



Southern Precision
Agriculture Association

Newsletter

The Newsletter of the Southern Precision Agriculture Association

www.spaa.com.au

Winter 2007

Economics of PA

Does PA pay is a recurring question. Cases studies completed by Dr Mathew McCallum now put dollar values on six grain production enterprises using a range of PA technologies. The farms are involved in two SPAA projects that aim to assess the economic benefits of adopting PA technologies, including auto-steer and variable rate.

A simple cost benefit analysis was applied for each farm to establish the pay back period.

Participants initially invested in PA equipment between 2 to 10 years ago. Where PA equipment eg yield monitors, came as part of a machinery package, no capital cost was applied. Total investment ranged from \$34,432 (\$15/ha) to \$98,500 (\$62/ha). The average cost of PA equipment across the six farms was \$34/ha.

Savings relating to reduced overlap due to the use of autosteer ranged from \$2.60/ha to \$10/ha depending on level of accuracy compared to pre guidance, and input costs. The average saving from autosteer and guidance was \$5/ha per year.

Savings on fertiliser, mainly phosphorus, for the four farms using VRT across at least half the farm were calculated to average \$8/ha per year. One farm redistributed the total P budget across the farm, therefore no saving was achieved in fertiliser expenditure but a \$7/ha



Approximately 90 trials have been sown across 85 properties as part of the PA Groups project.

increase in grain value was reported across the farm.

The total average annual benefit of PA across the six farms was \$18/ha.

On average guidance and auto-steer systems achieved payback in three years, while payback on VRT averaged 7 years. The payback on VRT was longer because of the delay in time taken to implement a successful VRT strategy. Using the

current knowledge from these farmers, the payback time for VRT can be reduced to two to three years.

Matt McCallum will be presenting this work at the SPAA Expo and several of the case studies will be published in future issues of Precision Ag News.

Diary dates to remember

2007

28th July – 2nd August 13th Wine Industry Technical Conference www.awitc.com.au
visit us at the SPAA stand

9th August SPAA PA Expo and AGM, Cleve

10th-13th September Symposium pre-tour starting in Auckland, NZ (see page 2)

13th September Fertiliser Application Technology, Palmerston North, NZ

14th September 11th Annual Symposium on Precision Agriculture Research and Application in Australasia, Palmerston North, New Zealand

25-27th September Yorke Peninsula Field Days – visit us at the SPAA stand

2008

5-8th February February Global workshop on high resolution digital soil sensing and mapping, Sydney. www.digitalsoilmapping.org

Executive Officer's report



It has been an active start for my new role at SPAA during the last few months with many events on the go, including planning for the upcoming SPAA EXPO, the New Zealand PA Symposium & Tour in September and coordinating all the field days and conferences we will be exhibiting at this year.

Enclosed with this newsletter you will find a promotional flyer for the SPAA EXPO for Precision Agriculture at Cleve. As you can see we have a great line up of speakers including Clive Blacker from the UK, and during the afternoon we will conduct a forum session to discuss "The Practical Applications Of PA Technology". This session is designed for you to provide feedback on success stories and the challenges and the opportunities you face in using PA technology.

The PA Groups under the leadership of Allan Mayfield and Sam Tregrove are really starting to build momentum. Two stories are included in this issue highlighting how farmers in these groups are sharing their experiences and getting support to use PA.

Matt McCallum's research report on the Economics of PA has also provided SPAA with tangible data and insights into how farmers are using PA technology and the role the technology can play in increasing farm profitability. This research is ongoing with more case studies being researched over the coming months and more will be printed in future SPAA publications.

The 11th Annual Symposium on Precision Agriculture Research and Application in Palmerston North New Zealand is also starting to

shape up. We have found a travel agent to coordinate our trip so if you are interested to come along please contact Kirra Tours "the New Zealand Tour Specialists" to make all your travel bookings. See the enclosed flyer for more information about the Tour and Symposium.

I welcome your feedback and look forward to catching up with many of you at the SPAA EXPO & AGM on August 9th in Cleve.

For more information

Kirstie Murphy
SPAA Executive Officer
Tel 08 8536 3958
Email info@spaa.com.au

Visit major PA contractor in NZ

The pre-symposium tour kicks off in Auckland on 10th September 2007. One business that will be visited is John Austin Ltd.

John Austin Ltd specialises in establishing and harvesting crops for grain and silage – from planning, spraying and fertiliser spreading to cultivation, planting and harvesting. The business is operated by John and Jackie Austin at Te Awa Mutu, in the heart of the Waikato on the North Island, New Zealand.

Started in 1980, when the primary business was maize for grain, John Austin Ltd has grown from running a single tractor to running 22 tractors, two headers, three forage harvesters plus trucks, sprayers and the full range of cultivation, planting and harvesting equipment for grass, maize and other forage crops.

John's passion for new ideas has enabled him to assist with the development of new technology such as the testing of grain yield monitors in the early 1990's. More recently he has worked with John Deere in the development of their Forage Yield monitors – in time these will provide protein and starch measurements for silage and will integrate with automated inoculant applicators. John Austin uses PA technology extensively within their business.

For more information on the 11th Annual Symposium on Precision Agriculture Research and Application in Australasia and the pre-tour, see the enclosed flier or call SPAA's Executive Officer Kirstie Murphy 08 8536 3958.

RINEX
The precision farming experts

Introduce
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RINEX systems now incorporate RePLAY guidance. RePLAY guidance can be used to recall the same guideline for subsequent work in the paddock. This ensures that the same guidelines are followed, making night time work a breeze. No other system in the world contains the power of GuideTRAX v3.2. Talk with your local dealer today and get with the power of Australia's Ag innovators.

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PA Groups - trials

The farmers involved with the PA Groups are pooling their knowledge and experience and drawing on the support of Allan Mayfield and his colleague Sam Trengove to help improve the value they gain from PA technology. Via the SPAA newsletter and Precision Ag News we aim to share these experiences with all members.

Northern Group

Cameron Axford, Bute – has been yield mapping since 2002 using John Deere software, he has gps-Ag Ezi Steer on the tractor used for seeding, spraying, harvesting and as his brother works for SpecTerra he has used their imagery since 2005.

For Cameron the PA group provides an opportunity to learn and share with growers specifically interested in PA, some of them with over 10 years of experience. He is keen to implement variable rate and is pleased to receive support to run trials on his own farm.

Cameron is testing variable rate fertiliser and seed rates, the latter for comparing yield between sand hills to clay flats.

In the trial paddock fertiliser and seed rates were based on yield data from 2002, 2005 and 2006, which had been cleaned, kriged and clustered. Soil tests have been collected for the paddock.

Three fertiliser rates nil, half and double his standard rates of

phosphorus and nitrogen are being applied via his triple bin Simplicity air-seeder. Auto steer runs were recorded and these will be GPS logged manually.

Three rates of Keel barley were sown to see the yield difference between the flats and hills.

In addition to gathering yield data at harvest Sam Trengove will carry out tissue tests, crop N and plant counts.

For more information

Cameron Axford
Tel 0408 800 001
Email cjaxford@activ8.net.au

Upper South East Group

Dean Bagshaw, Malinong – has been yield mapping using New Holland software since 2003 and using Outback S to achieve sub 1m guidance. He suggests his farm is ideal for variable rate as he has some of the best and worst soil in the State along with plenty of rocks! Over the past couple of years he has experimented with variable rate phosphorus and nitrogen.

Three rates were established based on yield maps and EM38 maps and fertiliser rate was applied using a variable rate spreader from Swan Brothers, Meningie.

This year Dean used a flat rate of P, applied at seeding and will topdress variable rates of nitrogen.

However, the trial on his farm is looking at potassium (K). Soil tests indicate K levels in the top 10cm are low, but not critical. In recent years he has dramatically improved lucerne establishment on sandy soils with the addition of potash. In the trial paddock three rates of potash 0kg/ha, 50kg/ha and 100kg/ha of muriate of potash was applied. Each treatment is three seeder widths and runs the entire length of the paddock.

Tissue tests and yield will be measured. If the results are positive from the trial and from his variable rate nitrogen, Dean plans to invest in an air seeder capable of variable rate.

For more information

Dean Bagshaw
Tel 0409 679 054
Email baggy@lm.net.au

SPAA Expo and AGM, Cleve, Thursday 9th August, 2007

INTERNATIONAL SPEAKER

Clive Blacker – UK farmer, Nuffield Scholar and principal of Precision Decisions will speak on **PA developments and applications in Europe.**

His precision agriculture company is based in Yorkshire, provides PA consultancy, automated soil

sampling, real-time crop sensing, supplies hardware including N-sensor, software, training and equipment hire. Clive is also involved with the development of a direct chemical injection system for boomsprays.

At the PA Expo at Cleve he will give a summary of where PA is up to in Europe including the use of guidance equipment, satellite, aerial

and ground sensing systems. Examples of PA uses in the UK include variable rate seeding and applications of fungicides, growth regulants and desiccants.

While in South Australia, Clive will also attend some of the PA Groups' meetings during July.

More details about the EXPO are included with this newsletter.

Research and Industry News . . .

PA opportunities in the sugar industry

Sugarcane production is ideally suited to the adoption of precision agriculture, but the technology will benefit some farmers far more than others.

That's the conclusion of a major review of the potential of precision agriculture (PA) in the Australian sugar industry conducted by CSIRO expert Dr Rob Bramley with funding from the Sugar Research and Development Corporation.

The review examined research and experience with PA in a range of cropping industries worldwide over the last 15 years including sugarcane in Australia, Mauritius, South Africa, the USA and South America.

There is potential for sugar growers to use precision agriculture to target application of fertilisers, ripeners, and irrigation to reduce costs, maximise yields and control environmental impacts. Sensors mounted on sugar harvesters could gather data 'on-the-go' about the exact Commercial cane sugar (CCS) levels of the harvested cane and whereabouts in the paddock it was grown.

"Knowledge of spatially variable CCS yield, as opposed to cane yield, may enable more sugar to be produced at the mill and thus from the farm as a whole" says Dr Bramley.

The benefits of precision agriculture for individual growers will depend on farm size, equipment costs, the

value of the crop, and whether the farmer is able to invest management time in system set-up and running.

Dr Bramley's report suggests that for the sugar industry to harness the full benefits of PA, significant changes to current practices may be required, especially in respect to harvest management.

The report's findings will inform future precision agriculture research priorities for the Sugar Research and Development Corporation. Copies will be available from the SRDC later this year.

Which farm mapping software?

With support from the Rural Industries Research and Development Corporation (RIRDC) (www.rirdc.gov.au), CTF Solutions and Spatial 3i are jointly undertaking a project to address questions primary producers may have when considering farm mapping software.

Face-to-face and telephone interviews will be used to identify farm mapping software needs in a wide range of industries, including grains, cotton, horticulture, intensive and extensive livestock, and sugar.

This information, together with technical information on available datasets and data formats, will be assessed against a number of commercially available mapping software packages.

The end result will be an easy-to-use approach, to assist primary producers select the farm mapping

software that most suits their needs. If you would like further information on this project, or would like to participate in the primary producer survey, please contact:

Bernard Fitzpatrick, Spatial 3i
Tel (07) 3314 6660
Mobile 0404 040 660
Email bernard@spatial3i.com

These surveys will also be available to complete at the PA group meetings in July and August

Websites

Ed Mort of John Deere raised our attention to the websites Precision Pays www.precisionpays.com and www.stellarsupport.com that he thought might be of interest to SPAA members.

New vehicle monitor

A new vehicle monitoring system has been released by AgGuide. Vehicles can be tracked with basic GPS and if GPS correction signals are available, then accuracy can be as good as 2cm and a wide array of vehicle functions and monitoring can be recorded on this universal platform including: temperature – water, oil, coolant, air, pressure – water, oil, air, flow – oil, water, fuel, gas, function – tip, slide, yaw, tilt, position, speed, height.

For sugar cane farmers there is the added bonus of being able to upgrade the VMS into a full Cane Yield Monitor.

AgGuide Tel 07 3279 4344
www.agguide.com.au

PA Groups

The next round of PA group meetings will be to review trials so far, plan any further assessments before harvest and to go through any issues with yield mapping to assess the trials. At this session we will show you how to combine your yield maps and other data layers to produce zone maps.

You are most welcome to attend even if you were not part of the first

group meetings earlier this year. Meetings will start at 09:00 and finish by 12:30

Dates, venues & contacts are:

Eastern Eyre Peninsula – Thurs 19th July, Kimba Hotel (Graeme Baldock 0428 274 056)

Lower Eyre Peninsula – Friday 20th July, Cummins Hotel (Randall Wilksch 0427 865 051)

Upper South East – Thurs 26th of July or Friday 27th July, Tintinara Hotel, (Craig Bell 0427 002 534)

Mallee – Thurs 26th of July or Friday 27th July, (Peter Treloar 0427 427 238)

Northern – Monday 30th July, Crystal Brook Golf Club, (Brian Tiller 0408 810 068)

Central – Tuesday 31st July, Tarlee Institute, (Mark Branson 0417 832 776)

Yorke Peninsula – Friday 3rd August, Lyall & Scott Schultz's, (Ashley Wakefield 0408 606 177)

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