



Precision Ag Trials

Soil pH Mapping Yarrowonga, Vic

Although PA tools have been available to Australian grain growers for many years, and the benefits have been well documented, it is estimated that less than 1-% of grain growers utilise PA 'beyond guidance' in any form.

The objective of this GRDC / SPAA funded project is to increase the level of adoption of PA 'beyond guidance' by broadacre farmers. The project specifically aims to increase the level of adoption of variable rate (VR) by growers in the project to 30% by 2013. This goal will be achieved by demonstrating how to use PA tools to growers at a regional level and by increasing the skills of growers and industry in PA to a level where they can then use PA tools in their farming systems to achieve economic, environmental and social benefits.

Trials and demonstrations are conducted on growers' properties and are visited throughout the season using farm walks and workshops to discuss the advantages and disadvantages of PA techniques with the involvement of other regional growers.

This information sheet presents the outcomes of the SPAA trial **Soil pH Mapping** from season 2011.

Aims:

- To compare soil pH mapping with VERIS Soil pH Detector against EM38 zones and satellite imagery

Background:

Riverine Plains members have been implementing variable rate lime for many years, mainly based off EM38 maps. The group wanted to see how a soil pH can be used to create a lime prescription map and how this prescription would compare to an EM-38 derived lime prescription map.

About the trial:

The trial was located on Adam Inchbold's property, paddock 44, 10km south of Yarrowonga. The paddock was in pasture and was mapped using PrecisionAgriculture.com.au's rapid soil pH mapping system.

We were able to access a historical EM38 map to compare this against the soil pH map and a satellite-derived NDVI image (5m pixel) to see if there was a trend between pasture biomass and soil pH.

Assessments:

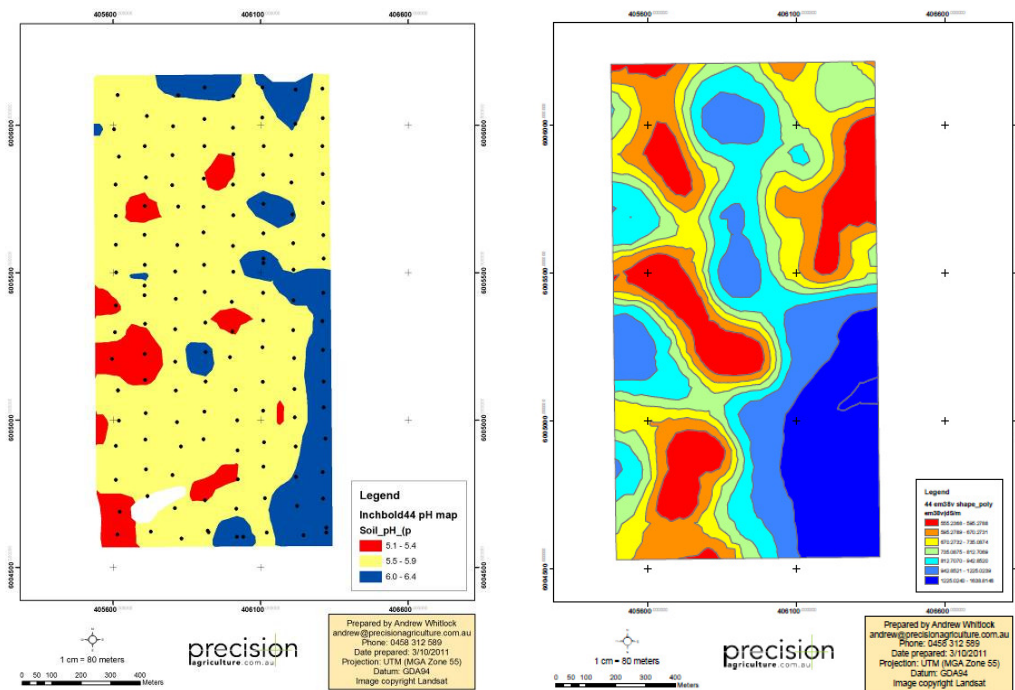
- Soil pH mapping on a 1ha grid across the entire paddock.

Results:

When comparing the soil pH map against the EM38 map we found that there were some similar trends, especially in the alkaline zone in the South east of the paddock which lines up partially to the high EM38 readings (clay soil). However, the difference between the two maps is significant in terms of creating lime application maps.

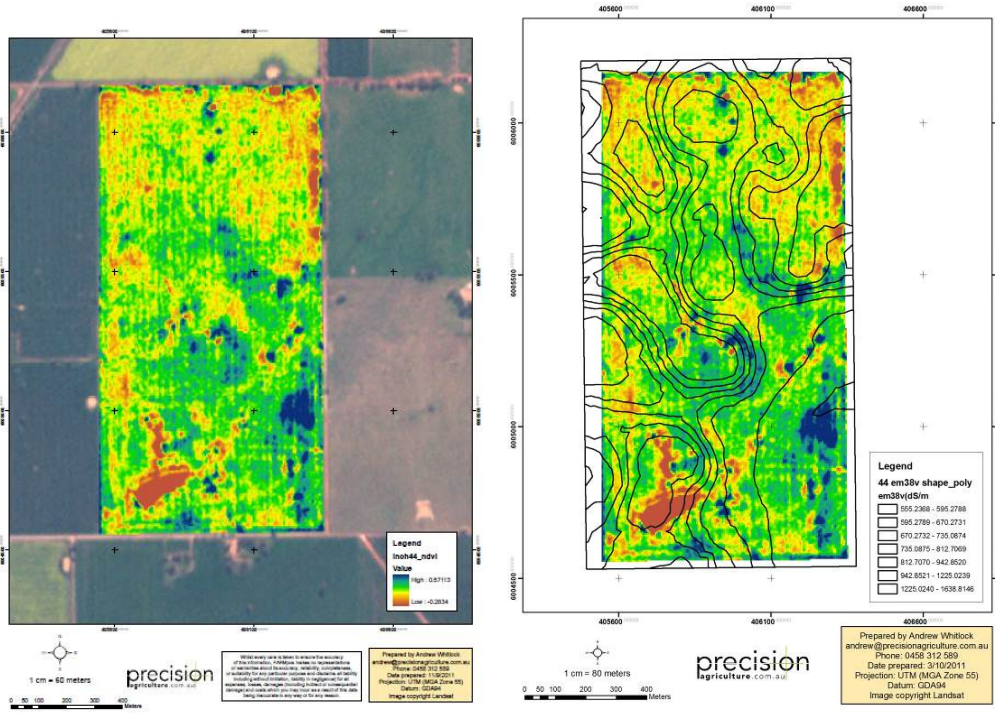
The greatest lime savings through the soil pH mapping approach have occurred on paddocks which are considered to be in a maintenance phase. That is, paddocks which have had a reasonable lime history and only require strategic lime applications. Savings on these paddocks tends to range between 35 – 65%.

Other farmers who have previously implemented variable rate lime are also using the grid soil pH mapping service to measure how effective the variable rate application was. The subsequent map is then used to apply a maintenance rate of lime.

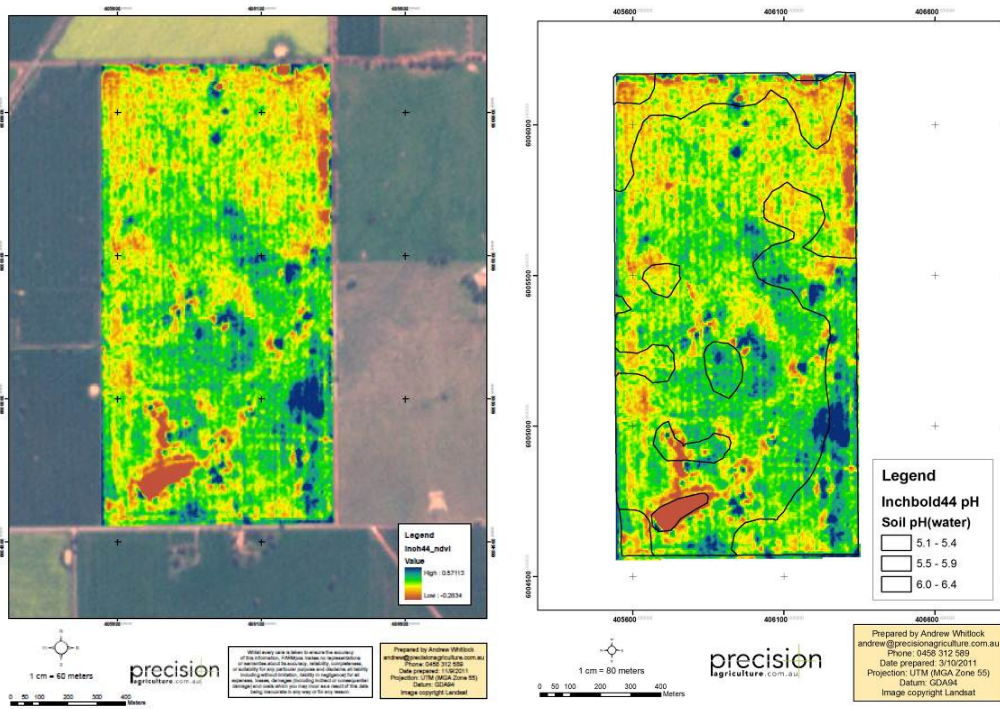


Soil pH map from 1ha grid with VERIS Soil pH Detector (left) and EM38 map (right)

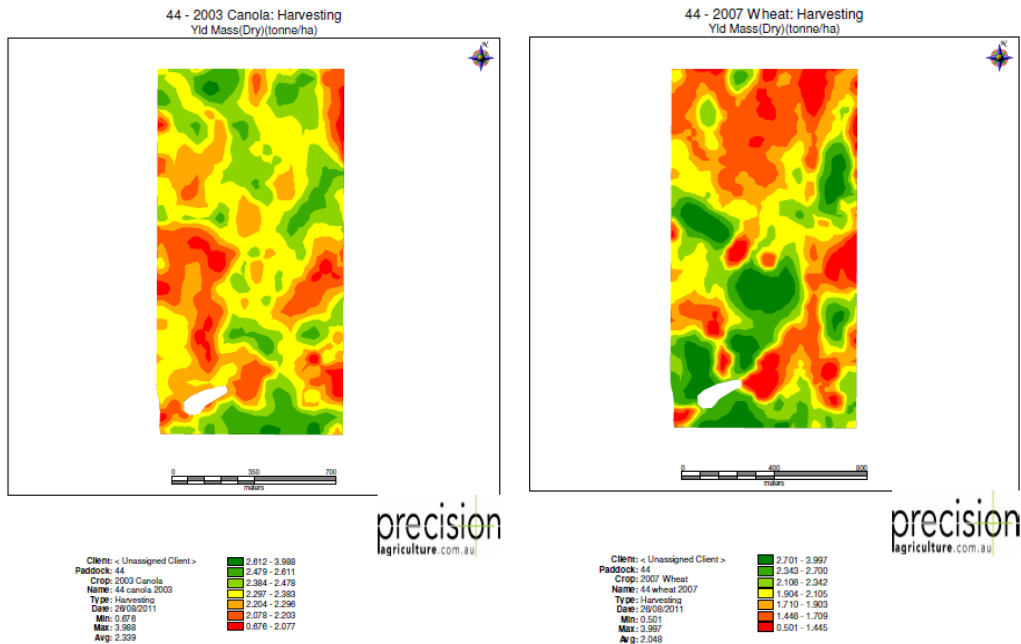
We ordered a satellite image of the paddock as part of a larger group order to see if we could identify any trends in pasture growth with soil pH and or EM38 zones. We also dug a little deeper and see how yield maps correspond with the soil pH, EM38 and the pasture biomass map. We were able to obtain the 2003 canola and 2007 wheat yields.



Satellite imagery September 2011, NDVI of pasture (left) and with EM38 overlay (right)



Satellite imagery September 2011, NDVI of pasture (left) and with Soil pH overlay (right)



Canola yield 2003 (left) and Wheat yield 2007 (right)

The result from comparing all the different datasets for this paddock is that the paddock is highly variable with very little correlation between available datasets.

Who was involved?

- Adam Inchbold, Cooperating farmer
- Andrew Whitlock, PrecisionAgriculture.com.au
- Fiona Hart, Riverine Plains

Grower/Regional feedback:

The project was a success in terms of demonstrating a new technology which may have a very good fit for a group of farmers who have been implementing variable rate soil ameliorants for a number of years.

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For more information

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