

Seeding precision key to top crops

GRAEME JENNINGS

Crop establishment is a primary focus for Boort farmer Steve Lanyon, who is applying what he has learnt in irrigated corn production to his dryland crops. And the key lesson is the importance of seed placement.

“Even seeding depth and even spacing ensures a uniform crop,” he told growers at the SANTFA conference.

Steve and his family grow flood-irrigated corn and occasionally sunflowers, plus faba beans, barley, canola and safflower on 3,500 ha in a no-till, controlled traffic farming system.

He uses variable rate technology to apply gypsum and lime, but has not seen much benefit from variable rate fertiliser application.

Observing the consistently even germination and establishment of his irrigated summer crops, which are sown with a precision planter, prompted him to question what was happening in his dryland crops, where there was always noticeable variability in emergence and crop establishment despite the fact that he was running on permanent wheel tracks.

He is now increasingly applying precision seeding methods in his winter crops, most of which are sown using a 10-metre disc seeder. Steve changed to a disc machine after struggling to achieve good control of



STEVE LANYON IS INCREASINGLY APPLYING PRECISION SEEDING METHODS IN HIS WINTER CROPS.



PAYING ATTENTION TO SEEDING DEPTH AND SEED PLACEMENT MAXIMISES THE CHANCES OF EVEN GERMINATION, UNIFORM CROPS AND HIGH YIELDS FOR STEVE LANYON.

seed depth and lateral placement with the tyned machine he was using, despite trialling several different ‘row clearers’ to clear surface trash ahead of the tynes.

In his canola crops in particular the poor seed placement was causing patchy crops, with low plant density in some areas and too many plants in others, so he began to explore the potential of disc seeders to improve seeding accuracy.

As part of that process he replaced one of the tynes on his seeding bar with a disc seeding unit, which he ran right through a seeding season so he had a side-by-side comparison of disc and tynes performance on every hectare sown that season.

The even crop germination and plant spacing in the disc row convinced him to make the change to discs, which are giving him far more uniform crop emergence than he was ever able to achieve with a tyned machine and which he finds ‘magic’ for dry seeding. The discs also sow winter crops into sunflower residue without any difficulty.

Steve starts seeding his winter crops on April 10 each year, irrespective of seasonal conditions, and his top-yielding faba bean

crop last season was dry sown.

Despite the improved seeding performance being achieved with the disc seeder he is continuing to explore the use of his precision seeder to sow faba beans and canola. It works fine for the large-seeded beans but the seed sensor wasn’t sensitive enough to manage the much smaller canola seed so he has ordered a ‘canola disc’ for the planter that he hopes will overcome the seed size issue and enable him to precision sow his canola crops.

Steve strips down and re-builds the precision planter each year, so it is ‘as good as new’ when he starts his summer sowing program.

Last season much of it was new because he installed a 20/20 SeedSense seeding monitor from the US that enables accuracy of the seeding operation to be monitored from the tractor cabin.

The new equipment, which cost \$16,000, makes it possible for the operator to pick up and correct issues such as problems with seed placement that would otherwise go un-noticed until after emergence, when it is too late to correct the problem for the current crop.

The SeedSense technology monitors seed spacing, plant density, down force on the gauge wheel of the seeding unit, ground speed, the area seeded and the variety being sown. It also monitors whether the seeder delivers a single seed (singulation), several seeds together (multiples) or has failed to release a seed (skips).

A combination of yield mapping and seeding monitor data showed that in places the corn was being planted too shallow because there was insufficient down force to keep the planter's gauge wheels in contact with the soil. In other areas there was too much down force, which can compact and seal the walls of the seeding furrow.

He has addressed this by installing a hydraulic down-force control system that controls the down force on the openers of each seeding unit.

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Steve estimates that sowing shallow, where there is less moisture available for germination, was halving the yield potential of the corn in those areas and that overall, incorrect down force was costing more than \$80,000 in yield losses across their 660 ha of corn.

In addition to helping reduce costs and improve yields, the seeding monitor has prompted Steve to rethink his entire approach to seeding, with a stronger focus on precision placement of each seed and this year he plans to use the SeedSense system to monitor seeder performance in winter barley, canola, faba beans and safflower as well as the summer crops.

He is now able to achieve 99.9% singulation in his corn, which ensures he achieves the target crop density and maximises the yield potential, thanks to the monitoring system and a change from chain to electric drives for the seed delivery system.

He installed the electric drives, and a GPS-based automatic cut off system that stops seed delivery if the seeder crosses a seeded row, after he found one slack chain on one seeding unit was affecting seed delivery to all the rows across the machine.



USING A DISC SEEDER ENABLES STEVE LANYON TO SOW WINTER CROPS DIRECT INTO THE RESIDUE OF IRRIGATED SUMMER CROPS LIKE SUNFLOWER AND CORN.

The electric drives give him confidence that he can reliably achieve perfect seed placement and spacing and he estimates the automatic cut off saved him \$6,000 in corn seed in the first year after it was installed.

He has also recently installed new equipment that makes it possible to operate his precision seeder at 14 to 16km/hr, twice the previously recommended ground speed of 6-8km/hr, without sacrificing seeding accuracy. The key to this efficiency gain, which has the potential to halve

actual seeding time, is innovative new seed tube technology that positively controls the movement of the seed down the tube from the meter to its placement in the seeding slot.

Steve has explored wide row spacing for his winter crops, but now intends using closer row spacing to reduce the impact of weeds.

“Crop is the best weed tool. If you have good depth control you get all the crop up at the same time, so the plants work as a team against the weeds.”



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