

## The effect of timing and rate of nitrogen fertiliser on puccinellia-based pastures

Elizabeth Abraham, Michelle Hebart, Nick Edwards and Andrew Craig  
South Australian Research and Development Institute, Struan Agricultural Centre,  
Naracoorte, SA, 5271

Since the early 1980’s salinity and inundation have been major issues for pasture production in the Upper South East of South Australia. Many producers understand that pastures such as puccinellia can be relatively productive on salt affected land that is subjected to long periods of inundation. Scientists are confident that increased production can be achieved if more attention is paid to the management and nutrient status of puccinellia on saline areas. The aim of this experiment was to determine the optimum rate and timing of nitrogen fertiliser applications for puccinellia pastures.

Nitrogen was applied as urea at rates of 0 (control), 25, 50, 100 and 200 kg N/ha in early winter, spring or half in early winter and half in spring 2004. A base level of phosphorus at 75kg super/ha was also applied to all treatments at the beginning of winter. Accumulated biomass was measured every 6 weeks during winter to early summer (peak biomass) using a calibrated rising plate meter.

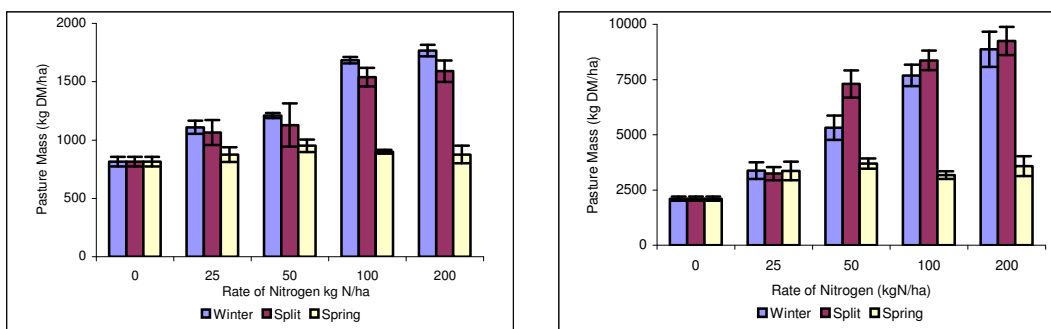


Figure 1. Pasture accumulation (a) at the beginning of spring prior to spring application and (b) at peak biomass (end spring/early summer).

All treatments increased pasture mass compared to the control treatment (Figure 1b). Split N treatments produced the highest growth response followed closely by the winter only application. Clearly, the spring treatments gave the lowest response. An advantage of the winter application is that it increases pasture mass during winter when there is a feed gap (Figure 1a) and continues to give an increase in pasture mass through spring.

This experiment will be repeated this year to enable a full economic analysis of the application rates and timings and an assessment of the effects on nutritive value.