Saltland – what is it capable of?

By Sarita Bennett

Understanding the principles governing saltland capability is important if we are to utilise the best plants into the most suitable parts of the saline landscape for greatest productive and financial benefit.

The philosophy behind saltland capability arises partly from the salinity/waterlogging matrix developed by Ed Barrett-Lennard (DAFWA) in the manual *Saltland Pastures in Australia: A Practical Guide*. The aim of the matrix was to show which pasture species can be successfully grown under varying conditions of salinity and waterlogging (see Figure 1).

With saltland pastures, the optimal species or mixture of species that can be sown depends primarily on the level of soil salinity and depth to the water table. Thus land that is mildly saline with a low risk of waterlogging has a higher capability than moderately saline land with a higher risk of waterlogging.

key points

- Understanding saltland capability allows selection of optimal pasture species
- *SGSL* trials tested the principles behind the saltland capability matrix
- A saltland capability tool – *SALTCAP* will be finalised early in 2008.

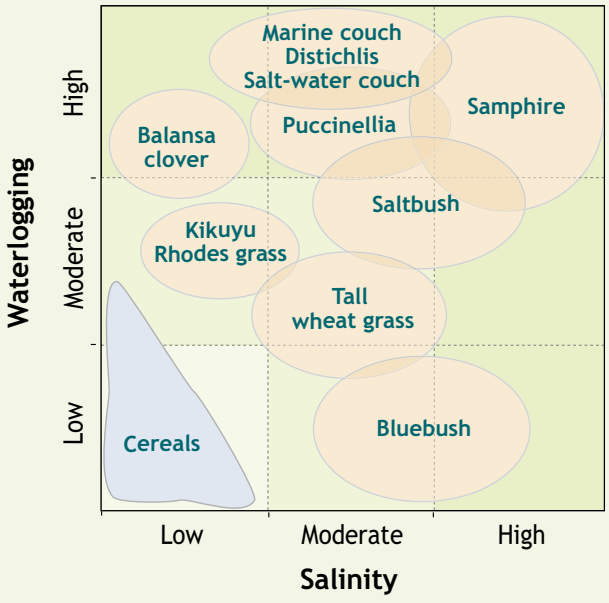
It follows that this land will have a higher capability than land that is severely saline and waterlogged.

Mildly affected land will be some of the most useful and productive land on the farm, moderately affected land will have lower productivity that can be revegetated, while severely affected land may have so little productive capacity that grazing is best excluded leaving the land to revegetate naturally with samphire species.

Testing the principles

Testing the principles behind saltland capability assessment was an important part of the research activities in the *Sustainable Grazing on Saline Lands (SGSL)* initiative. A range of different pasture legumes and grasses and saltland shrubs were sown across transects of land with salinity/waterlogging gradients at four sites in Western Australia, and a range of sites in other states. The results from this work are now being used to: (a) 'quantify' the levels of salinity and waterlogging that saltland pasture plants

FIGURE 1. Saltland capability to support different plant systems



LEFT: Dr Sarita Bennett investigates the potential of a range of salt-tolerant species under glasshouse conditions.

BELOW: Variation in indicator species across an SGSL trial (capeweed in the lower salinity, lower water table section and balansa clover and water buttons in the higher water table, slightly higher salinity section). (Photo: P Nichols)

can tolerate, and (b) establish links between soil conditions and the presence of different indicator species (see Figures 2 and 3). This work will result in the release of one of the FFI CRC's first products — a robust saltland capability tool (called *SALTCAP*) to be finalised during December 2007.

Another initiative arising out of SGSL research is the *Saltland prospects* publication. This publication distils the outcomes of the SGSL research across the four southern states and the wisdom gleaned from 120 Producer Network sites. *Saltland prospects* provides a saltland-capability table for each of 15 regions across southern Australia. Saltland capability is graded from low to high, providing plant indicators, the recommended plant system and the system's productive potential for each level of capability. Farmer case studies have also been included across the range of plant systems and defined regions.

FIGURE 2. Percentage cover of capeweed in quadrats across the SGSL WA2 transect trials

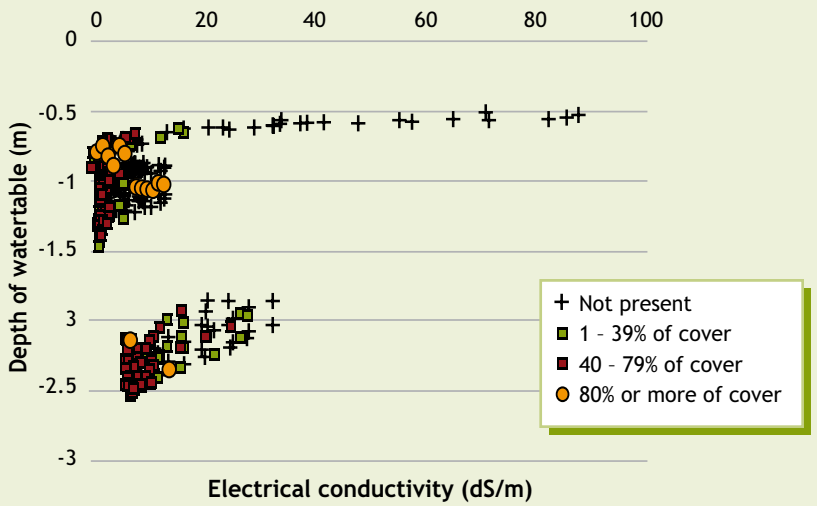
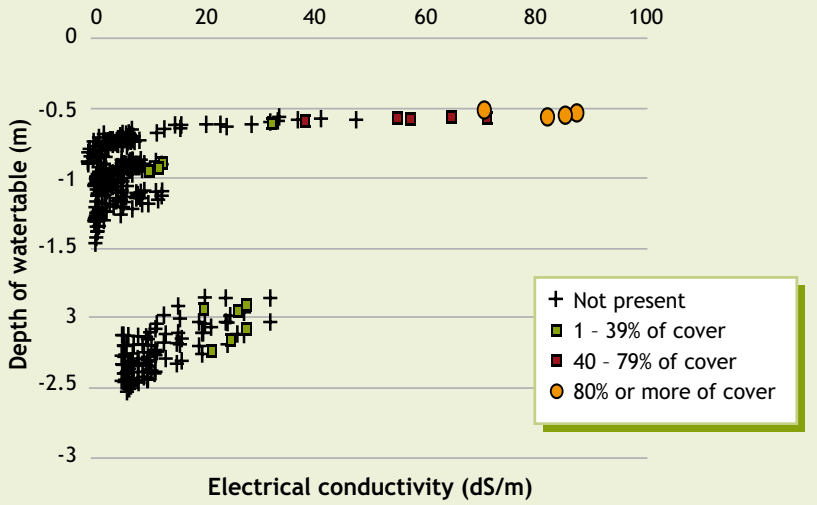


FIGURE 3. Percentage cover of samphire in quadrats across the SGSL WA2 transect trials



More information

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Saltland prospects

Saltland propsects will be released during December 2007. A follow-up tutorial will be held at the International Salinity Forum in March 2008.

Copies are available on request — to order your copy email gmadson@futurefarmcrc.com.au