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Ag Innovation & Research
Eyre Peninsula

Pulse management & fungicide application

Case Study—May 2020

Fast Facts

OWNERS: Tarren and Adriana Minhard, Westfarm
LOCATION: Cummins, SA
FARM SIZE: 730 hectares
ANNUAL AVERAGE RAINFALL: 400 millimetres
SOIL TYPES: Varies from sand over clay to areas of grey cracking clay, with the majority loam over clay/lime rubble
ENTERPRISE MIX: broadacre dryland cropping
TYPICAL ROTATION: canola-cereal-legumes

After harvesting grain crops in Canada for four years, Tarren Minhard vowed he would never grow lentils.

Back at the family farm, Westfarm, near Cummins on the lower Eyre Peninsula of South Australia, he's just finished sowing his third crop of PBA Hurricane XT (PBR) lentils.

Tarren says he didn't know what a lentil looked like when he landed in Saskatchewan with a working holidaymaker visa in his pocket in 2009.

"They said 'Oh that's good, we've got 17,000 acres to harvest this year'," he recalls. "When they were good going they were fun, but when they laid over due to fungus – obviously they'd missed fungicide timing due to having such a big program with only two sprayers running – it turned into a nightmare. I said to them I'm never growing a lentil again."

Tarren inspecting an Etiella Moth (Etiella Behrii) Monitoring Trap .

Why the change of heart?

Farmers in the Cummins area are no strangers to legume crops, with many choosing to regularly produce faba beans over the past 15 to 20 years.

Tarren says his father Peter, who is now semi-retired and a neighbour grew chickpeas in the early 1990s until Ascochyta blight became too much of a

problem. Snails which contaminate grain samples and clog machinery have driven some growers out of field peas.

Tarren took over management of the farm in 2015, dropping faba beans out of the rotation after several unprofitable years, due to losses from shattering and low prices.

Cummins Ag Services agronomist Martyn Chandler suggested in 2016 that they have a crack at lentils instead.

The fungicide programs are based on carbendazim, procymidone and chlorothalonil; often piggybacking with a herbicide and/or insecticide to reduce paddock traffic and the cost of application.

"And I'm remembering those famous last words and wondering what's going to happen," Tarren says. "In 2017 I went to lentils and in 2018 I wanted to get back into chickpeas. This is my second full year in chickpeas and third full year of lentils."

Like many Eyre Peninsula growers, Tarren was attracted by the high price lentils were fetching in 2015 and 2016, but he's stayed for the rotational benefits they offer.

The typical rotation of canola-cereal-legumes provides a two-year pest and disease break for cereal crops. Tarren says his lentil crops can fix an extra 58kg/ha of nitrogen and the chickpeas an extra 70kg/ha of nitrogen. Some farmers might use this to apply less in-crop nitrogen and save costs during the following season, but he targets top end yields so the same amount of nitrogen is applied at Westfarm – or more if the season is on target to be a good one.

Key to Tarren's success is the lesson learned from Saskatchewan, which produces most of Canada's lentils, about the importance of timely fungicide application. That translates to a minimum four-fungicide strategy for lentils with application at pre-canopy closure, pre-flowering, flowering and before podding, and sprays every two to three weeks on chickpeas.

It cost Tarren $709/ha to grow and harvest the lentils which he sold for $521/t, yielding a gross margin of $1559/ha. The chickpeas cost $836/ha to produce and are sitting in silos waiting for a lift in prices "hopefully before the 2020 chickpea crop comes off".

Tarren admits his experience with legumes hasn't all been plain sailing. He's aware of only one other farmer in the region growing chickpeas and worries about the threat of Aschochyta blight, saying "I'm not too sure if it's the right thing to do".

Then there's the 70ha patch of lentils that drowned after 150mm of rain during August 2018. Soil mapping showed it had a pH of 5 along with sodic subsoils, so Tarren ripped, spaded and applied lime and gypsum.

'The pH was not too bad but I wanted to lift it to 6 to hopefully gain a yield benefit," he says. 'In 2018, that paddock averaged 3.45t/ha of lentils and I lost the 70ha that only did 100kg/ha. If they'd gone 1t/ha on those areas, it would have been a nifty lentil crop."

The 2019 XT Hurricane lentil crop yielded 3.1t/ha, and the Genesis 090 chickpea crop yielded 2.34t/ha but suffered wind damage and lost about 100-200kg/ha.

Tarren describes the amelioration work as "a disaster" because it raised sodic clay and last year's barley crop sat in water all season – with bog holes 45-50cm deep – after 150mm of rain in May.

"Every time I sprayed that paddock and went over it, I cursed," he says. "This year we made a variable rate gypsum map and put a heap of gypsum in those areas. It's sown to canola this year, will go wheat next year and we'll probably look at pulses the year after. So, in 2022 we maybe could see lentils over there again if I'm game enough."

Tarren says the Cummins Pulse Check discussion group established in 2017 as part of the Grains Research and Development Corporation (GRDC) Southern Pulse Extension Project has provided valuable support.

"I didn't have chickpeas at the time, and I was just getting into lentils, so it was important," he says. *'We've had a pretty good proactive group and I find it helpful to bounce ideas off the other guys, hearing about their successes and failures, and learning from mistakes."*

As a result of taking part in the discussion group, Tarren implemented several changes, including bumping the sowing rate for lentils up from 40kg/ha to 55-60kg/ha on 30.5cm row spacing to increase crop competition against annual ryegrass.

The South Australian Government's April decision to overturn its ban on genetically modified crops gives Tarren hope he will one day be able to grow a range of crops with traits that can reduce the need for chemicals.

"I would like to see more varieties that are resistant to disease, such as Ascochyta blight in chickpeas, and have more reliable flowering and podding," he says. "We've had nice full chickpea plants with lovely flowers on them and then we get cold weather – not necessarily frost – and go back a week later and all the flowers are fallen off because they aborted. Drought and frost tolerance will be beneficial, as well as pulses that are resistant to insects like Etiella. The less chemicals you can use, the better for our returns."

The Cummins area is in a medium rainfall zone and has a reputation for producing high-yielding crops, but they require high levels of inputs and Westfarm is no different.

Average annual rainfall is 400mm, and it costs Tarren $1000/ha to grow and harvest each wheat crop and up to $1000/ha for canola. “I need that 6t/ha at $250/t to make some money from the wheat,” he says.

> *‘I’m also a believer in high risk-high reward. Even after growing a legume crop, I’ll still push yield potential, so if that means throwing more urea, I’ll go for it. In the past urea requirements have been 300kg/ha over all cereals and canola but if the right season comes up, I won’t hold back. I'm willing to add 400-450kg/ha as we have done trials and still seen a yield benefit. But there comes a moment that it becomes uneconomical and you need to draw the line.”*

The farm has operated on no-till principles since 2000 and Tarren, concerned about soil compaction, is progressively updating machinery to controlled traffic on 3m wheel spacings.

The Minhards sold their last sheep 20 years ago and removed all internal fences. The layout across the two properties is roughly divided into four paddocks: one each for canola, wheat and pulses, and one that’s usually sown half to wheat and half to barley.

The 2020 cropping plan includes Hurricane XT lentils, Genesis 090 chickpeas and bulking up Royal chickpea seed, as well as three canola varieties – 44Y93, Saintly and 44Y90 – and two wheat varieties, Trojan and Vixen, which is being bulked up to replace the Trojan.

There’s also 20ha of vetch to clean up ryegrass that will be disced into the paddock in September as green manure, as part of a strategy to guard against the development of herbicide resistance.

Further Information

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