

PRECISION AG NEWS

WHAT'S INSIDE

The latest John Deere
precision equipment

New drone models

Precision mapping for VRT



OCTOBER 2017

insight 
AG SOLUTIONS

*Your partner in Precision Ag, driving productivity and profitability,
and making technology easy...*



Hi everyone.

Getting to the end of a difficult season can mean that some growers question the quality of yield maps this year. If you have yield maps that are highly variable just due to seasonal conditions, I think these can be gold. They will strongly indicate our good and bad soils types for those particular years, and will give us great maps of say drainage problems in a wet year, or the better soils types or non-wetting areas in a dry year. Either way, it is information worth collecting and keeping, even if you don't do anything more with it.

Your yield data is the king of all data you collect from your crop. It is one of the only sets of information that covers every point on the paddock; is truly measurable and not a relationship to another measure; and has a direct relationship to your business profitability. So it should be a key piece of information for your business.

Just remember though, rubbish in=rubbish out. Make sure that you understand your yield monitor system, how it works and how to calibrate it. Preferably calibrate your system each season for each crop. Even if you don't calibrate it, make sure that the recording is working properly and you have good GPS accuracy. Also keep your paddock names and crop types consistent with what you are harvesting to enable the information that is being collected to be useful once done.

Even if it just going to go into a drawer, I'd encourage you all to use your system fully. If you would like some assistance with any part of this-setting up, calibrations or using the data generated, please get in contact with one of the Insight team. We are here to help you maximise your profitability.

Lindsay Crouch

USING PRECISION MAPPING FOR VRT APPLICATIONS

Precision Agriculture has come a long way since the early days of adoption. At Insight Ag Solutions, we have been working with customers to utilise precision mapping in their farming program, through the use of VRT (Variable Rate Technology).

VRT is about identifying the various production zones within a paddock or farm and then accurately targeting inputs or treatments to that zone. VRT is also a risk management tool and one of the greatest benefits for growers to accurately apply nutrients based on a zones requirement rather than a "blanket rate" over the whole paddock. In many cases this has helped to reduce inputs, saving the grower money and maximising profitability.

Options for obtaining a base layer for a VRT map include elevation maps, yield maps, satellite images, EM38, GAMA Radio Metrics, Ph mapping, manual zoning. As with all base layers for a VRT map though, you need to understand what is likely causing the changes. We need to determine exactly what is happening to then have an action to counteract any restrictions or constraints.

Accurate soil testing together with an EM 38 map, grower experience and agronomic expertise will provide you with a VRT map you can use. The number of zones in a paddock will depend on the amount of variability in the paddock, but as a general rule, don't have too many differing zones

Yield maps can be quite accurate if the variables such as nutrition, weeds, frost and crop establishment were the same across the whole paddock. Make sure that your historical treatments and methods are not influencing the yield map results. Yield maps are great for assessing large on-farm trials and for checking VRT results.

Once zones are determined, the correct input rates are decided upon and the prescriptions can be built. Common VR maps are Phosphorus, Nitrogen and seed. We are also starting to see an uptake in Ph mapping, with VR Lime maps to improve soil Ph levels. A great idea is to keep a 'standard practise' strip, or some high rate and low rate strips in as tests, just to verify that what you are doing is right, and that there is not further benefits to be had using different rates.

The final and one of the most important steps is getting the prescriptions to the paddock. Once the maps are produced they need to be saved to a format that is readable to your monitor or task controller. There are many different makes and models of equipment each with their own capabilities and compatibilities so ensure you equipment is Variable Rate capable and compatible before taking out the earlier steps. Many air seeders are VR capable, be it electric metering drives, linear actuated metering etc., but it is the task controller or monitor that does all the hard work and many of these are not capable of automatically varying rates. It is also essential that your GPS is compatible with the other equipment to provide an accurate location signal to the monitor so each input can be applied accurately. If you are thinking about buying a product to interface with another brand, talk to us just to check that it is going to work as expected. Some high expectations have been set around the plug and play of ISO units, but there are pitfalls in that as well, so it pays to discuss your options before you jump into something new.

The most important thing to remember with VRT is to get the basics right first. If your confidence in the technology is low, get your equipment right, keep your prescriptions simple and work up from there. VRT is relatively simple and user friendly and once everything is in place it will become an extremely valuable tool for your cropping system.

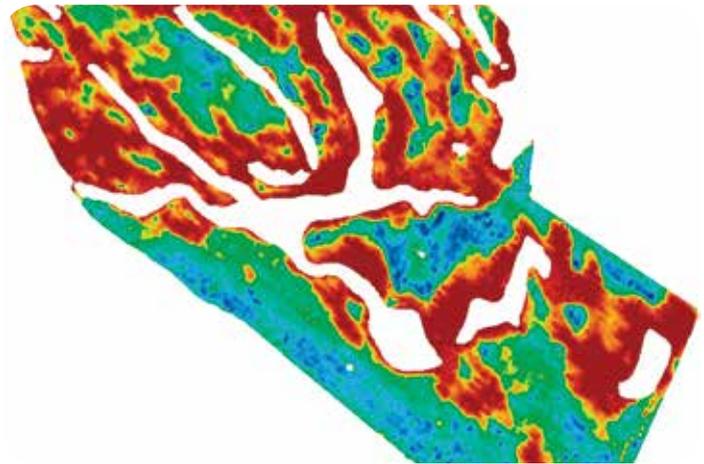


Fig 1. A typical yield map, this one has a 80% coefficient of variation



Fig 2. Printed maps for analysis

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NEW PRECISION TOOLS

4600 display

The new 4640 Display provides a portable display option with all the same easy-to-use benefits brought to customers with the 4600 CommandCenter™ operating system. Some of those overall improvements include:

- On-screen help and user-friendly diagnostic information for on the spot support to keep operator's running and informed of their display capabilities
- Greater customization of run pages – offering flexibility for different setups and more capability available from one page through the shortcut keys, run page modules, and the status center
- Simplified setup with the work setup app and page by page navigation and noticeable prompts for effective setup
- Organized use of apps
- Work setup app – consolidated setup inputs and information for reduced setup time and overall ease of use

The 4640 display will provide users with the enhanced capabilities now in the 4600 command centre as mentioned elsewhere in this newsletter. It is compatible with all 8030 and 9030 tractors fitted with autosteer, or it can be coupled with an ATU to steer other makes and models.

The 4640 will provide guidance, section control, documentation and run ISO implements, among other things. It can also work with an extended monitor to provide a true dual display option to increase the operators screen area and usability.

4600 display software update 17-2

New features included in update

Work Setup – Work history allows operators to reference all completed coverage within a field. Import coverage from another Gen 4 display to finish a field in a different machine and utilize section control with imported coverage. Totals and as-applied data are not able to be utilized. [4600 CommandCenter™ and 4640 Universal Display only]

Fields and Boundaries – Boundaries can be created by manually driving the perimeter of the field in SU2017-2. This functionality will allow operators to pause recording during boundary creation and move to another end of the boundary area to resume recording again. The system will generate a line between the two points to finish the boundary.

Boundary Fill Pattern – As part of SU2017-2, guidance tracks can now be created from field boundaries. These guidance tracks use the logic of adaptive curve tracks and are generated from boundaries created from coverage or imported boundaries. Once created, 3 lines will be viewed: the active guidance line and the guidance lines to the right and left of the active line. When moving inward, an additional lines will be created. If boundary track is selected as current track it will remain on the display as an adaptive curve. If not, it will be deleted with the boundary it was generated from.

Straight Track Fill from Boundary – An A+B Straight track can easily be created when AutoTrac™ is used with boundary fill pattern. When 'Re-



cord Fill' is used on a Boundary Fill track, A+B straight tracks are created to fill the inside of the boundary and tracks created from the boundary. Tracks must be selected from track list once generated.

Wireless Settings App – This app allows your machine to connect to a wireless network. When connected to a wireless internet connection, it can be used with DataSync to send files to John Deere Operations Center. This app can also be used for online software updates.

Gen 4 Extended Monitor – An extended display is available from October 2017. This can be used to view multiple run pages at one time. Please note the extended display does not have its own processor. It instead uses the existing Gen 4 Display's processor to display information. Extended Monitor is not a configurable option in Dual Display Settings. Remote Display Access session does not view extended monitor. [4600 CommandCenter™ and 4640 Universal Display only]

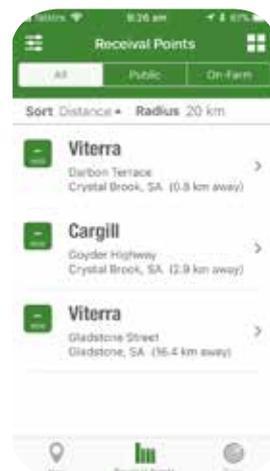
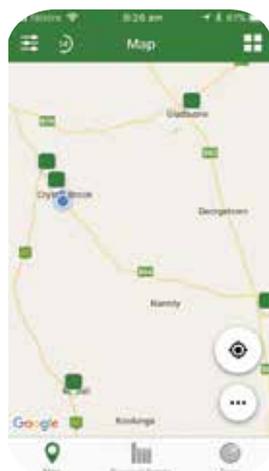
GRAIN TRUCK PLUS

We've been running some local tests with the new GrainTruckPlus app released by John Deere.

It's designed to monitor your trucks to & from silos, and get information about wait times.

We've found it easy and intuitive to use. with sites around our test are at Crystal Brook showing up clearly on the app.

We're keen to see it in action over the harvest season and would love to have feedback from you.



SPECIAL OFFER!



**Phantom 3 standard - \$660 inc gst
ONE ONLY!RRP \$859**

ISO FUNCTIONALITY

ISO is a great innovation for growers that want to mix and match different Precision Ag brands. If a product is ISO, that means that it complies with one of the International Organisation for Standards specifications, in this case for Agricultural Electronics. Just be aware if you are considering purchasing some of the limitations and pitfalls of the ISO system.

The ISO system is not just one standard, but a few, and they continue to get more sophisticated. That may mean that a new ISO compliant component may not have full functionality with an older component that meets an older standard. So just be aware that this can happen, and ask the question before you purchase.

The other thing that growers don't consider before they make a purchase is that the ISO system will generally mean that the display the ISO component is showing up on will not be able to be manipulated to do functions like half screen displays, or adding extra buttons etc. that you may be used to doing on a fully integrated system. This is due to the ISO specifications outlining a screen's size, places for buttons, input types, menu functions and such. As a buyer, you need to be aware of this and ask yourself if that suits. Just saying 'it's ISO' doesn't mean you will always get the full functionality of a fully integrated system.

So in summary, ISO is a great step forward in allowing implements to connect to each other, and fantastic for getting the different manufacturers equipment to talk to each other. Just be aware as a buyer of what you are getting.



This is the ISO implement plug (implementation side)



An example of an ISO layout on a Gen4 display

SPAA ROUND-UP

Our team recently attended the Society of Precision Agriculture Australia (SPAA) national conference to learn about the latest developments in the use of Precision Ag. Many areas of agriculture are being researched, including beef, sugar, horticulture, grains and pastoral areas. We talked about new methods for soil sensing and testing, using things such as NIR spectrometry (similar to grain testing) and X-ray fluorescence for quicker, lower cost soil analysis.

Of interest to our region is the use of satellite sensing of nitrogen status/crop health to provide a quick, broad scale look at large areas. This information is then ground truthed to calibrate the map to local conditions. As well that, there was robots for finding, killing weeds; robots for measuring plant sizes to model plant growth, and robots sensing soils to measure water and nitrogen status.



Remote UAV for sensing plant growth



'RIPPA' field robot at University of Sydney



Delegates giving the 'Ladybird' robotic field scanning tool a closer inspection

MEET SPARK THE MINI DRONE



Meet Spark, a mini drone that features all of DJI's signature technologies, allowing you to seize the moment whenever you feel inspired. With intelligent flight control options, a mechanical gimbal, and a camera with incredible image quality, Spark empowers you to push your creative boundaries.

- Compact and ultra light
- Reach speeds of 50kph in Sport mode
- Intelligent flight modes - QuickShot, ActiveTrack, TapFly and Gesture mode
- Control your drone with your hands, smartphone or controller
- Edit your images and videos with the DJI GO App
- Infrared sensors for collision avoidance and high stability positioning system
- Smart Return To Home
- New shooting modes - Pano and ShallowFocus
- Either USB or charging pad options
- 2 axis gimbal with 2K camera
- 5 different colours to choose from
- Up to 16 minutes of flight time
- 2km HD Wi-Fi video transmission



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