

Eyre Peninsula farmers reinvest in disc seeding system

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Eyre Peninsula farmers Simon and Andrew Patterson have used a disc seeder on their mixed farming operation for the past seven years. With a no-till system already in place, the Pattersons moved to disc seeding to prevent weeds from hampering their seeding regime. This year they upgraded to a new K-Hart disc seeder and are looking forward to reaping the rewards of better seed penetration and more consistent sowing.

Simon and Andrew Patterson have been no-till farming on Eyre Peninsula for more than a decade.

For the first four years after making the decision to stop cultivating they used two Forward Engineers tine machines set up with narrow points on 165 mm spacing.

Their change from tillage to no-till coincided with a run of years with high summer rainfall that led to large numbers of summer weeds, particularly Lincoln weed. Lincoln weed, which is common to Eyre Peninsula, has an extensive root system and is difficult to manage with herbicide.

In the brothers' first year without tillage there was sufficient Lincoln weed in the paddocks at seeding time to wrap around the tines on the seeders and block off seed tubes.

"We were running into a lot of trouble with seed tubes being blocked off, so there was no seed going out," said Simon. "We had to stop every hour to clean the Lincoln weed off."

That not only disrupted the sowing schedule but also resulted in a lot of misses, which were clearly evident at harvest. "I saw a lot of blocked off rows," said Simon. "Then I looked in the paddocks we were going to sow in the next year and there were Lincoln weeds two feet tall. We could see it would be a massive problem for us, so we looked at a disc machine."

In 2004, Simon and Andrew invested in their first disc seeder, an 18.2 metre K-Hart machine with Yetter coulters on 203 mm spacing, which they chose because they were concerned about achieving enough soil throw to ensure the effectiveness of trifluralin.

After five years they increased their row spacing to 228 mm to improve disc penetration with the aim of achieving deeper seed placement. Getting the discs into the soil is problematic on their heavier soil when conditions are dry.



A HEALTHY YOUNG WEED-FREE, ZERO-TILLED WHEAT CROP. INSET: MORE ROBUST PRESS WHEELS HAVE IMPROVED THE RELIABILITY OF THE K-HART.

Fifteen per cent of their Streaky Bay cropping land is clay and the disc seeder isn't as effective on this land when it is dry. "When it's wet, it's fine," said Simon. "When it starts to dry out and the clay flats get heavy and then hard, you don't get penetration. The discs just roll along the top and the wheels come off the ground."

They aim to sow their wheat 30 mm deep, but they found seed sown on the clay flats in dry conditions were often covered by only 3 mm of soil. This became an issue last year when mice numbers rose dramatically. Any shallow seeds were eaten by mice, costing the Pattersons 15% of their crop.

After sowing 55,000 ha over seven years with their first K-Hart disc seeder the

brothers upgraded to a 2010 model this year and have already noticed more even sowing coverage. At 22 tonnes, the new model is 1.6 metres wider and weighs four tonnes more than the previous machine and the extra weight has improved penetration.

Another advantage is that they do not need to change the set up of the new machine when it is moved from one property to the other. It is set up for the heavier soil type at Streaky Bay and the same settings provide the same sowing depth on the Wurrulla farm. "Because we have more weight it sows the same over the whole lot now," said Simon. With the previous seeder they needed a different set up for the Wurrulla property and the Streaky Bay property.

The Pattersons are planning to upgrade to a 470 horsepower John Deere 9530 to cope with the extra weight of the seeding bar. Their 425 horsepower John Deere 9420 labours at 12.5 kph, which was their average working speed with the lighter machine. Actual ground speed ranged from 15 kph in ideal conditions to 10 kph over stony ground.

The 2010 K-Hart model is set up on 254 mm row spacing so, despite being an 18.2 metre machine, has only 78 rows, three less than the narrower machine that was set up on 228 mm spacing. Less discs in the ground would normally decrease draught but the extra weight of the new machine, and the better penetration resulting from that, means more power is required to achieve the required working speed.

“Because we can now get the coulters to dig into the ground properly we are using more horse power than we were before,” said Simon.

They can sow at least three kilometres an hour faster with a disc seeder than with a tine machine. Simon attributes this to the disc seeder’s ability to slice through any weeds or stubble.

“You can sow through melons or straw that’s two feet high. There’s nothing that really blocks them up”



Patterson farm snapshot

FARMERS: Simon Patterson and his wife Tanya; Simon’s brother Andrew and his partner Diane Andrasic.

AREA: 50,200 ha (includes 3,200 ha of leased land and 35,000 ha of recently purchased station country)

CROPPING: The Pattersons have 12,400 ha of cropping land and sow between 6,500 and 7,500 ha a year.

LOCATION: Simon’s property (9,300 ha) is 25 kilometres east of Streaky Bay. Andrew’s farm (5,870 ha) is at Wirrulla, 45 kilometres north-east of Streaky Bay. Their station country is 30 kilometres north-east of Wirrulla.

SOIL TYPES: Mainly grey calcareous loam with low available phosphorous. Clay flats make up 15% of the Streaky Bay farm.

RAINFALL: 365 mm at Streaky Bay; 330 mm at Wirrulla.

AVERAGE YIELD: 1.4 t/ha at Streaky Bay; 1.1 t/ha at Wirrulla.

CROP ROTATION: Standard rotation is medic-based pasture, wheat, barley or oat. Peas and canola are occasionally included in the rotation but are not generally successful on the grey calcareous soil.

LIVESTOCK: 8,000 sheep, with plans to increase the flock to 10,000.

In terms of stubble, the Pattersons reap to the optimum capacity of their header, rather than the capacity of their seeder. “With a disc you can have 6 tonnes of wheat stubble and not have to worry about getting through it or cutting it low,” said Simon. This saves them time during harvest as their header works more efficiently. However, large stubble loads can affect the effectiveness of herbicides. “Your spray droplets must penetrate the layer of stubble down to the ground level

where your weeds are,” said Simon.

They aim to sow 350 to 400 ha in 24 hours, using a rotation of three operators to keep the seeder working around the clock. “It took us 21 days to seed this year, from start to finish.” Simon attributes this to the efficiency of the disc seeding system and the Topcon Autosteer they have used since 2005.

Autosteer enables them to sow throughout the night because it means they do not need to see where they have sown and where they are in the paddock. “When you’re in stubble, you can’t see where you have been as soon as it gets dark, because discs leave all of the stubble standing up,” said Simon.

The size of weeds is no longer an issue with the disc seeder. “The main advantage with disc machines is that they very rarely push things out of the way. It’s a great thing if you’ve got weeds; they just slice them in half,” said Simon. He still sprays to control weeds but isn’t too concerned about early control because the disc seeder will slice through large Lincoln weeds or Ward’s weeds, a woody weed that thrives in clay soil.

“It saves me a couple of weeks in the middle of February when everybody else is raking and burning Ward’s weed. I can just spray it and then sow straight through,” he said.

THE NEW-MODEL K-HART HAS ROBUST FLUTED COULTERS.

Allowing weeds to grow bigger also contributes to the condition of the soil. Larger weeds take longer to break down so they protect against soil erosion, contribute more organic matter to the soil and aid the growth of new crops, he said. "They actually give protection to my wheat crop when it's emerging."

The weed spectrum on the Pattersons' properties has changed since they moved from tine to disc seeding. When they were using tines the biggest offenders were Lincoln weed, brome grass and some ryegrass. Since changing to discs horehound, other woody weed, and toad rush have emerged as weeds, while ryegrass remains an issue. Toad rush thrives in high rainfall areas and on waterlogged ground and is commonly found in the South East, so finding it in his paddocks on Eyre Peninsula took Simon by surprise. He first noticed it in a few paddocks about three years ago and it is now evident in all the paddocks on his property, although not on Andrew's farm, where the soil types are lighter.

"It scared the hell out of me the first time I saw it," said Simon. "I'd sprayed it with Roundup and thought, this stuff isn't dying." Toad rush grows only about 10 cm high but is as thick as lawn and actively competes with young wheat crops, Simon said. He plans to change pre-emergence chemicals to control it.

Stones and rocks can affect cropping on the Eyre Peninsula. Twenty years ago the Pattersons purchased a stone picker to reduce the number of rocks on the surface of their paddocks but found any progress made by the picker was reversed when the tine machines they were using then lifted more stone up to the surface.

"Within four years we were just about back to where we were 10 years before, in terms of stone numbers," said Simon. Converting to a disc seeding system has resolved the problem. "With a disc machine, we don't have any stone problems at all." The down and backward force of the discs pushes the stones and rocks into the ground.

However, large surface rocks can cause problems. Coulters will generally roll over the top of rocks, with ineffective seeding the worst outcome, but surface rocks can damage discs, mostly by breaking parts of the weld.

Simon counts metal fatigue as a major factor in most of the maintenance issues encountered with the brothers' first

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K-Hart disc seeder. It required no repairs in the first two years of use but by the time it had covered 40,000 hectares the bearings on the coulters were beginning to fail due to dirt infiltrating the seals. K-Hart Industries has addressed this issue by replacing the double-lip seals used in its earlier models with triple-lip seals in its current machines.

Simon has noticed several other improvements on the 2010 K-Hart model including a sturdier press wheel assembly and heavier coulters. "Any problem we came across with the first machine, K-Hart upgraded or changed it. We were really happy with the way they listened to what people said and improved things that we found were wrong."

The Pattersons spent \$20,000 on maintaining their first K-Hart disc seeder over seven years. They purchased the 2004 model for \$185,000 and traded it for \$125,000. The 2010 model cost \$300,000.

They apply granular urea during the seeding pass and have adding a liquid fertiliser tank to their seeding rig so they can apply liquid phosphorous and zinc. The liquid fertiliser, which goes out between the double discs at the rear of the machine, makes the surface of the clay soil sticky so they have fitted mud scrapers to the rear discs.

They use a Simplicity air-seeder with the seed cart positioned immediately behind the tractor, followed by the seeder bar then the tow-behind liquid fertiliser tank.

The Pattersons, who recently bought a 35,000 ha station north-east of their Wirrulla farm, run a mixed farming operation combining cropping and sheep. They currently have 8,000 sheep and plan to increase their flock to 10,000, with the station country providing most of the grazing, which will leave their better ground near Streaky Bay for more effective cropping. "Having the extra grazing country will relieve a bit of pressure on our cropping ground so we can lightly graze our stubbles, leaving more there for the cropping rotation," said Simon.

They believe it is important to have sheep as part of the farming system on the Streaky Bay property to help control weeds on non-arable land and to provide some return from the pastures they use to give their cropping land a break. The grey calcareous soils at Streaky Bay make it difficult to successfully grow break crops such as lupins, lentils or canola.



THE BENEFITS OF ZERO TILL: A HEALTHY WHEAT CROP APPROACHING MATURITY.

Simon says sheep provide a consistent income. "In the drought years our sheep income didn't vary at all, whereas our cropping income was wildly variable."

Sheep are currently a profitable source of income for the Pattersons, generating \$160,000 to \$180,000 a year from wool and an equivalent amount from livestock sales.

Operating a disc seeding system with livestock is not generally advocated, yet the only drawback Simon has noticed is a bumpier ride on the harvester.

Tine machines smooth out depressions or ridges caused by sheep tracks or camps. A disc seeder follows the contours of the land because each press wheel and double disc follows the ground independently. "The pot holes and tracks left by the sheep are never completely covered over,"

said Simon. "When you're harvesting the areas where the sheep have camped are very rough on your header."

The speed and efficiency of disc seeding deliver some advantage in managing livestock. This year, finishing their seeding program quickly allowed the Pattersons to deal with a fly strike problem. "The quicker we returned to our sheep after seeding, the less we lost to fly strike," said Simon. "Some farmers we spoke to had to knock off seeding to control the flies."

A tractor towing a disc seeder also uses less fuel than one towing a tine machine. The Pattersons use up to 3.5 litres of fuel a hectare, compared with about 5 L/ha required to tow most modern tined machines. There are also cost savings due to reduced labour requirements. "You certainly get your paddocks sown faster and with less people," said Simon.



TOP: THE SEEDING RIG READY FOR ACTION IN THE Paddock. ABOVE: THE LIQUID FERTILISER TANK IS A RECENT ADDITION. RIGHT: SIMON PATTERSON.

Overall, the Pattersons recommend disc seeding to other farmers. "I think they're a natural progression from a tine machine," said Simon.

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