

# PRECISION AG NEWS



JULY 2017

insight   
**AG** SOLUTIONS

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

We are coming into the time of new releases as the different field days both in Australia and the US roll around, and there have been some interesting developments so far this year.

I think many of you will have seen the articles on the Case/New Holland autonomous tractor released that had no cab, but a more relevant release happened in Queensland at the CRT Farmfest on the 6th of June. Croplands unveiled a WEED-It unit attached to a self-driving New Holland tractor. This utilises an existing model tractor and equips it with the sensors needed to complete the optical spot spraying operation by itself. The tractor can sense obstacles and stop if they are in its path. The machine follows a pre-mapped path to spray a paddock.

At Insight Ag Solutions and Pringles Couch, we realise that we need to be preparing for the autonomous tractor or equipment. While it is sometimes hard to imagine what the future will look like, there are a few things that we can say will be needed.

**Communication Networks.** One is that you will need good communication. All of the autonomous examples that we have seen so far have to be able to communicate back to the grower via some means. If that is going to be through the phone network, then there is some work to do. It may be that farms will require a wide area Wi-Fi or something to communicate to the machine with.

**Data Volume.** The volume of data that a remote autonomous machine generates will be large. There will be almost live streaming of the machine function back to the operator, so that the operator can monitor and change settings remotely.

**Reliable positioning.** For a machine to operate safely remotely, it will need to have a rock solid positioning system, with some built in backup systems for obstacles and redundancy. This will possibly mean that there needs to be GPS plus another system such as laser guidance as a failsafe. The system will also need to have obstacle detection to avoid moving obstacles such as animals and people, plus stationary obstacles such as trees and fences.

**Accurate maps and boundaries.** It will be imperative that the maps and boundaries used to contain autonomous vehicles will need to be done using RTK accuracy (at least at this point in time). RTK means that the position points are 'anchored' to the topography – i.e. don't have any problem with GPS drift. This will allow the machine to position itself relative to obstacles that are permanent such as trees, poles and fences. There will also need to be no errors in the maps themselves.

Other changes that will come with this progression towards driverless machines include the logistics of transporting, loading, fuelling and monitoring them while they are operating. They will be equipped with a myriad of sensors to keep track of position, conditions, the work environment and machine status, which will all need to be monitored, understood and calibrated.

Part of this journey will include semi-autonomous machines that do 98% of the work themselves, and just require an operator to monitor and oversee them from the cab. It may be that we require this legally, until the safety is proven.

We will need to be aware that as the path towards autonomy approaches, these are just some of the aspects that will need to be considered. We are doing our best to try and be ready, but parts of the future may be here sooner than we think!



Lindsay Crouch

Director/Insight Ag Solutions manager

# WEED-IT PHANTOM DRIVE



Croplands has enabled farmers to perform autonomous optical spot weed spraying by partnering with AutoTrac to marry WEEDit technology with PhantomDrive, a driverless platform kit that can be added to current-model tractors with CVT transmission.

The WEEDit sensors detect weeds by recognising living plants' active chlorophyll. A signal is then sent to a solenoid to activate the correct nozzle as it passes over the target weed, which minimises the amount of herbicide that is applied to bare ground.

The WEEDit PhantomDrive, as the combined toolbar kit is called, can be accessed remotely on any smart phone, tablet or computer with internet access. It monitors both the tractor and sprayer and will alert the user to any issues with either.

It has weather station capabilities for monitoring environmental conditions at the site of application and the system will stop operation if preset weather parameters are triggered.

The Croplands WEEDit PhantomDrive also incorporates a collision avoidance system, to eliminate any accidents on farm with people, animals or foreign objects.

Toowoomba-based Croplands northern regional manager Jeremy Renick has been heavily involved in the project.

"Making the WEEDit autonomous was the next logical step for us with this product and we see it suiting medium to large scale farmers trying to get more efficiency into their operation either by giving themselves more time for other tasks around the farm or through better utilisation of their existing workforce," he says.

Video Link: <https://vimeo.com/220747175>

## IS THE NEXT BIG DEVELOPMENT AUTONOMOUS?



Are autonomous vehicles the way of the future?

Or should we think about them as the next logical progression in precision technology which has been developing and increasing in accuracy since the very first auto-steer systems were released?

We already have autonomous technology driving vacuum cleaners around your house and mowers around your yard.

What do you think?

Follow us on social media

Twitter: @InsightAgStns



# COMING TO A FARM NEAR YOU



## ACTIVEYIELD

John Deere will release the ActiveYield feature on the 2018 model S Series harvesters. ActiveYield will automate the process of yield calibration by fitting weigh points into the grain tank. This will ensure that yield calibrations are done and are accurate. This will be of great benefit to the operator with decreased setup time and increased harvesting time. It will also benefit the farming operation as maps will be accurate and growers will be able to confidently make decisions based on the yield maps generated.

### Feature benefit:

Increased uptime due to zero operator time spent calibrating the yield monitor system. Eliminated work associated with calibrating while automatic calibrations occur all day long. Improved real-time decision-making as ActiveYield maximizes the accuracy of the combine's yield data

### Functionality:

ActiveYield senses the weight of the grain in the grain tank as it fills. The combine uses the weight information to calibrate the yield system continually throughout harvest. This gives the operator optimized system accuracy and reliable yield data collected all day, every day. When the ActiveYield option is enabled and the Terrain Compensation Module (TCM) in the StarFire™ 3000 Receiver or 6000 Receiver has been calibrated, ActiveYield is ready to go to work. As grain is harvested and enters the tank, the three sensors within the grain tank collectively measure the grain as it piles over the cross auger covers. If all conditions are acceptable (header and separator on, grain is flowing, machine level within 4 degrees) load collection occurs from 900 through 3000 kg. ActiveYield will be fitted to 2018 model S-Series harvesters.



## RATE CONTROLLER 2000

John Deere is rolling out its new Rate Controller 2000 that integrates with many implements for high-resolution product control. The John Deere Rate Controller 2000 is compatible with many different equipment platforms, including non-John Deere pull-type sprayers, liquid and dry fertiliser systems, anhydrous applicators and some planters.

*Simultaneously  
apply multiple varied  
products*

The John Deere Rate Controller 2000 aids in field documentation, map-based prescription applications, and overlap control when used with John Deere Section Control activation. Producers and Ag service providers who use the new rate controller can manage the application of up to five different products, liquid or dry, and will have increased section control capabilities when making those applications. Customers will also have the ability to simultaneously apply liquid fertilisers, along with other inputs such as herbicides, insecticides, or granular products, to reduce the number of field passes and improve operational productivity.

The Rate Controller 2000 will eventually replace both the current Rate Controller and the Dry Rate Controller, as the Rate Controller 2000 can perform the role of both controllers, and can control up to five different products.



## EXACT APPLY

Released with the 2018 Model Year range of sprayers, ExactApply nozzle control will be of great benefit to growers.

ExactApply nozzle control allows operators to have more control over how and when they apply resulting in greater precision and productivity. The industry-exclusive features of ExactApply will allow operators to take spraying efficacy to new levels.

ExactApply has a very high rate of pulsing compared to industry standards to eliminate the problem of 'zebra striping' at lower spray speeds, plus also maintaining a more consistent droplet size over a wider speed range.

- Performance – 30-Hz pulsing keeps spray pressure constant at varying speeds allowing a more consistent droplet size and application across the whole field.
  - Productivity - automatic nozzle switching, switches nozzles as speed changes allowing operators to increase spray speed when using air induction nozzles.
  - Productivity - light-emitting diode (LED) lights in each nozzle body allows the operator to start their day earlier or stay later and have complete visibility of their spray pattern.
  - Cost of Operation - individual nozzle control allows a more precise placement of product and saves operators 2-5 percent in input cost over section control.
  - Cost of Operation - turn compensation allows the operator to apply at consistent rates across the width of the boom when making turns in the field minimizing product burn and under application.
- ExactApply will be available in 2018 with the John Deere R-series sprayers.

## MARK IT IN YOUR DIARY

**20th Precision Ag Symposium: August 14-15, 2017**

This year the symposium will return to Sydney, home of the first PA conference. Be part of the 20th event celebration at the University of Sydney, where you will hear the latest R&D, farmer case studies, field tour, networking activities and more. Symposium Monday & Tuesday with a tour on Wednesday 16th.



# AGRIBOTIX COMPLETE AG DRONE SOLUTIONS

Insight Ag Solutions has been able to source the Agribotix Drone sensing solution. Agribotix provides completely integrated agricultural drone solutions that include everything that you need to begin using a drone to identify problems early, increase yields, and profits. The only thing Agribotix does is agriculture, and they have worked with thousands of growers around the world. Agribotix makes it easy and profitable to provide agricultural analytic services using drone-enabled technologies and services.

## WHAT YOU GET

### Drone

- DJI PHANTOM 4 Pro – Easy to fly. Worry-free autopilot. GPS/GLONASS
- Smart batteries (5,870 mAh, 15.2v)
- Remote controller – dual-signal DJI LIGHTBRIDGE(tm) technology for extended range
- Rugged case

### Imaging System

- DJI camera permanently modified for near infrared imaging (Starter and Plus)
- Sensor -1" CMOS Effective pixels: 20 M

### Tablet

- Apple iPad mini 4 (Plus)
- Includes application for flight planning and monitoring

### Training

- Custom training manual and checklist
- Optional training at Agribotix or at your site
- Learning to use the Phantom Ag and FarmLens is easy. Our training goes beyond basics to show you how to get the strongest ROI for you and your growers.

### FarmLens™ Professional Data

### Processing

- All imaging products are georeferenced and

Agribotix has designed a complete system that integrates a choice of drone, rugged case, professionally modified and tuned sensor, industry leading documentation and agricultural specific-support. This is all designed to work with our FarmLens analytic platform that will reliably take the data from the drone and turn it into reports and data sets that integrate with most farm management systems.

Insight Ag Solutions can set up a system using a DJI drone to suit your needs. Just ask us how.



viewable on a tablet or smartphone.

- Three months unlimited processing included
  - Rapid turnaround of results
  - FarmLens Uploader – Windows software to automate the upload process
  - All imaging products are georeferenced
  - Available file formats: Google Earth (KMZ), GeoTIFF and shapefile
- ### Included Reports
- Field Health Report: NDVI raw, NDVI false color and RGB
  - Variable Application Report: shapefile format compatible with farm data management software (i.e., SMS, Apex, Deere, etc.)
  - Localized End-User Report: PDF report suitable for delivery to end-user with above reports, augmented with historic field-level weather information (growing degree days, precipitation)

### Support

- Phone and e-mail support
- 30-day parts and materials guarantee

## PRO-TRAKKER WS9000T

Protrakker recently released the WS9000T hitch for John Deere 9000T and 9RT series track tractors with a wide swing drawbar. This hitch is integrated into the tractor wide swing drawbar, and will move the full width of the swing to help keep your implement on track. This means a lateral movement of about 1.5m from side to side, which when combined with John Deere RTK and Active Implement guidance can keep your machine precisely located all of the time. This combination gives you year on year repeatability for your operation.



## FLYING DRONES SAFELY

If you are unsure of your obligations when using your remotely piloted



aircraft, (RPA) or want more information about the basic rules Australia's Civil Aviation Authority (CASA) has released an easy to use app called 'Can I Fly There'.

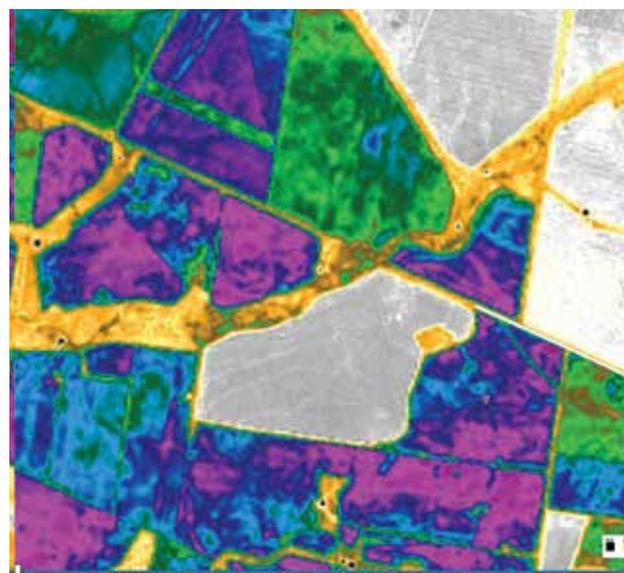
The app is available for Android, iOS and as a web app from your app store or the CASA website - <https://www.casa.gov.au/droneapp>.

The CASA website has links to an eLearning module aimed at recreational RPA users

[http://services.casa.gov.au/elearning/casa\\_101/](http://services.casa.gov.au/elearning/casa_101/)

There are also guidelines for land-owners flying a drone over their own property, a series of safety brochures, and information on training and gaining your remote pilot licence (RePL) and RP A operators certificate (ReOC)

## SATAMAP IMAGING



Whether targeting crop inspections, year on year comparisons, or assisting in regional forecasting, SataMap Satellite NDVI Imaging will improve the way you manage your agribusiness. We apply our unique vegetation index (NDVI) to maximise information extraction along side the natural colour equivalent image - all in a tablet friendly web application, creating 10m/sq pixels.

Agronomists, farmers, grain traders and supply companies, to name a few all benefit from high value, large area that Satamap covers. You are never limited by paddock boundaries. If it falls under a tile in your subscription you have the opportunity to see a new image every 16 days depending on cloud.

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