

## Precision Agriculture in the paddock – grower experience

### Luke Bradley, 'Lindley Downs' Orion, Queensland

**Farming area:** 4100 hectares (ha), located 120km south-west of Emerald

**Crops:** Luke has a set rotation including sorghum, corn, barley, wheat and chickpeas.

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#### What changes have been made?

Before the upgrade, Luke was using four Excel planters, of varying width, all fitted with John Deere Ground Drive technology.

'The Excel planters are accurate for seed placement in nice square fields and irrigation areas,' Luke said.

In 2011, Luke, his father Peter and their families acquired Lindley Downs where they found there was over 400ha in headlands alone. During the 2013-14 season, Luke noticed major yield loss on the double-planted headlands.

As a result, he decided to retrofit his 12m Excel planter with Precision Planting vDrive motors. Doing this meant he was able to achieve individual row control where the planter will shut off planting units one at a time as they travel over already planted areas or if reaching a boundary. This enables population to be controlled where the planter places a single seed in the furrow with accurate spacing between each seed.

It also has turn compensation that controls the speed of each meter based on the speed of that unit. This means that when travelling around corners there is no longer discrepancies in plant population from one end moving faster or slower than the other.

'It was a simple matter of taking the drive component out of our existing boxes and adding the Precision Planting electric drive system.'

'We find it very important to trial and run new technology to make sure it is a fit for our system,' Luke said.

After the trial, Luke purchased a new 24m Excel bar fitted with the Precision Planting units attached. The planter runs on 1.5m rows making it their primary summer crop planter.

#### Precision technology benefits

Luke has used precision planters since approximately 2008, and over time has generally increased his sorghum plant population.

'We have greater control over our plant spacing and population because the precision drive equipment provides better control of seeding rate. As a result of this, we have less yield per plant, however, we have more plants per paddock and those plants are a higher quality.'

Since moving to individual row control, Luke has reduced his planting area by 5-7% yet his yields have improved. Assuming he was to plant 2000ha he would now plant 120ha less. At 3 kg/ha planting rate and approximately \$14/kg for seed he could save himself \$5,040 in seed for that season.

Implementing the retrofit cost Luke approximately \$30,000. Luke provided an example of productivity loss of sorghum yield diminishing by 1 tonne to the hectare over 400ha of headlands. 400 tonne times by approximately \$300 per tonne equals \$120,000 potentially lost.

'Initially, we looked at the cost savings only, but soon realised that increasing productivity and reducing production loss from overplanting was going to be the real benefit.'

'As for a new planter, theoretically, with similar numbers it could possibly pay for itself after 1000ha of planting.'

This is not a guarantee as many factors affect the payback period, but it provides an insight as to what could be achieved.

## Issues

Luke has been fortunate not to have any major issues with the implementation of his new planter. However, there have been some issues pulling the planter with his tractor.

‘We pull it with a John Deere 8360R and it requires 5 rear remotes to run, meaning we are using all available hydraulic flow from the tractor. The alternator is operating at maximum output as well, resulting in us having to turn lights off on the tractor if we are planting at night.’

‘These weren’t issues we were expecting, however, they were things we just had to work with.’

He also mentioned an issue that could arise is how operator specific this technology is becoming.

‘There is a bit of training involved and plenty to monitor, which could make it difficult for people just starting out.’

## Future opportunities

Moving forward Luke would like to move to a multi hybrid planter set up.

‘This would allow us to plant one variety in the better parts of the paddock and another variety which can perform in the parts of the paddock with poorer soils.’

‘If the technology had been around when we first invested, I would have really liked to go down that path, the technology is there now to do this and it’s basically the same management system.’

## Recommendations

Luke recommends that if you are given the opportunity to trial the equipment before fully investing it is the way to go. Through his own experience he also cannot more strongly

recommend retrofitting the technology to suit the equipment you already have.

‘Retrofitting or modifying gear in the shed is the cheapest and easiest way to make adjustments on farm.’

‘Everyone’s farm is unique, so if the trial is successful then investing is the next step.’

He finished by saying his ‘best advice would be go out and talk to farmers who have the technology and get that practical advice.’



Figure 1: Luke with his new planter