Making small rainfall count at Cunderdin

THE ability to make small rainfall events count for crop establishment, particularly in seasons such as last year, continues to underline the use of an in-furrow moisture retainer at seeding for the Jenzen family, at Cunderdin.

Further implementation of various soil amelioration techniques and access to analytical data and system technology could also see the unique soil moisture and retention agent applied at variable rates across paddocks of their property, Rockdale, in future years.

The Jenzens operate a 5000-hectare continuous cropping program including 2500ha of wheat, 800ha of lupins, 500ha of canola and the balance comprising barley and export hay.

Nick Jenzen said about 70 per cent of the farm featured sandy gravel or yellow sandplain soils, although, like most properties, each paddock can contain three to four different soil types.

He said a non-wetting layer in various soils posed a key challenge to crop establishment.

"You can get a nice rain on it and it will be dry underneath, which is always an issue, so we have been working out ways to combat that as cost effectively as possible," Mr Jenzen said.

The Jenzens have been using the SE14 moisture and retention agent from SACOA to help establish mainly lupin and canola crops on poorer non-wetting land, while employing mouldboard ploughing, spading, deep ripping and other soil amelioration in further non-wetting areas.

Deep ripping is carried out against compaction as well, while gypsum is applied on heavy country not suitable for ripping.

SE14 also has been trialled in wheat and oats, including in applications with liquid nitrogen, potassium and fungicide.

"There's been a big improvement with SE14," Mr Jenzen said.

"Plants are definitely more vigorous and it produces a bigger, healthier plant – and I think that is the access to water."

Mr Jenzen said some of the best crop responses to applications of SE14 were shown last year.

"With summer rain of 50-80 millimetres and then just small amounts of rain of 5-6mm, the SE14 seemed to wet the seed up and we had germination within four days with the lupins," he said.

"That was pretty impressive and it carried through with real good establishment and the lupins actually went quite well."

Mr Jenzen said they occasionally left trial strips in paddocks where SE14 was not applied as a comparison and there always was a big difference in establishment.

❒ The seeding kit system set-up for delivery of the SE14 moisture and retention agent near the seed.

On previously ameliorated soils, responses generally had not been as strong, however last season a 100-metre trial strip in lupins on some sandy gravel that was deep ripped a few years ago "showed up big time".

"The difference in plant numbers was massive," he said.

"It was probably 10 plants per square metre compared with 30-40 plants/m^2.

Early and even establishment and vigour, as well as even maturity, also had aided weed control.

"Getting up and away before the weeds has been good," Mr Jenzen said.

"Some chemicals can also knock crops back a little, but being bigger and healthier has helped."

Mr Jenzen estimated yield gains from the plant establishment benefits of 5-10pc on less responsive soil types and upwards of 30-40pc on more responsive soils.

They initially found the SE14 solution quite viscous when managing the transfer process from the intermediate bulk container (IBC) into their airseeder liquid tank, but have since developed a mixing system that is simple to use.

The SE14 IBCs sit on their cartage truck and feed via a 50 millimetre (two-inch) hose to a T-piece, which is connected to a hose feeding from their nurse tank to a pump.

The liquid being drawn through the T-piece by the pump creates a Venturi that draws the SE14 in the line and delivers it into their airseeder liquid tank in a diluted form.

Once the required volume of SE14 is reached, it's simply a matter of turning the tap off and topping up the tank with the particular carrier being used.

The seeding program is completed with an 18-metre (60-foot) Ausplow DBS bar set on 25-centimetre (10 inch) tyne spacings and coupled to a 24,000-litre Ausplow Multistream airseeder that holds 6200 litres of liquid, including the SE14.

Mr Jenzen said they learned pretty quickly from initial applications that applying the moisture and retention agent with the seed, rather than below it, was far more effective.

"We have found that putting it with the seed and using a 50L/ha water rate has achieved good results," he said.

First applications with liquid nitrogen also proved tricky due to the SE14 viscosity, but adding the seeding boot liquid shoot in addition to the deep banding shoot then allowed it to be applied at the correct rate.

"We run a 1.2mm green friction flow tube for our SE14, connected to a stainless-steel liquid tube clamped on behind the boot," Mr Jenzen said.

"When we opened the second tap, it was not a problem running it out."

The family has tested different rates of SE14 and decided applications of 2-3L/ha delivered "best bang for buck".

"For canola I'd say 2L/ha works pretty well and for lupins, 2-3L/ha shows not a lot of difference depending on water rates," Mr Jenzen said.

Compound fertiliser used comprises an 80:20 MAP and Muriate of Potash blend, applied at 65 kilograms/per hectare split with 60pc at depth and 40pc with the seed.

Prior to canola sowings, sulphate of ammonia is topdressed at 100kg/ha.

Seeding rates have included 80kg/ha for the less vigorous Sceptre wheat and Spartacus barley, 120kg/ha with oats for export hay, generally about 2kg/ha for canola and 100-120kg/ha for lupins depending upon germination tests and soil type.

"If we are going into country that is not that non-wetting or where we have ploughed, spaded or ripped and we have got SE14 with it, we can skimp back a little on the rates," he said.

❒ Cunderdin grower Nick Jenzen (left), discusses the process for transferring the SE14 from the intermediate bulk container (IBC) into the family's airseeder liquid tank with SACOA western regional manager Damon Fleay.

❒ A trial strip where the SE14 was not applied (on right) in a lupin crop on previously ameliorated sandy gravel soil on the Jenzen's Cunderdin property last season. Mr Jenzen said the difference in plant numbers was massive.

Mr Jenzen said with their confidence in the product and by conducting further trials and expanding their knowledge base, variable rate applications in different paddock management zones could be on the horizon in future.

"We map our soil testing and do similar for chemical analysis, so we have the ability to do that," he said.

"We have started to vary the rate of gypsum and lime and we will continue as we gather more data and the technology is easy to set up."

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