

# **AUSTRALIAN FIRST**

## ***Rapid Soil pH Mapping***

***PrecisionAgriculture is the first company in Australia to offer a rapid soil pH mapping service.***

We imported the pH Detector unit from America in December 2010 and mounted it on a Yamaha Grizzly 700 quad bike. Clients are using the pH maps to better understand lime requirements. Paddocks which measure significant soil pH (water) variability can also receive a variable rate lime prescription map.

The conventional technique to mapping soil pH is using a standard soil sampling probe and sending samples away for laboratory analysis. This process is slow and can add up to be relatively expensive. With the new system, we can increase our sample rate to one sample per minute which measures soil pH values at a depth of approx 5cm and logs these values along with GPS coordinates.

The quality of data is extremely important and for each paddock we use a two point calibration technique where soil samples are sent away to a laboratory and results cross-checked against our readings. We also calibrate the pH sensor using control solutions of pH 4 & pH 7.

**Andrew Whitlock using the pH detector near Willaura, Victoria**



# Variable Rate Lime

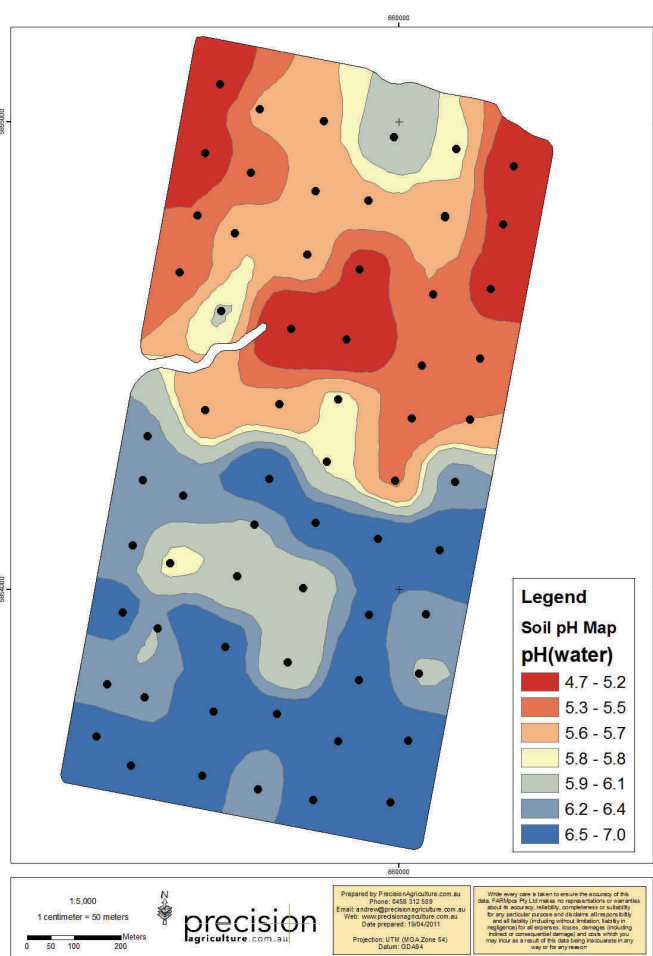
*Getting started with variable rate applications is not always a straight forward process. We know farmers have to purchase hardware, create the prescription maps, load the maps into the controllers, and have confidence with appropriate distribution rates.*

Variable rate lime makes clear sense as an entry point into precision agriculture. The process is easy to implement as there is a well understood relationship between pH values and lime requirements. Soil pH plays a major role with nutrient availability and many farmers already use contractors with variable rate capacity. **PrecisionAgriculture** works in partnership with contract spreaders to offer a complete variable rate application service.

Not all paddocks have a level of pH variability worth managing with variable rate lime—however the majority of the paddocks we have mapped do! Here is an example of a paddock with pH<sub>water</sub> values ranging from 4.7 to 7.0.

We used a 2ha grid to collect our samples, however we can also collect strategic samples based on other information such as yield or satellite imagery. Going down the path of strategic sampling increases the capacity to map more paddocks per day and reduces costs.

The actual lime application rates need to take into account soil characteristics such as aluminium levels and CEC which should be attainable from previous soil test results.



It is interesting to understand why soil pH variability exists in a paddock. In this example there is a combination of paddock history and soil type/elevation effect.

The likely return on investment from variable rate lime varies between paddocks. In this example 68% of the 124ha paddock does not require any lime (saving almost \$6000).

For further information about **PrecisionAgriculture's** soil pH mapping service visit [www.precisionagriculture.com.au](http://www.precisionagriculture.com.au)