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## FarmLink Research Report 2015

### **NPKS fertiliser responses - Field trial report for 2015 season**

GRDC Project code – DAN00168

#### **Project Partners**



#### **Funding Partners**



This project is a part of the National More Profit From Crop Nutrition Project



**Trial Site Location** Various

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#### **Introduction**

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.

Any fertiliser book will tell you how important NPK nutrition is to plant growth; these nutrients are the big 3. And in southern NSW we add lots of N and P to our crops, but rarely do we apply K, and then mostly it is in dairy areas on pastures or on potatoes. Broadacre cropping in NSW rarely uses K fertiliser. Do we need to? Afterall, we thought that we didn't need limestone in our patch until the early 1980s.

If we search the national database (BFDC) on K responses for canola in NSW, we score zero trials over the 50 years that the database covers. If instead we search on our chromosol, dermosol and kandosol soil types, we now find just 17 trials on record in Australia, but they are all from WA. See figure 1 below. We therefore need more trials on K for canola, and we need at least some of these to be in NSW so we can be sure that the WA work is applicable to us. In the meantime, the critical soil test range for K for canola is about 50 mg/kg, a very low soil test value by our experience in the east.



Figure 1. Soil test calibration for K on canola using WA soil types that are common in southern NSW.

In 2015 we established 6 more trial sites under this project, three of which were on potassium. The K trial sites were in SA, Victoria and Breadalbane in NSW. Low soil K is not common over most of the cropping belt in SE Australia.

## Breadalbane trial details

This trial is about 25 km west of Goulburn, on a yellow chromosol, and operated in conjunction with Richard Hayes and Matt Newell of NSW DPI. Canola, wheat and triticale were treated with 6 rates of potassium; dry matter and grain yield responses were recorded for the three crops. In addition, the effect of the K treatments on protein, digestibility and protein were measured, as these crops can be grazed or cut for hay or silage. The

analyses of the samples will be completed during 2016.



Figure 2. Aerial air photo of K response trial at Breadalbane, NSW