



# Experiences and Opportunities for PA in the South East / Western Victoria

**Ryan Milgate**

Cropping Manager, Llanthro Pastoral Company  
Apsley, Victoria

Phone 0428 858 251 Email [ryanfarmer@bigpond.com](mailto:ryanfarmer@bigpond.com)

## Take Home Messages

- Autosteer is only the start of PA.
- Gather and Measure variation across paddocks thorough yield maps, soil tests, elevation maps, EM38 and your knowledge.
- Understand what causes this variation.
- Use this information to maximize your returns from your inputs in each area of the paddock.

## Background

Llanthro is a 4000ha property located at Apsley, Vic, about 10km from the SA border. It is owned by Tom and Susie Porter and I am the cropping manager. There is both cropping and sheep run on the farm with around 15000 sheep across three flocks (merino self replacing, merino to 1st X and 1st X ewes producing lamb). Cropping takes in 2000ha and crops grown are canola, wheat, barley, peas, chickpeas and some oats. All cropping is dryland except for 40ha under two centre pivots.

All crops are now grown on a 9m controlled traffic system, using no till and retaining all residue by inter row sowing. The basic rotation is canola, wheat, barley then peas or chickpeas and back to canola although there can be many variations due to specific issues in paddocks.

I have been managing the cropping operation at Llanthro since 2004. When I first came to the property there was around 800ha in crop which was managed in a very conventional way. From what I saw in my first few months on the property it became apparent that we would need to make many changes to address issues such as burning of stubble and soils that lacked structure and went from being boggy to rock hard in a few weeks.

One of the first things that we identified was a significant compaction layer in the soil from years of heavy stocking rates during wet times of the year. We also decided that the best way to attack this was to retain all of our organic matter and stubbles to improve soil health. With this in mind 2cm autosteer was purchased to enable us to inter row sow into heavy cereal stubbles and a new airseeder bar with 300mm spacings and the ability to deep rip to 150mm and sow the seed at a constant depth with press wheels. The width of this machine was 9.6m. Fertiliser rates were a blanket 100kg/ha DAP across the farm.

In September 2005 we purchased our own header with a 9m front and set it up to yield map so we could see the variation within our paddocks and in the future maybe use this information for variable rate applications. JD Office was the program used to view the yield maps. During harvest in 2005 we noticed that they spray tracks had cracked from the compaction and we were getting green unripe grains in these areas, which were an issue in some paddocks.

From what we saw in late 2005 the decision was made to go to a full controlled traffic system with 9m as the base unit and 3m wheel tracks. Tynes were rearranged on the bar and spacing was adjusted to 320mm with the wheel tracks being left unsown. Cotton reel spacers were put on the front of the tractor and the back wheels wound out on the axels. The boom axle was adjusted and wings extended to 27m. Although 2006 was an extremely poor year, yield mapping really showed the variations that we have in paddocks with cereal yields varying from 250kg/ha to 5t/ha within a few hundred meters. At this stage we were still just looking at yield maps because we perceived variable rate as being very time consuming and difficult to produce prescription maps.

2007 was much the same with improvements being seen in cropping paddocks through less compaction. Fertiliser rates were reduced to reflect the reduction in yields in 2006. After harvest in 2007 with rising fertilizer costs we decided to go down the variable rate path much more seriously and sought help from Felicity Turner who cleaned up our yield maps and we developed prescription maps for our fertilizer. We had been running the airseeder though our X15 for 3 years and it was just a matter of registering the maplink software for \$1000 and loading the maps and away we went without any problems.

With Gypsum and Lime also being large costs in our system, EM38 surveys have been done over 500ha and will be used to generate lime and gypsum prescriptions and will be used along with yield maps to fine tune our Nitrogen strategies into the future.

The future for PA at Llanthro is endless, more EM38 surveys will be done and overlaid with yield and elevation data, remote sensing is on the wish list (Yarra N sensor?) and further fine tuning of our existing system.

## Conclusions

With PA I have a much better understanding of many factors that influence crop production across a paddock, now I have this knowledge I can start to manage to reduce variation and maximize the return from inputs.



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