

An investment in new planting equipment to apply liquid fertilisers is paying off for Yorke Peninsula grain growers, Tim and Peter Edwards. Since they switched over in 2019, they've seen more vigorous early establishment, thicker canopies, healthier crops and yield gains.

Tim and his father Peter grow wheat, barley and lentils on 2,300 hectares of sandy country near Port Broughton.

About six years ago, Peter started using deep ripping to crack through subsoil layers in their soils. This allowed plant roots to explore to depths where they are exposed to more moisture for a higher yield potential.

Although this showed immediate and impressive results in crop performance, in the following seasons they often saw a nutrient 'hangover' which required higher macro and micro nutrient inputs to maintain crop yields.

A new system was also needed to minimise the ongoing compaction of their newly deep ripped soils. After discussions with their agronomist, Chris Davey from YP AG, they made the switch to liquids at seeding and haven't looked back.

"We sat down with Chris and said that we were thinking of going to a parallelogram seeder and controlled traffic system and also a liquids system because we feel we're upsetting some of the nutrients in the topsoil as we deep rip, and he agreed," Tim said.

They replaced their Steiger tractor with a John Deere RT machine on three metre centres and bought a second hand John Deere 1910 aircart.

They also picked up a demo model Morris C2 which was already rigged for liquids with an LQS Stacker kit. The 12-metre bar was re-engineered to place the wheels at three metre centres and increase the strength of the frame to carry a 4000 litre liquids tank.

The only new piece of equipment they bought was a Liquid Systems (SA) LQS AI120 pump and control module for liquid application.

"The AI 120 pump and control module has been fantastic, it hasn't missed a beat," he said.

Who: Where:	Tim and his father Peter Edwards Port Broughton, Yorke Peninsula, SA
Crop:	2,300 hectares of wheat, barley and lentils
Inputs:	EASY N liquid nitrogen, MAP, Gran-Am, micronutrients, trace elements and Flutriafol where needed.
Equipment:	Liquid Systems (SA) – LQS-AI120 Module – LQS-ASST3 LQS-AT5F x 43 outlets
Key Outcomes:	Applying a greater range of inputs upfront at seeding and higher rates of nitrogen. Stronger early crop establishment, thicker canopies and greater yield gains The flexibility to buy nitrogen when prices are favourable and store on farm

"Everyone I know who uses liquids uses Liquid Systems gear – they've been well made and no-one seems to have any trouble with them."

Nutrients set potential

Their usual upfront fertiliser program now includes 70 kg/ha of MAP and 30 kg/ha of Gran-Am applied with the seed in a 100 mm wide root boot trench and 25 to 30 kg/ha of EASY N with a trace element mix applied in a stream 50 mm below the seed line.

The fertiliser program is fine-tuned each season over three planning sessions in late spring, summer and after soil testing in March.

"The new equipment is giving us a lot more flexibility in what we can apply and how we apply it," Tim explained.

For example, they could apply higher rates of nitrogen upfront because the EASY N liquid nitrogen fertiliser is placed away from the seed line, compared with their previous knife point system.

"Since we've unlocked our soils with deep ripping, we're finding ways to push harder and achieve higher yields and we can't do that without nitrogen to set that potential," he said.

Sulphur is another key nutrient they like to have available to the crop early, as well as copper, zinc, manganese, iron, cobalt and molybdenum. Flutriafol is added to the mix where needed.

Liquid Systems

Although the new input program is extensive, and more expensive, the cost has been more than offset by yield gains.

"We changed a lot in one year, but we've certainly seen the benefits," Tim said. "We noticed significant improvements in strike rates and germination. We're seeing a lot better establishment and vigour and that's been really valuable for weed competition.

"It surprised us how much a nice thick canopy can put pressure on brome grass and ryegrass and the early EASY N has played a large part in that."

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Tim said having higher rates of early nitrogen available to the crop gave them the flexibility to topdress urea or spray EASY N as required, rather than being under pressure to feed the crop early.

There have also been a couple of missed strips to illustrate the value of their nutrient program.

"In the first year we used the new system we skipped a few rows in the barley, and five or six weeks later, you could really see where the EASY N had gone out and where it hadn't," he said.

"The barley was green and gold – where there was no nitrogen applied it was significantly yellower, there wasn't as much biomass, but where the liquid fertiliser was applied it was fantastic," he said.

Another situation was a liquid trace element brew to no liquid comparison in a lentil crop, resulting in a 250 kg/ha yield increase.

Even when they can't point to a specific change in yields, Tim says setting up good crop health early is giving their crops the best opportunity to perform.

"The most rewarding thing is seeing all our crop yields trending the right way because we're getting all those one percenters right," he said.

On farm tanks add flexibility

Last year, Tim also installed two 30,000 litre tanks on farm, allowing them to pre-purchase EASY N at a favourable price.

He said the flexibility of being able to buy nitrogen at the right point in the price cycle and store it on farm from season to season was a major bonus.

"The price difference between the first tank fill late last year and an equivalent urea purchase this year was more than the investment in the tanks," he said.

This year, they completed their seeding program before the main break, although the job wasn't without its complications.

"With so many neat products in the mix and when we're trying to apply a high rate of nitrogen, we can run into compatibility issues," he said.

"We plan our liquid mixes and get them tested in the lab before the season, but sometimes it doesn't work out the same way in the field.

"Products settle overnight, there's temperature changes, the agitation changes with different amounts in the tank. We've been stung a few times."

Tim said increasing the water rate was the answer. "As little as 5 L/ha of water in the mix can make a big difference," he said.

He recommended growers considering using liquid fertilisers to stay flexible and be open to adjusting rates.

"There's a lot of pressure at seeding time to 'go, go, go' and get the crop in, but we find that taking time to mix our liquids and get that tank mix right is worth it for the end result, even if we have to spend a little longer in the paddock," he said.

While Tim says they're not 'winning any efficiency medals', they can cover 60 to 70 hectares before a refill, so make good time once they get moving.



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Front page: Peter (L) and Tim Edwards (R) in front of their his liquid rig. Above left: Close up of openor & liquid stream. Above right: Ai120 Liquid module mounted on their Morris Contour bar. Below: Edward's complete seeding rig in action.

