Photo: SPAA

Know what to mange with PA

***Emma Leonard**, AgriKnowHow*

Changing to variable rate phosphorus was one of the easiest transitions Ryan Milgate has made.

"I literally plugged in the TOPCON X20 rate controller that also provides our autosteer for the Horwood Bagshaw seeder with electric drives, and everything worked," said Ryan who manages Llanthro Pastoral Company on the Victorian boarder.

Since taking on the management of the 4000 hectare cropping and livestock farm Ryan has been supported by owner Tom Porter to make some significant changes to the cropping system.

Out went 178mm (7 inch) row spacing and stubble burning and in came controlled traffic with all machinery running on 3m wheel centres and equipment widths based on multiples of 9m. RTK guidance enables autosteer with 2cm accuracy so that crops can be sown on the inter-row of the 320mm spaced rows, with all stubble left standing.

To ensure that the tractor remains on the same tracks each year the nudge function in the autosteer is used to move the seeding tine to sit between last year's rows.

Yield mapping was started in 2005 and 500 hectares have been electromagnetically mapped using an EM38 instrument to provide details on soil characteristics down the profile.

Working with PA specialist Felicity Turner, the yield data, EM maps and Ryan's knowledge of individual paddocks are used to create phosphorus replacement maps, the foundation for the variable rate applications. On average he calculated a 20 per cent reduction in phosphorus applied in 2008.

In 2008, Ryan applied phosphorus at a replacement rate of 3kg P/t of cereals, 4kg P/t of legumes and 5kg P/t of canola grown in the previous season. These rates were only used on land that had a detailed cropping history. Ryan will be carefully monitoring crop yields and soil phosphorus levels to ensure neither change unacceptably.

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

"PA is definitely helping me to improve my farming, in 2005 the average yield was considered to be between 3 to 3.5t/ha, this has now increased to about 4.25t/ha."

Ryan is looking at the EM data as a foundation for variable rate lime and gypsum and possibly for nitrogen. In 2009, he intends to vary seed as well as fertiliser rate between management zones. On his wish list is the equipment that would allow him to provide variable rate in-crop nitrogen.

The property also runs around 14,000 sheep, in three flocks comprising self-replacing merinos, merino ewes mated to produce first cross ewes, and a second cross ewe flock producing prime lambs. Stock are run on stubbles after harvest for varying amounts of time from a few weeks on a canola stubble to two months on cereal stubbles. In a purist cropping and controlled traffic scenario this is a compromise but this practice significantly decreases feeding costs in the livestock enterprises. Stock are managed to reduce the compaction effects in the event of significant rainfall. The amount stock compact dry soil is considered significantly less than with random machinery traffic.

In the future, some paddocks may have to be managed differently to deal with weed issues, particularly ryegrass.

Ryan believes that working closely with the suppliers of PA equipment and with a PA data specialist, and regularly updating software are three key components to the successful application of PA.

For more information

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