

Precision Agriculture in the paddock – grower experience

Russell Pukallus, 'Wyntoon' Gindie, Queensland

Farming area: 3035 hectares (ha) including leasing and share farming with another 1100ha under contract.

Crops: Given the opportunity, Russell would prefer planting chickpeas, followed by either barley or wheat.



Figure 1: Russell's Croplands WeediT. Photo: Russell Pukallus.

What changes have been made?

Russell used a contractor for all spraying for many years. After looking into a WeediT several years ago, he decided to invest after approximately three years of research and talking to growers further south.

Russell said that every time the contractor came, he was paying for labour as well as chemical.

'Even when there was only a small number of weeds in a paddock, we still had to do a full paddock spray at the required rate to get the desired results,' Russell said.

'This, combined with the possible savings available from a WeediT, were the main drivers for us going towards spot spraying technology.'

Russell concluded that if he made half the savings that the manufacturers were advertising it would be a benefit to his business.

'After we purchased the WeediT our contractor decided to move on and we then

purchased a Case IH Patriot 4430 self-propelled spray-rig to cover the larger areas that were not feasible to use the WeediT for.

'People need to be aware that while the WeediT is outstanding in some situations, it is not always going to suit. For example, in crop sprays still need to be completed with the self-propelled and the WeediT is yet to have the ability for 'green-on-green' spraying.'

Benefits

Russell said the WeediT has allowed him to attack weeds with different modes of action.

'Previously with our contractor we were constantly increasing the rates of our group M MoAs, increasing the risk of herbicide resistance,' he said.

'In comparison, when controlling weeds such as Fleabane with the WeediT we are still able to use group M if needed, however, we now have opportunity to use groups L and Q. This allows us to achieve results and reduces risk of resistance without the expense of using L and Q groups in a blanket spray.'

By putting the WeediT into paddocks with sparsely populated weeds, Russell was able to save chemical and get a high kill rate, rather than complete a blanket fallow spray using the self-propelled.

'We have owned the WeediT for close to four years and in that time it has definitely paid for itself,' Russell said.

'The first year we owned it, we saved approximately \$60,000 in chemical which was a substantial saving for our business.'

As for a percentage saving of a yearly chemical budget, it is not a number he keeps track of; changes in chemical prices make it difficult.

'While I can't give an exact figure on how much chemical we have saved over the life of the machine, I do have comparisons between the amount of chemical that would have been

used in our self-propelled and what we used in our WeediT,' he said.



Figure 2: Russell's Croplands WeediT. Photo: Russell Pukallus.

'For example, a paddock we have recently sprayed with the WeediT had a mix of three chemicals to do the required job. At the recommended rates from our agronomist, on a 122 ha paddock, we should have used 244L, 49L and 18.3L of each chemical respectively. By using our WeediT and targeting the weeds instead of doing a blanket spray, we saved 89%, 92% and 90% of each chemical.'

This is one example of a fallow spray, but if Russell was to do three sprays of the same mix using the self-propelled boom as a blanket spray, the costs would be greater. Yet with the WeediT, Russell can start spraying sooner, targeting smaller weeds and saving large volumes of herbicides.

The savings made from reducing the amount of herbicide used in his paddocks has had a flow on effect to Russell's overall costs. In a recent pre-plant spray application, Russell reduced his chemical cost by close to 82% over a 1500ha paddock.

'We would normally average one extra spray per fallow with our WeediT, so you do have to be prepared for more labour costs, however, the chemical savings more than make up for it.'

Issues

One issue Russell found was that if he tried to spray at high speeds in a rough paddock, the boom was prone to some cracking.

'We negated this problem by using the self-propelled to cover larger areas when we needed to,' he said.

Another issue was the adjustment to rates as the WeediT is mixed with litres of chemical per 100 litres of water compared to the self-propelled which is litres of product per hectare to be sprayed.

'It took some time to get our heads around the ratios. This was not a big issue, just a change in approach from what we were used to. There is also the common malfunction of the odd solenoid and electrics along the boom, however, this occurs on all sprayers and was an issue we anticipated.'

Russell said the WeediT also tends to miss the odd weed when they're at an early growth stage as the cameras can fail to register the weed.

'This could be seen as an issue, but because you are on the paddock sooner and more frequently, the next pass will get any weeds that may have been missed.'

Future opportunities

Russell is currently happy with his WeediT and self-propelled combination.

'We are always keeping an eye on where the technology is going and like to keep up to date. Moving forward, we are not looking to upgrade or make changes, but do want to stay informed with future technologies.'

Recommendations

Russell said his biggest recommendation is to research before making any decisions.

'If you can, find growers who have the technology and ask about the litres that they are using,' he said.

'What the manufacturers have advertised can seem a bit outlandish but when discussed with someone who has the technology, it is possible to see that those numbers can be achieved quite easily.'