PA In Practice - broadacre cropping

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Our first experience with Precision Agriculture (PA) was in 2002 when we purchased a Kee Zynx guidance system, with an Omnistar receiver using a virtual base station (VBS), providing sub-metre accuracy. These were installed into a Nissan Patrol used to tow a Hardi 2724 spray unit.

The signal was occasionally unreliable but across our 4770 hectare cropping program we had plenty of opportunity to put the system to the test. Overall I have been pleased with the results we achieved with improved guidance. Since Omnistar relocated their base station to Ceduna this system is much more reliable.

In 2003, we purchased a header fitted with a yield monitor, so we decided to invest an additional $2000 on a data processor to allow the yield data to be collected and geographically logged. A hand held Garmin GPS was connected to the yield monitor to provide the GPS signal.

We are currently producing yield maps using John Deere (JD) Office and storing them for future reference. As members of a SPAA PA Group we are learning how to use these yield maps to identify problem areas and hopefully use them as a base for variable rate sowing, in the future.

In the last two years, we took the next step into PA by installing a Kee Zynx Pro-steer in the tractor used for seeding. We subscribe to the Omnistar HP correction signal for $2,500 per annum, enabling us to have autosteer with 10 centimetre accuracy. Using this system we immediately noticed a reduction in overlaps and missed strips, and I estimate that we save at least two per cent of inputs at seeding.

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The spray equipment has been up graded to a Hardi system with a 7000 litre tank, 36 metre boom and a Hardi 5500 controller. A Kee Zynx X10 controller is used to operate the auto-section shut-off and to provide an on-the-go coverage map. The auto-shut off is a great benefit on the six section boom. It reduces overlap, saving input costs and crop damage and makes spraying much less stressful.

The spray rig is now pulled by a John Deere 8330 tractor fitted with Auto-trac. The John Deere Starfire1 system provides guidance with sub-meter accuracy. The auto guidance is adequate to reduce overlap and operator fatigue, although we do find the JD Starfire system struggles to keep up at operating speeds over 20 kilometres per hour.

We no longer use the Omnistar VBS signal for guiding the spray rig, but instead ususe the Starfire1 signal for both the JD Auto-trac and the Zynx X10 in the tractor.

The biggest headache with our spray rig guidance system is that it was purchased in early 2007 and resulted in three processors and screens being required in the tractor. However, only six months later I am told that the John Deere GS2 system could be linked to the Hardi sprayer, allowing the system to be run with a single screen and the Kee Zynx controller would not be required.

Like many others we have had problems integrating products, as one will either not communicate with another or will try to override the other products commands.

If I was setting-up from scratch, I would consider using the marine beacon as the differential signal for spraying because it is free and other farmers are using it successfully.

In the future we may switch to inter row sowing and this may require us to upgrade to RTK autosteer on the seeding tractor.

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