plant establishment and dry matter production, as well as discharge site characteristics including soil salinity levels and watertable depths.

It is anticipated that the greenhouse studies will commence in 2003 once further funding has been received and the scoping study has been completed. The salt tolerance assessments will involve hydroponic experiments where large numbers of germplasm can be screened rapidly. Following on from these assessments, selected material will be multiplied by the Genetic Resource Centres at South Australia and Western Australia before undergoing field evaluation. The program will include salt tolerance assessments of Australian native species.

This research program represents an opportunity for an integrated, coordinated and national approach to identifying, selecting and developing salt tolerant forage species for saline environments in southern and eastern Australia.