NPKS - Regional Soil Testing

2014 Trial Site

Project Partners

FarmLink Research

NSW GOVERNMENT Department of Primary Industries

Funding Partner

GRDC
Grains Research & Development Corporation

NPKS fertiliser responses - field trial report

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The purpose of these GRDC funded trials is to provide soil test calibrations with fertiliser responses for situations where the national database has minimal data. For example there are very few response curves for K and S, particularly for pulses. Three projects are running: one in each of the western, northern and southern GRDC regions. NSW DPI and FarmLink, together with Southern Farming Systems, the Mackillop Farm Management Group, and AgGrow Agronomy, are responsible for the southern GRDC region.

In 2014 we established seven trial sites, five of which were in NSW. Unfortunately one of the NSW trials was lost due to circumstances beyond our control, so only six trials are described here.

Cowra

We had two trials on the Cowra Research Station, managed by Col McMaster of NSW DPI:

The first was a comparison of P responses by faba beans, chick peas, field peas and canola compared with wheat. P rates were 0, 10, 20 and 30 kg P/ha as triple super. This will help us to assess the relative P requirements of crops for which we have little soil test calibration data.

In addition at this site, where we had rates of P applied to canola, we compared the P response at 3 sowing dates: 17 April, 7 May and 22 May 2014. Comparisons of how P response varies with sowing date have previously been made for wheat but not for canola to our knowledge.

The second trial site was a N response trial (0, 40, 80, 160 kg N/ha as urea) on wheat. At the middle rate (80 kg/ha) we compared split with upfront applications, and also urea vs polymix as the source of N. The latter provides a slow release form of N.

Wagga Wagga

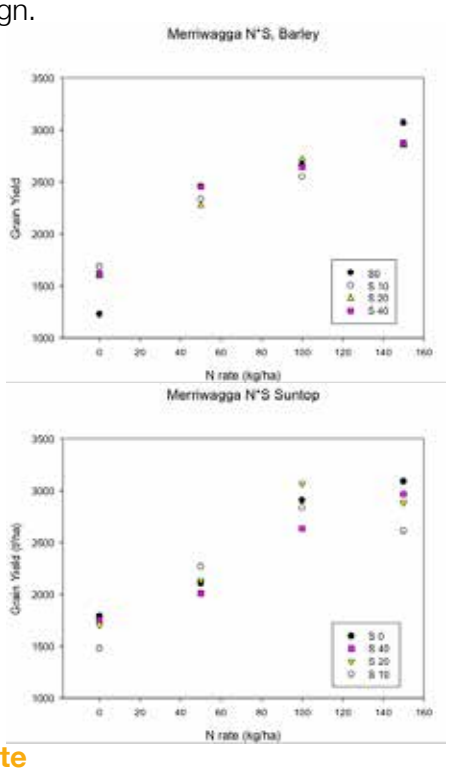
In general, grain yield responses to N (x axis) were small in 2014 due to the dry spring. Early dry matter responses to S (0, 10, 20, 40 kg S/ha) in both wheat and barley did not translate into grain yields.

Breadalbane

This trial is about 25 km west of Goulburn, and operated in conjunction with Richard Hayes and Matt Newell of NSW DPI. Although originally intended to be a K trial, the soil acidity was such that the trial design had rates of K (0, 25, 50, 100 kg K/ha) with and without 2.5 tonne limestone/ha. The crops sown were wheat (Revenue) and triticale (Endeavour). These were sown in March and grazed during the season before harvesting for grain in December 2014.

Merriwagga

This site was run in conjunction with Barry Haskins and Rachael Whitworth of AgGrow Agronomy. The trial involved 4 rates of N (0, 50, 100, 150 kg/ha) as urea by 4 rates of S (0, 10, 20, 40 kg/ha) as gypsum. The crops were wheat (Suntop) and barley (Buloke). It is hard to find S deficient sites, and S deficiency is often associated with high rates of N, hence the N*S trial design.



Interstate

In addition we are attempting to obtain K response calibrations for grain crops in SA and Victoria. Briefly, we had a site near Naracoorte with SARDI and the Mackillop Farm Management Group in which rates of K (0, 25, 50, 100) were applied to wheat (Scout), barley (Granger), and lupins (Mandelup). In Victoria in conjunction with Southern Farming Systems, we had a site near Skipton where the rates of K (0, 25, 50 and 100 kg/ha) were applied to wheat, barley and field peas (Oura).

Grain and anthesis dry matter samples, and soil samples, are currently queued for processing. Results will become available over the next 12 months.

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