

SGSL TRIAL SITE SUMMARY #9



OPTIMISING PRODUCTION ON SALINE LAND

Kingston Salinity Group, Upper South East, SA

Research Objectives

To demonstrate the production potential of tall wheat grass and puccinellia pastures.

To determine the potential stocking rate of tall wheat grass pasture.

To assess the methods of managing extensive tall wheat grass pastures.

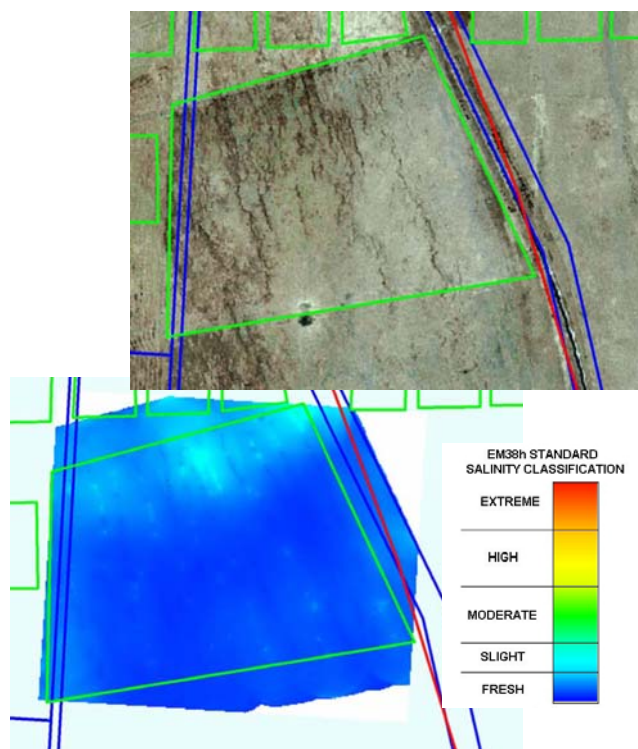
To determine the response of saltland pastures to phosphorus and nitrogen fertilizer.

The Trial

- Tall wheat grass pasture at the Ashmore trial site was grazed with and without nitrogen treatment to determine potential stocking rates.
- Yearly application of phosphorus and nitrogen fertiliser was undertaken on saltland pastures on 8 different properties in the Kingston district. Performance was assessed through measurements of dry matter production and feed quality.

Results

- Nitrogen response in pasture depended on early application and the phosphorus status of soil.
- The small plot sites generally showed the largest responses to the application of both N and P.



Aerial photo & EM survey (main Ashmore site).

Fast Facts

Location: Kingston and Keilira Districts, Upper South East, SA

Soil Type: Various, ranging from sand to heavy black clay

Rainfall: 525-550mm

Pasture Base: tall wheat grass and puccinellia

Landscape: Interdunal flats

Results (continued)

- On occasion the largest responses were due to N alone, and this occurred where soil available P was above critical levels. This meant that responses to additional P were not as great as they may have been had P levels been limiting.
- The application of phosphorus fertilisers led to a build up of available phosphorus in the soil, between Jun 2003 and Jan 2006.
- Up to 20 dse/ha (over 318 days) were grazed on the nitrogen treated tall wheat grass paddock at Ashmore.
- As long as N is applied in time to allow uptake before the site is waterlogged (or alternatively, waterlogging does not occur), timely N+P applications can significantly boost pasture production.
- The availability of soil P should be assessed prior to application of phosphorus fertilisers to determine whether available levels are below critical values for the pasture being grown.
- If P levels are to be maintained, applications should be made to replace that removed as agricultural product.



This photograph shows the urea treated (left) and the untreated (right) paddocks of the Ashmore trial site. The N treated pasture (left) has increased growth, more consistent ground cover, and visually it looks greener.

- It is likely that the presence/absence of legumes, along with inherent soil variability, accounts for much of the productivity variability that couldn't be explained by the treatment differences.
- Nitrogen applications are more critical when legumes are absent or sparse in a pasture, and the timing of N applications can be critical.
- Root zone depth was a good indicator of overall pasture productivity for the eight small plot sites.



Group members discussing results during the pasture cut day.

Want to know more?

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