

# Improving paddock return

- Varying P rate paid over four seasons
- New funding will help more growers use PA
- PA training options available

Over the past four years, Brett Whelan, University of Sydney, has run paddock trials on behalf of SPAA (Southern Precision Agriculture Association) to quantify the impact of changing inputs based on management classes. The overall objective of the research is to improve the profitability of each paddock.

Six paddocks, two each located at Crystal Brook, Stockport and Snowtown were chosen in 2003, with three additional paddocks (YP, EP and the Murray Mallee) added in 2004. Each paddock had up to seven years of yield data providing a visual assessment of paddock variability; each could roughly be divided into zones of low or high yield.

For each paddock information on elevation, (from the yield monitor) and soil characteristics (EM38 survey) were combined with the yield data to produce two or three management classes.

Within each zone sampling points and fertiliser test strips were located and set for the duration of the trial. Detailed sampling included soil chemical and physical factors. These were related to how these influence root development, and water and nutrient availability.

At Malcolm Sargent's Road Paddock soil sampling highlighted a significant difference in phosphorus (P) fertility between the two classes on this relatively flat paddock. Instead of applying a blanket rate of 11 kg P/ha at seeding, Malcolm reduced the rate to 7kg/ha on class 1 the poorer performing zone, and increased the rate to 20kg P/ha on class 2, the more productive zone. These rates were used for the rotation of wheat, field peas, wheat barley grown between 2003 and 2006.

The results showed the yield response to P was much greater in more productive class 2 areas, therefore, targeting more inputs to these areas was the correct decision. In contrast, there was no yield response to any rate of P most years in the class 1 areas. On average the yield on class 2 was 14 per cent higher than on class 1.

This simple rate change that Malcolm made based on soil tests, improved the average margin per hectare over the four years by \$9/ha/year.

An economic analysis of the optimum rate from the fertiliser strips in each class, versus the blanket rate of 11 kgP/ha for the paddock, established that the cost of P and yield wastage was on average \$35.55/year. This data suggests further modifications in P rates would offer Malcolm better results.

Although this work is coming to an end SPAA is delighted to announce that it has been awarded funding for a Priority National Project to 'Increase the adoption of precision agriculture in South East Australia', from the Australian Government, Department of Agriculture, Fisheries and Food. Working with SANTFA, Hart Fieldsite Group, Victorian No-Till Farmers Association and Birchip Cropping Group, the project will establish and support five, regional precision agriculture (PA) discussion groups and variable rate trials. The objective of the groups is to help growers understand and apply PA data to change input rates using management zones and to assess results using yield maps.

"These groups are about sharing experience and knowledge and to provide a springboard for growers to 'give PA a go' to help improve the profitability of individual paddocks," explained SPAA research coordinator Allan Mayfield.

SPAA is also working with the Australian Centre for Precision Agriculture in the development of training resources for producers who want to use the PA tools that many machines now have fitted as standard. Producers can tell SPAA what their PA training needs are or request to be part of a PA discussion group by completing a short survey found on the SPAA website ([www.spaa.com.au](http://www.spaa.com.au)).

Phot Ref Ag Ex SPAA

Photo caption:

SPAA chairman Malcolm Sargent encourages as many growers as possible to complete their survey on Precision Agriculture training needs to help then develop training and support programs that help more farmers capitalise on PA technology.