

Managing a sticky situation

KATHERINE MAITLAND

Sticky soils are an on-going challenge for Trevor Polkinghorne; one he is tackling by changing his management and modifying his disc seeder.

Trevor, who began using no-till in 1995 and changed to disc seeding in 2002, has properties at Arthurton and Petersville on southern Yorke Peninsula. Soil types on the properties include black cracking clay on the Arthurton farm, red clay loam and sandy loam over red clay, all of which become sticky when conditions are damp.

“We have always been entertained with the issue of sticky soils on our farm,” Trevor said. “Managing these conditions with no-till farming methods and a single-disc seeder is sometimes challenging but changes we have made to our systems have helped improve the situation.

“There has been a lot of time spent learning what needed to be done and adapting to implement those changes and make the system work.

“We started using a single disc seeder 10 years ago, to improve soil condition and our productivity. The soil conditions had been improving with the knife points we were using at that time but they seemed to plateau, and dealing with stubble loads with the tine seeder was continuing to be a major issue,” he said.

Trevor finds his 10-metre Daybreak single disc seeder, which is now set up with a single rank of discs on 380 mm row spacing, easy to operate and relatively inexpensive to run.

“All of the bearings and disc axles are from the original unit we bought in 2002. The gauge wheel axles were upgraded to suit the new Duodec seeding units we are now using but most of the original components are still going. I am still using the original Manutec gauge wheels. The steel rim gauge wheels Daybreak currently use will last much longer.”

Trevor sought advice from a variety of sources on how to improve the performance of his machine in the sticky soil conditions that develop most years.

Aspects of that advice prompted him to change some of his farming methods to



ABOVE & OPPOSITE: GRAIN GROWER TREVOR POLKINGHORNE HAS HIS FAIR SHARE OF STICKY SOILS ON HIS YORKE PENINSULA FARMS.

minimise the likelihood of clay sticking to the disc and gauge wheels and minimise the problems caused when there was soil buildup.

“Daybreak helped me widen the row spacing on the machine from 250 mm to 380 mm, which has helped with stubble handling and reduced the amount of sticky soil being thrown into the next row.

“Having a single row of disc units has also helped in this regard. With multiple rows clay will throw off from the front row of discs and gauge wheels and fall into the path of the following row.

“We also changed to sowing in autumn,

when the soil is often a little drier. The change in sowing time has improved crop yields and, surprisingly, weed control.

“And we have stopped double shooting seed and fertiliser because it was making everything too complicated.”

Trevor says these methods and changes were suggested to him by Daybreak owner Ross Milne almost 10 years ago.

“It took me a while to realise disc machines would work in SA,” he said.

“I am currently using a prototype version of the Daybreak Duodec system, with a 660 mm disc, which means the bearings and frame are well off the ground.

Daybreak has also upgraded the seed

tubes, which are now strong enough to throw some dirt out of the trench to help with pre-emergent herbicide safety.

“Keeping the disc turning freely is paramount. The larger the disc, the more grip it has to help maintain rotation.

“It is my observation that the larger disc is required to gain the most aggressive angle between the leading edge of the disc and straw lying on the ground when seeding deep enough for wheat and lentils. There has been work done on the tangent angle where the disc meets the straw. If the disc is too deep the angle is too great and if the disc is too shallow the angle is too flat. I’d suggest a 45 degree angle is just right.”

In the Duodec system the gauge wheel and disc are able to move independently of each other, which means a freer action for the disc and helps maintain rotation, Trevor said.

And clay is not smeared onto the disc because the gauge wheel is set off from the disc, so any clay that does build up can be easily scraped off if necessary.

“I haven’t used scrapers for a while, but am trialling a simple version at the moment



and they seem to be working well.”

Trevor says single disc seeders require thought and precision to set up, but work very well when they are used properly.

“Discs are not for the faint hearted in sticky soils, but the situation can be managed. I have observed that in really sticky conditions discs work best where

the weeds are thick, tall and growing well, until sprayed out immediately before seeding, with plenty of root growth holding the soil together.

“It makes me think that diverse cover crop, as discussed at this year’s SANTFA conference, might be worth some further investigation.”



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