



SEEDING SYSTEMS – CASE STUDIES OF GROWERS IN WA



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Introduction

GRDC invested in the Regional Cropping Solutions Networks (RCSNs) in 2011 with the primary aim to identify local research, development and extension priorities. There are five RCSNs across the western region, which are based on port zones:

- Albany port zone RCSN
- Esperance port zone RCSN
- Kwinana West port zone RCSN
- Kwinana East port zone RCSN, and
- Geraldton port zone RCSN.

The RCSNs comprise a mix of 60 growers and industry professionals who meet formally twice a year to discuss research, development and extension priorities that will improve profitability for grain growers in Western Australia.

At their August 2017 meeting, Kwinana West port zone RCSN members noted that with a tricky start to the season, some growers had managed to successfully establish crops evenly and uniformly across paddocks and this translated to yield at the other end of the season.

So, what was the difference? One way to find out was to identify some of these growers and then ask them what seeding system they were using and why it worked for them. As a result of these interviews, a collection of case studies of growers in the western region documenting real data and experiences was developed.

Twenty-five growers have been interviewed and their experiences have been included in this booklet. We would like to acknowledge the support of these growers in sharing this knowledge, as grower-to-grower sharing is invaluable and is often the best way to adoption of new practices for other growers.

'Seeding Systems – Case Studies of Growers in WA: An Initiative of the Regional Cropping Solutions Network' features 25 case study participants from across the Western Australian wheatbelt. It takes a closer look at the seeding systems these growers are using to help improve crop establishment on their properties. GRDC has captured some of the tips and tricks that growers have adopted to make the decision on what systems work for them.

We hope that this booklet can provide growers in the western region with the knowledge to assess the risks and rewards and have the confidence to try different seeding systems on their own properties.

THANK YOU!

Thank you to each of the 25 growers who shared what they do and why they do it for the broader benefit of the grain growers of Western Australia.



Julianne Hill, Western Region RCSN Coordinator

Featured case study growers

MAP: WWW.NEILCLARK.COM.AU



Going from two seeding bars to one was an upgrade for Nolba grower

SNAPSHOT

GROWERS: Brett and Kirrilee Warr

LOCATION: Nolba

FARM SIZE: 7500ha

ENTERPRISES: Cropping and sheep

GROWING SEASON RAINFALL: 280mm

SOIL TYPES: Predominantly yellow sandplain

2018 CROPPING PROGRAM: 4700ha wheat, 700ha barley, 1000ha lupins and 900ha canola

SEEDING EQUIPMENT: 80-foot (24.4m) Bourgault Paralink™ bar with Root Boots on 12-inch (30cm) spacings, 5-inch press wheel (13cm) and 22,000L Ausplow box



Brett Warr does not believe he has lost any productivity after changing from two older 50-foot and 60-foot bars to an 80-foot Bourgault Paralink bar.

PHOTO: CUSSONSMEDIA

Less is more when it comes to seeding equipment according to Brett Warr, who three years ago transitioned from two seeding bars to one to get through his 7300-hectare cropping program at Nolba.

Brett does not believe he has lost any productivity going from the two older 50-foot (15.2-metres) and 60-foot (18.3m) bars to his new 24.4m Bourgault Paralink™ bar. The new machine has 12-inch spacings, and Root Boots with a 4-inch split and a 5-inch press wheel. The bar width fits well with 12.2m controlled traffic tramlines the Warrs are working on.

The rig includes a 22,000-litre Ausplow box split into five compartments. When sowing wheat, they allocate two for seed, two for granular fertiliser and one for liquid. When seeding lupins, they allocate three compartments for lupins and one for fertiliser.

“We changed from two smaller bars to one bigger bar because I was moving to controlled traffic and just wanted to simplify things – less staff and a lot easier to just control one bar than trying to do two,” Brett says.

“The old bars were completely different too; one was a precision seeder and one wasn’t, so it’s just a lot easier now and we’re probably not getting that much less production, we’re really not far behind where we were.”

LONGER BAR OPTIONS

While it was a big decision to go with one Bourgault bar, Brett did his homework and worked through the options methodically.

“It’s quite hard when you want to go to an 80-foot bar because there’s only a few to choose from, so basically I just found out people in our area who have got those bars, went around, had a look at them working, spoke to the owners and made my choice from there,” Brett says.

“Bourgault were good to deal with – I wanted to do a few tweaks to the machine, going to a wider row spacing so I could go a bit faster and cover more hectares but the company talked me out of it for trash flow reasons, and I can see why now I’ve got the machine.”

ROOT BOOTS

A valuable addition to the bar was putting Root Boots on it, an option Brett went for after seeing them perform well on another rig at Mingeneew.

“Bourgault do make their own splitter boot, but they’re heavy for an 80-foot bar – when you’re folding up and they’re out wide, it adds a lot of weight, plus it’s a heavy bar to start with,” Brett says.

“The main advantage of the Root Boot is the aerodynamics. The soil just flows around so nicely and there’s just not much soil throw, and we still get pretty good seed depth control.

“We’ve done three seasons with the original set of Root Boots, granted it’s been predominately sandplain, but we may need to change them next year (2019).

“The good thing with these boots is you don’t have to replace the whole thing. There’s three parts to the assembly, so I’ve just got to replace one part and we’re good to go.”

ADVANTAGES INCLUDE SIMPLICITY AND PERFORMANCE

Brett reiterates that the main advantage of the new system is its simplicity and performance, compared with the previous two-bar system that needed constant monitoring of seeding depth and operated at slower speeds. He says there is not a lot of difference dry seeding versus seeding in wet conditions with the new Bourgault Paralink™, other than needing to slow down a little in wetter soil.



Brett believes the Root Boot on the Bourgault bar works particularly well on their sandplain soils.

PHOTO: CUSSONSMEDIA

“When dry seeding with the wide boot, I was a bit worried about the sand falling back into the furrow, especially on non-wetting country, and particularly in canola where you’re only seeding really shallow,” Brett says.

“However, we’ve been having awesome establishments, especially last year (2017) was a tough year, the start was horrible, and yet the germination when it eventually did rain was probably one of our best germinations we’ve ever had.”

DEPTH ADJUSTMENTS

Overall, Brett does not see too many disadvantages to his new seeding rig, which due to its size would potentially be difficult to operate in smaller paddocks, something that is not an issue for the Warrs.

“It does have a quick depth adjuster – you’ve just got to turn a tap and the whole bar rises up and you add shims in to change the depth. The only disadvantage is if you forget to turn the tap, it doesn’t lower down, which has happened a couple times, but it’s not the bar, that’s the operator,” Brett says.

“The main adjustments we make between cereals, lupins and canola are just depth really, we change all our rollers and all that sort of stuff in the box, but that’s pretty standard.”

When planting canola, Brett says they are essentially just burying the seed, while in wheat he is always aiming for 40 to 50 millimetres deep, and lupins at 40mm. This approach is partly to ensure the seed is placed under any non-wetting soil in the profile.

SECTION CONTROL

The one thing Brett is looking at adjusting is not so much on the bar itself but the controllers, to reduce the risk of operator error.

“It would be good to have section control, so the bar turns on and

“The main advantage of the Root Boot is the aerodynamics, the soil just flows around so nicely and there’s just not much soil throw, and we still get pretty good seed depth control.”

– BRETT WARR, NOLBA

off on the headlands by itself to eliminate any driver error,” Brett says. “It doesn’t do that at the moment but I’m pretty sure it will next year.

“It’s currently got work switches, but it’s all got to be done manually, whereas if I can have it all computerised, it should eliminate any of that human error.”

HIGH FLOTATION

If another grower was considering moving to a similar system, Brett says his advice would be simple – trust the machine, because it is a good one, and get high flotation tyres. The latter comment comes because the Warrs have been deep ripping and mouldboarding country – 1400ha of mouldboarding in 2018 alone – which can cause problems operating a heavy machine such as the Bourgault.

MANUTECH BAR FOR AMELIORATED SOILS

Initially, the Warrs attempted to use their Bourgault bar on their freshly mouldboarded country without much luck.

“It was no good, too heavy, so we just could not pull it and the whole thing sunk,” Brett says.



The Warrs' rig includes a 22,000L Ausplow box split into five compartments. In 2019 Brett is looking to add section control to reduce operator error. PHOTO: CUSSONSMEDIA

“Also, because there is stubble buried at 50 to 60mm deep, the tynes can grab some of that stubble, and there might be some weed seeds in with that as well, and it wraps around your tynes and makes a bit of a mess.”

So, their approach to seeding country that has just been mouldboarded is to use a different bar for the first season, before reverting to the main bar in following years. However, many hours have been spent in the workshop perfecting their setup.

“It’s a Manutech set-up with Flexi-Coil coil packers and then we run a seeding boot and a press wheel behind that, so there’s no tynes,” Brett says.

“Seed and fertiliser goes down the pipe and drop straight in front of nice, wide press wheels, and we can seed at up to 70 millimetres deep.

“We run that on 12-inch spacings as well, so then next year we can go inter-row sowing and keep all the stubble standing so we don’t have any wind erosion.

“When we first made the lighter rig, we drove out on the mouldboard country and went about 10 metres and were bogged, so we came back to the shed to make a few modifications, went back and had another go, same thing again.

“We spent ages – in the first week we were probably in and out of the workshop every day, four to five times a day, just trying to get it to do what we wanted it to do.

“Now we’ve got it there, it’s awesome – a funny-looking bit of gear, but we love it.”



On their freshly mouldboarded paddocks, the Warrs use a Manutech set-up with Flexi-Coil coil packers followed by a seeding boot and a wide press wheel behind that. . PHOTO: CUSSONSMEDIA

IN SUMMARY

- Ease of management without productivity loss by shifting to one 80-foot bar
- Root Boot works well on sandplain soils
- Modified Manutech with coil packers used for newly ameliorated soils



MORE INFORMATION

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Flexi-Coil bar works well in wet conditions at Walkaway

SNAPSHOT

GROWER: Bruce Garratt

LOCATION: Walkaway, Casuarinas and Northern Gully

FARM SIZE: 4500ha

ENTERPRISE: 100 per cent cropping

ANNUAL RAINFALL: 350mm to 450mm

SOIL TYPES: Red loam (Walkaway and Northern Gully) and sandplain (Casuarinas)

2018 CROP PROGRAM: 1000ha wheat, 600ha canola, 400ha lupins and 350ha oats

SEEDING EQUIPMENT: 46-foot (14m) Flexi-Coil 5000 air drill on 7-inch (18cm) spacings, 3.5-inch (9cm) steel press wheels, knife points and a Primary Sales rubber flex boot and a 33-foot (10m) Ezee-On offset disc bar



Bruce Garratt is looking to upgrade from his Flexi-Coil 5000 air drill to a bar that has improved break out capacity so he can dig deeper in his heaviest country.

PHOTO: CUSSONSMEDIA

Despite achieving good results with his Flexi-Coil 5000 air drill for the past 15 years, Bruce Garratt knows it has some limitations. He is in the process of deciding which bar to purchase and one of the key features he is looking for is improved break out (250 to 275kg) so he can dig deeper in his heaviest country to chase moisture.

The Flexi-Coil bar is on 7-inch spacings, with 3.5-inch steel press wheels, knife points and a Primary Sales rubber flex boot, which Bruce says has been a good system, but admits a new bar will improve his set-up even more, particular with depth control and seed placement.

“We have lots of problems with bending boots, because it’s a four-row bar and in some hard gravel and granite country, being 350-pound (159kg) breakout, it’ll trip out, hit the frame and block off a seeding boot,” Bruce says.

“We are definitely going to change our bar, and digging is the biggest thing — we have big problems if we need to chase moisture, we can’t do it with our Flexi-Coil because we can’t dig enough.”

TYNE SPACING

One thing that will stay the same is the 7-inch tyne spacing, a system he runs for optimal weed control. The theory is, Bruce says, the quicker and thicker crops come up, the fewer weeds germinate.

“We’ve never had a problem with trifluralin, but we don’t seed fast — this year we sped up to about 10 kilometres per hour, from our traditional speed of about 9 kilometres per hour,” Bruce says.

“Trash flow is also really good on our old bar — mind you, seeding starts at harvest time, we cut our crops at beer can height, so then we don’t have problems later in the year.

“We do have some non-wetting sandplain country and having those smaller spacings just helps us mix it up a little bit, so we don’t get the non-wetting all in one spot.”

GOOD RESULTS IN WET CONDITIONS

Bruce says they have generally had good germinations over the 15 years with the Flexi-Coil rig, particularly in wet conditions, although seeding depth is key to that success.

“Between cereals and canola, we just adjust the depth we put the bar in, we don’t change our boots or anything else,” Bruce says.

“We try to sow canola at 10 millimetres, so just covering it — even if some of it’s on top, the steel press wheels will press it in, and don’t seem to damage the seed.

“They also press in the wheat, and we’re looking at a depth of about 20 millimetres for wheat, and the same for lupins.”

“I think if you sow anything over two inches you’re too deep, so I think 50 millimetres is about the maximum depth for seed placement — but not for ripping, if we could rip down to six inches, I think that would be pretty good.”

HEAVY BAR

Bruce has also had problems over the years with the weight of the Flexi-Coil bar, finding that particularly with steel press wheels, it is extremely heavy. It has meant they have had damage to axles after hitting bumps in the road. While acknowledging new bars are even heavier, Bruce believes they are structurally a lot stronger.

“Having more flotation for the tyres will also help spread that weight, and that’s something we’ll be keeping in mind with the new bar,” Bruce says.

To alleviate breakdown issues during seeding, particularly on their rocky country, the Garratts have been running steel 3.5-inch press wheels, a feature they believe they will use on a new bar.

TOW-BEHIND BIN

As his country is quite hilly, Bruce is also considering running a tow-behind bin, rather than a tow-between.

“When we tow the current bar around corners, particularly on heavier country, it will nearly lift the box off the ground. On the majority of corners, it will skid the box around the corner and can break axles and damage tyres and wheel bearings,” Bruce says.

RIGID BOOTS

Bruce says the new bar will also enable a change in seeding boots to a more rigid model to get better seed placement.

“We’re currently running a Primary flex boot, 38 millimetre with a kick on the tail, and they’re a good boot but we can’t stop wrecking them – our bar is 46-foot at the moment and we would easily go through 60 a year, we’d probably put nearly a full set on annually,” Bruce says.

“That’s not because they’re any problem, I think it’s because they’re hitting the bar, so if the next bar is going to do the same sort of thing, I’ll run a steel closer and a steel boot.”

DECIDING WHICH BAR TO CHOSE

Bruce says while his present bar has worked well over the years, he has been talking to plenty of others in the industry to see what bars are out there.

“I think field days are a great thing, and we talk to lots of people – you can’t beat experience really – we’ve already been talking for the last few months to different farmers, and we’ll have a look at their systems and see how they go,” Bruce says.

“Everybody’s got a different idea, everybody thinks their bar is the best set up and the best way to go – and it probably is for them, every farm is different.”

Bruce says he is not set on any particular brand for the new bar, making the point that he runs a Morris box, Flexi-Coil bar and a 33-foot (10m) Ezee-On offset disc bar for paddock clean-ups and sowing oats, showing he is comfortable selecting the brand that suits the situation best.

“Everybody’s got a different idea, everybody thinks their bar is the best set up and the best way to go – and it probably is for them, every farm is different.”

– BRUCE GARRATT, WALKAWAY



The Garratts also run a set of Ezee-On offset discs on 10-inch spacings with coil packers behind as a weed management tool on their sandy soils. While they predominantly sow oats for sheep feed with this bar, they have also used it successfully to sow lupins.

PHOTO: CUSSONSMEDIA

EZEE-ON DISC BAR

The Garratts also run a set of offset discs on 10-inch spacings with coil packers behind as a weed management tool on their sandy soils. While they predominantly sow oats for sheep feed with this bar, they have also used it successfully to sow lupins. Bruce describes the depth control as being a bit sporadic; however, they have set their fan speed and boot direction so they can achieve a sowing depth of between 10 and 20mm.

“We try and disc in paddocks we’ve been cleaning up and sorting out that have got lots of pussy tail and flannel bush, and then we put oats in just so there’s sheep feed,” Bruce says.

“Then we’ll sow lupins into it next year with discs again to cut it all up and then it’ll probably go back into oats and then the paddock might come back into production.

“It’s also good if we’re having blocking problems – if we went into lupins and didn’t do our melons properly, or we had a problem when we were sowing lupins, we would not hesitate to get that bar out and just sow all our lupins with it, which we did for years.



To alleviate breakdown issues during seeding, particularly on rocky country, the Garratts have been running steel 3.5-inch press wheels, a feature they believe they will use on a new bar.

PHOTO: CUSSONSMEDIA

“You also get a mixing effect with the non-wetting sand; it changes the paddock, but if you get a blow, look out, you’re in trouble.”

To minimise the erosion risk, Bruce runs coil packers behind the offsets to reduce wind erosion and give some protection to the germinating lupins or oats.

IN SUMMARY

- Steel press wheels limit maintenance in rocky country
- Tow-behind bin may have a better fit in hilly country
- 7.2-inch spacing works well



MORE INFORMATION

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Equalizer seeding bar fits the bill on sandplain country

SNAPSHOT

GROWER: Ian Broad

LOCATION: Mingenew and Tardun

FARM SIZE: 7500ha

ENTERPRISES: 100 per cent cropping

ANNUAL RAINFALL: 300mm

SOIL TYPES: Yellow sandplain, red soils and gravels

2018 CROP PROGRAM: 3050ha wheat, 1550ha lupins, 580ha canola and 580ha serradella

SEEDING EQUIPMENT: 60-foot (18m) Equalizer with 12-inch (30cm) spacings with a John Deere cart in front



Ian Broad has been particularly pleased with the depth control of his Equalizer in its first year and believes it does not cause as much furrow fill as some other bars.

PHOTO: CUSSONSMEDIA

Farming north of Mingenew in the Mullewa Shire on mostly yellow sandplain country, Ian Broad was keen to upgrade his seeding bar to improve performance on the softer soils. Previously the Broads had been running a John Deere Air Hoe Drill, but were not getting the results they wanted on the sandplain country, and also found they were not able to chase moisture as effectively as they wanted. As they do a lot of spading and ripping, Ian Broad says he wanted to go to a parallelogram system. As a result, in 2018 he turned to a 60-foot Equalizer seeding bar out of South Africa with a John Deere cart in front.

“The depth control on this bar is very good, it’s easy to change and with this press wheel system, you don’t get as much furrow fill as you would with a lot of other bars,” Ian says.

“Nothing’s really designed for sand in the world because no one else has got sand like us, no one bothers to farm it, so we think this is a good system.

“We’ve got a range of soil types, but in the sand country we’re still happy with the performance of the Equalizer — you’ve always got to learn in the first year of the bar and we’ve made some mistakes but, on balance, my son and I are pretty happy.”

CHANGING BOOTS

One thing Ian noted in 2018 was the boots on the Equalizer did not function as well as he had hoped in wet conditions, so they are looking at changing the boots.

“The design of the current boot meant it was blocking with sand from below, so it was just building up and giving us pain,” Ian says.

“Next year we’ll either go with Agmaster or Stiletto boots probably, we’re going to look at both of those — I’ve got a neighbour next door who had a good result with the Agmaster and we’ve used Stiletto before, so we know what we’re dealing with there.”

In addition, the Broads are looking at transitioning from a single-shoot boot system, which they have had good results with in the past, to a double-shoot system.

“The idea is to get the fertiliser away from the wheat especially, to avoid any toxicity issues,” Ian says.

“We’ve had no problems with toxicity in lupins because we pre-spread fertiliser in that situation, we wouldn’t sow fertiliser with lupins.”

Otherwise, Ian has found year one with the Equalizer to be a success, although there has been some fine-tuning during seeding, including changing tyre pressures to improve seeding depth consistency.

“In really soft spaded country, the second wheel in was sinking a bit, as it had a bit more weight for what its flotation is, so we ended up taking a bit of pressure out of the tyre and also putting some extra blocks in there to try and level the bar a bit better, and that’s now all in hand,” Ian says.

“Obviously you can also change the pressures on the tynes, which is pretty handy, you can go into rocky country and you’re supposed to be able to just let it off a little bit, but then you’re not going to get into ground either, so we’ve decided to leave it at the recommended mid-range level, and it seems to be the way to go.

“The bar has delivered good ripping this year. I’m able to dig probably six, seven inches underneath the seed and things just shot away, the lupins look really good.”

JOHN DEERE AIR CART

The new John Deere air cart has also performed well in year one; Ian says it has a good filling set-up.

“It’s really delivered good accuracy, it’s a nice machine and has also shown good flotation with the dual tyres,” Ian says.

“We had a Simplicity before that, which was also good, never let us down, but we like this one.”

EQUALIZER ADVANTAGES

As Ian had hoped, the best feature of the bar has turned out to be the parallelogram system, while the easily changed depth and press wheel performance in sand have also been highlights.

“It’s a very good set up I think, I like the way it’s built, the fact that we can go into the tough stuff and it just does the job,” Ian says.

“I would also say the bar’s built very strongly, the strongest bar I’ve ever seen.

“It’s designed well and built well, I think — where we put in some really tough country, like Tardun, it loved it.”

“Nothing’s really designed for sand in the world because no one else has got sand like us, no one bothers to farm it, so we think this is a good system.”

– IAN BROAD, MINGENEW

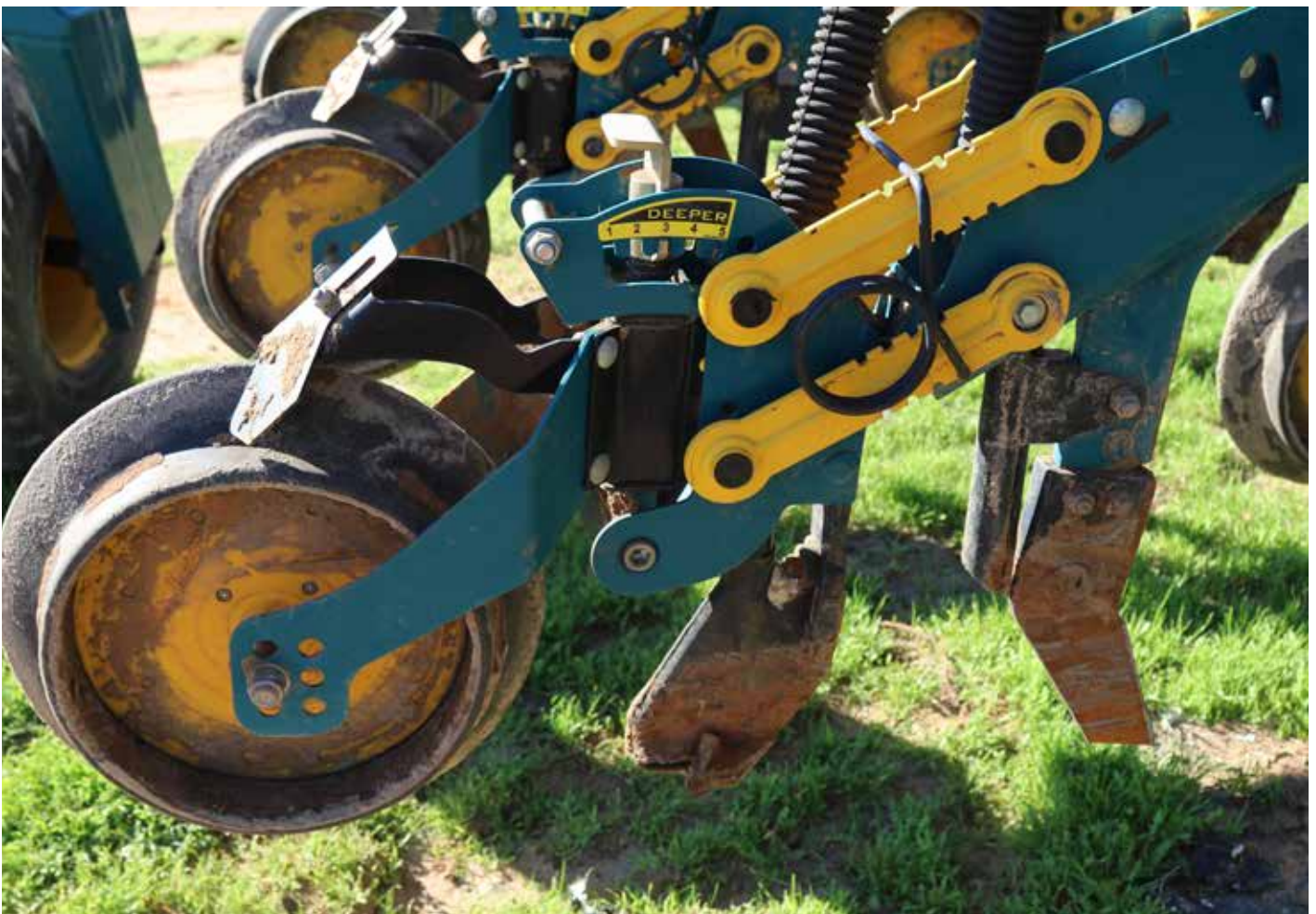
IN SUMMARY

- Reduced furrow fill on the sand
- Strong bar with good depth control
- Looking to change to Agmaster or Stiletto boots



MORE INFORMATION

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In its first season the Equalizer boot had some blocking issues, so in 2019 the Broads are considering replacing them with an Agmaster or Stiletto boot.

PHOTO: CUSSONSMEDIA

John Deere 60-foot bar is a good compromise at Mingenew

SNAPSHOT

GROWERS: Allan and Sandy More

LOCATION: Allanooka

FARM SIZE: 1953ha (owned) 1900ha (leased)

ENTERPRISES: 100 per cent cropping

GROWING SEASON RAINFALL: 345mm

SOIL TYPES: Light sandplain

2018 CROP PROGRAM: 2037ha wheat, 200ha canola, 1440ha lupins

SEEDING EQUIPMENT: 60-foot (18.3m) John Deere Air Hoe Drill with 12-inch (30cm) spacing, John Deere cart, Stiletto points

After the More family had an opportunity to increase its cropping operation at Allanooka, it also decided to upgrade its seeding bar to cover the extra country. However, the decision did not come easily, as the previous seeding bar, a 40-foot DBS, while old, was hard to part with as it did deliver good seeding depth control.

“Because the DBS was older and it was needing to be changed, that’s what we did,” Allan More says.

“And when we looked around at the neighbours, most of them are using the same bar as we are using now, being a 60-foot John Deere bar and a John Deere cart on the front.”

STILETTO POINTS

2018 was the Mores’ fourth year with the John Deere bar and cart, set up with 12-inch spacing.

“One of the advantages of the wider spacing is you don’t have as many tynes but you can still put a point on to spread the grain out,” Allan says.

“We’re using Stiletto points which do spread the seed a bit and if you’re at a foot spacing, then at least it brings it down to nearly 10 inches.

“The points seem to wear well, and so while they are simple things I mention, they have been an advantage.”

DEPTH CONTROL

While the Mores were worried about letting go of their old DBS given its good depth control, Allan says the reality is they are still confident of achieving good crop establishment in marginal moisture with the John Deere bar.

“There is also good depth control on the back of the John Deere bar – you can select a depth and because of the width of the bar, it tends to follow well and keep its depth, and that’s a plus,” Allan says.

“It’s consistent across the bar, provided that the soil is level in the first place, but of course if there’s hollows or high bits, you know exactly what can happen but, I would give it a plus, yes.”

Aside from adjusting the seeding depth, Allan says there are plenty of other settings on the machine that take some time to get right when moving between cereals and smaller seeds like canola – but once it’s been done a few times, it is an easy process to follow.



The More family upgraded from a 40-foot DBS to a 60-foot John Deere bar to increase their capacity to cover additional land.

PHOTO: CUSSONSMEDIA

POOR PRESS WHEELS

The ability to cover more country with the John Deere has also been a great advantage, Allan says, but he does say the new bar is not perfect.

“We’ve found it has very poor press wheels in the back, which are costly to keep,” Allan says.

“You get one or two years to begin with on a newer machine, but then you’ll soon find out the press wheels don’t last too long.

“We’re not happy with the press wheels because they are high maintenance and once they’re damaged, you just about have to take the whole thing to bits to put another rubber tyre on, but John Deere are still making the same pressed wheels today as the ones we bought.

“People do use different press wheel options, so you just have to look around.”

DBS COST PROHIBITIVE

Allan says it would be difficult to know what advice to give anyone looking at a similar system, other than to say he does not believe there is anything wrong with their seeding set-up, including the John Deere air cart. Allan says they have not had any problems with the new air cart, and having had older equipment previously, he has found the new air cart to be well in front. Having said that, if he could ‘wave a magic wand’, he says the Mores would be tempted to return to a DBS bar.

“I say that because we’ve had good results with a DBS previously, but money comes into it and I understand DBS is nearly twice the cost of some of the John Deere equipment,” Allan says.

“John Deere works, but we’ve found it’s not as sophisticated as a DBS bar.

“John Deere works, but we’ve found it’s not as sophisticated as a DBS bar.”

– ALLAN MORE, ALLANOOKA

“What has been good with John Deere has been the level of support they’ve given – we’re close to Geraldton here, and John Deere is one of the bigger dealers around.

“John Deere gives good service, they’ve got good service people, and they’re well trained – it’s a good situation to be in.”

IN SUMMARY

- Stiletto points work well
- Press wheels are poor
- DBS is cost prohibitive



MORE INFORMATION

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Using Stiletto points on the 60-foot John Deere bar has in effect reduced the Mores’ 12-inch row spacing to 10 inches.

PHOTO: CUSSONSMEDIA



The Mores find the John Deere bar press wheels to be high maintenance and difficult to add new rubber when required.

PHOTO: CUSSONSMEDIA

Ripping below the seed with DBS to get capillary rise is the key at Latham

SNAPSHOT

GROWERS: Mark and Suzanne Wilson

LOCATION: Latham and Dalwallinu

FARM SIZE: 4800ha

ENTERPRISE: 100 per cent cropping

GROWING SEASON RAINFALL: 200mm (Dalwallinu)

SOIL TYPES: Medium soils (Dalwallinu) and wodjil soils (Latham)

2018 CROP PROGRAM: 4200ha wheat, 230ha lupins, 165ha canola and 160ha chickpeas

SEEDING EQUIPMENT: 60-foot (18.3m) DBS, Pro-D set-up, 3.5-inch (90mm) press wheels with 45mm closing tool and a 22,500L Multistream bin in front.



Mark Wilson believes the ability to dig deep with his DBS is extremely important to capture the benefit of summer rain by improving the capillary rise of the soil. PHOTO: CUSSONSMEDIA

The year 2002 was memorable for Mark and Suzanne Wilson, as it was the year they bought their first DBS. In drought conditions, they managed to get 90 per cent of their crop established on 5mm of rainfall, which Mark believes was an extremely good result in the circumstances.

“We’ve now upgraded our old DBS to a new, wider one, with a Multistream bin where we’re able to put nitrogen and trace elements out through the liquid system, and we are also using slightly wider press wheels and closing tools,” Mark says.

The Wilsons changed to a wider press wheel to reduce the depth of the trenches, particularly in wet soil, thereby reducing the risk of furrow fill causing germination issues. As a lot of their program is dry, it is important to the Wilsons to have certainty around seeding depth to ensure they are not sowing too deep.

“The DBS has a very good system of germinating seeds through the way the seed is actually put into the centre of the furrow, and then the press wheel presses on the outsides so that no soil above the seed is actually compressed, giving it much better, softer soil at the surface for the coleoptile to get through,” Mark says.

CAPILLARY RISE

Mark believes the ability to dig with the point is extremely important to capture the benefit of summer rain by improving the capillary rise of the soil.

“We’re finding that crops will germinate if there’s water down below, and if we can actually get the point down to seven or eight inches, then we are getting water rising back up through where the point has been,” Mark says.

“Last year (2017), we had early rainfall and the water was probably at about four to five inches, but we didn’t get deep enough to get that water coming up enough into the profile to actually germinate the seed.

“It was close, and some of it did germinate, so we got patchy germination, but probably still only 10 per cent.”

NUTRITION

Over time, the Wilsons have changed their approach to applying nutrients. They now strongly believe they need to set the plant up to achieve its potential, rather than limiting it by not providing enough nutrition in the beginning. Wheat is generally sown at 40 to 50kg/ha at a depth of 15 to 20mm and with between 40 to 80L of urea ammonium nitrate (UAN) and 1kg/ha of zinc below the seed. If the start to the season is dry and/or late, the Wilsons lift their standard seeding rate of 40kg/ha to 50kg/ha.

“We’re banding the fertiliser, we’re putting 25 per cent of the fertiliser with the seed, and 75 per cent below the seed, so it basically means right from the start that the roots going down can access that,” Mark says.

“If we don’t get a very good start, we’ve at least got fertiliser close to the seed so the plant can actually get a go at it.”

DIFFERENCES WITH THE NEW DBS

In addition to moving from a 10-inch to a 12-inch row spacing, one of the key differences Mark has noticed in the past two years with the new DBS is the new Pro-D setup. He believes the area where the point fits the bottom of the tyne is much bulkier than his older version.

“What we learned was that we need to actually put the points further into the ground, which gets that bulky area out of the ground and doesn’t create such a big trench,” Mark says.

“So, next year (2019) we’re going to actually have the points down but lift the machine up, so you get that bulky area around the top of the point away from the soil, so it’s not actually throwing the soil as far.”

The addition of the new Multistream bin meant some new challenges too, particularly trying to add manganese to their UAN and zinc.

“Because we bought a new Multistream bin as well, we are now putting liquids on and last year (2017) we tried to put manganese out with the UAN and zinc, and it didn’t go so well, as the manganese just didn’t mix with the UAN and zinc,” Mark says.

“So, this year we just went with the zinc, and then with our foliar spraying we’re putting a lot of manganese on now, as we found that we’ve induced a manganese deficiency over some of the crops from applying a lot of lime.”

HALF WET, HALF DRY

Mark says a disadvantage with the DBS is when it is seeding in a half wet/half dry scenario, as the soil mixes and results in a reduced germination.

“The problem is the DBS actually mixes up the wet/dry boundary, but because it’s half-dry, half-wet, that means generally it’s wet underneath, so we will get capillary rise coming up,” Mark says.

“The way around that is to sow about a centimetre deeper.

“But, if we get warm weather during that half-dry, half-wet, and it dries out on top, and then we don’t get a good follow-up rain, that’s when it’s a little bit risky that we get a little bit less germination, so generally in those situations we just lift the seeding rate to 50kg/ha.”

“One thing I’ve found since going from a 36-foot DBS to a 60-foot DBS, this machine does actually wander more off the rows than what our old machine did.”

– MARK WILSON, LATHAM

AVOIDING BLOCKAGES

The Wilsons have had some head blockages with their new machine, and with the shift to wider row spacing a blocked run now leaves a gap of 600mm. They now check their machine about every two hours. In the future, they may put a head monitor system on the machine.

“This year (2018) we did have one blocked head, but fortunately it was only for about six runs, because we had been checking frequently. But it was on chickpeas, and chickpeas is a little bit like trying to put blue metal through your air seeder, it just won’t run down the pipes because of the shape of the seed,” Mark says.

“To solve that, we were actually running all the air, fertiliser and seed through the one set of hoses so that we could get better air-flow and faster air-flow as we found that speeding up the fan just wasn’t cutting it for some reason.”

PROTRAKKER

In addition to a head monitor system, the Wilsons are considering adding a ProTrakker hydraulic hitch to improve the tracking of their bar. This will give them the ability to near-row seed, something they have done successfully with their older bar for many years.

“One thing I’ve found since going from a 36-foot DBS to a 60-foot DBS, this machine does actually wander more off the rows than what our old machine did,” Mark says.

“So, even though the tractor is pulling it straight, if it gets a hard piece of dirt on one side of the machine, the machine will yaw more easily than a narrower machine.”

IN SUMMARY

- Ripping to promote capillary rise is important
- Pro-D setup is bulkier than older systems
- Sow deeper and with heavier seeding rates to get around wet/dry conditions



MORE INFORMATION

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The Wilsons changed to a wider 3.5-inch press wheel to reduce the depth of the trenches, particularly in wet soil, thereby reducing the risk of furrow fill causing germination issues.

PHOTO: CUSSONSMEDIA

Seeding bar strength critical at Wongan Hills – but at a good price

SNAPSHOT

GROWER: Lawson Grains

LOCATION: Wongan Hills

FARM SIZE: 10,770ha

ENTERPRISES: 100 per cent cropping

ANNUAL RAINFALL: 400mm

SOIL TYPES: Deep white sand through to red heavy clay

2018 CROP PROGRAM: 4000ha barley, 2600ha wheat, 3600ha canola, and 750ha lupins

SEEDING EQUIPMENT: 2 x 40-foot (12m) Equalizer bars on 11-inch (28cm) spacings with Multistream bins



A key requirement when Lawson Grain's Wongan farm manager Aaron Falconer planned to upgrade their bars was to purchase a strong bar that would fit in with their 3m controlled traffic centres.

PHOTO: CUSSONSMEDIA

After having some trouble with fatigue on seeding bar frames, Lawson Grains' Wongan farm manager, Aaron Falconer was keen to purchase a new bar with a strong frame at a good price.

In addition, the bar needed to fit in with their 3-metre controlled traffic centres. It all added up to an investment in 2017 in two, 40-foot Equalizer bars and Multistream bins. The bars have 11-inch spacings, with a splitter-boot on each tyne, that splits between two and three inches.

"We purchased this system mainly due to our controlled traffic system with 3m centres, and the flotation with the big wheels on the Equalizer bar was also very appealing," Aaron says.

"The 12m bar width keeps everything in line with our controlled traffic system with the 12m header fronts – the booms are 36m, the seeders are 12m, so it's all just multiples."

Lawson Grains has had the Equalizers for two years, with the first season (2017) not producing the results it wanted, but year two has been much improved.

"In 2017, we didn't think the establishment was very good, but when we looked across the fence it was the same as everybody else's, the result was really just to do with moisture," Aaron says.

"This year, it's sensational, we've put it all in dry, and it's come up everywhere so the numbers are exactly where we want them to be, so it's really good so far. I just think with the controlled traffic, we're getting softer soils so the tynes are working deeper, the press wheels are working better, and because the soil's softer the seeding boot is getting a better placement as well."

DRY SEEDING

That placement is critical to the success of the Lawson Grains seeding operation at Wongan, Aaron says, because the size of the program means most years it is predominantly dry sown.

"We purchased this system mainly due to controlled traffic with 3 metre centres, and flotation with the big wheels on the Equalizer bar was also very appealing."

– AARON FALCONER, WONGAN HILLS

"We try to start first to second week in April putting the canola in, followed by the lupins at around Anzac Day, and then basically May is just all cereals, depending on varieties we want to put in – we start with barley, then change to wheat, then back to barley, then wheat, depending on varieties," Aaron says.

"Seeding rates for canola are anywhere between 1.8 to 2.8kg/ha, lupins are about 100kg/ha, barley 65kg/ha and wheat around 80kg/ha, depending on varieties."

In perfect wet conditions, Aaron says they will seed up to 10km/h, while in sandy and deep-ripped country they slow down to around 6km/h, just to stop soil throw and furrow fill.

ADJUSTMENTS ARE EASY

Aaron says they use the same tynes, points and seeding boots for all crops, so the seeding bars require minimal changes between the different crop types. Those adjustments they do need to make, he says, are an easy process.

"We dig the same depth for every crop, about four to six inches, depending on soil type, and the only change that we do is the seed placement," Aaron says.

"It's only a little bar on the back of each seeding module that you push down and move to a new setting, so to change all tynes on the whole bar it takes 10 minutes, it's very easy."



Lawson Grains uses the same tynes, points and seeding boots for all crops, so the seeding bars require minimal changes between the different crop types.

PHOTO: CUSSONSMEDIA

“The canola we try and seed to around 10mm, lupins we try for around 40mm, and wheat and barley are around 30mm.”

MAINTENANCE

Also easy, Aaron says, is the maintenance required for the Equalizers, which is minimal.

“There are grease nipples all over the bar, including the tynes, which are meant to be done once every day but we push that out to every two or three days – we do a bit of a routine with the two bars, it’s very easy,” he says.

“Other than the seeding boots, we haven’t had to do too much maintenance at all with them yet – just the usual check tyre pressures and grease everything up.”

EQUALIZER ADVANTAGES

Having used both Conserva Pak and DBS bars in the past, Aaron believes their Equalizer bars are a good middle ground.

“The Conserva Pak was very good at establishment and we found the DBS to be very good strength-wise,” Aaron says.

The advantages the Equalizer bar offers, according to Aaron, are price and frame strength. In addition, he has found the coulter discs on the front to be “probably the best in the market”.

“There are hydraulic coulters on it, which are good just to get rid of a few summer weeds like Caltrop vines and also we do have a few blockage issues in canola stubble, so the coulters do a pretty handy job there,” Aaron says.

ROOM FOR IMPROVEMENT

While Aaron does not think there are any disadvantages to the bar, he does admit it is not all upside. For example, they have been having some issues with tube out the top of the seeding boot cracking and snapping off. More generally, Aaron also says they would like to improve the air system on the bars.

“We go through a lot of primary hoses, and I would also like to get more Flexi-N down the tube,” Aaron says.

A key feature of their bar is the Equalizer liquid tank, which sits on the A-frame of the bar. This 4500L tank allows them to deliver 55 to 60L/ha and the feature works so well that Aaron would like to replicate it.

“We’d like more tanks, more liquid down the tube – we’re doing about 55 to 60L/ha, which we’d like to get up to 80 to 90L/ha, but we just haven’t got the capacity,” Aaron says.

“We can get water tanks, but Flexi-N’s obviously heavier, so we can’t put them on the bar, so it’s something we’re dealing with.”

IN SUMMARY

- Equalizer has accurate seed placement
- Seed depth adjustments are easy
- Hydraulic coulters are excellent



MORE INFORMATION

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The Equalizer bars have hydraulic coulters, which Aaron says are particularly handy to manage summer weeds such as Caltrop vines and to prevent blockages in canola stubble.

PHOTO: CUSSONSMEDIA



Lawson Grains at Wongan Hills operates two 40-foot (12m) Equalizer bars to fit in with their 3m controlled traffic system.

PHOTO: CUSSONSMEDIA

Finely tuned seeding system paying dividends at Wongan Hills

SNAPSHOT

GROWERS: Brad West, Robert and Peter Sewell

LOCATION: East Wongan Hills

CROPPING AREA: 14,800ha

ENTERPRISES: 100 per cent cropping

GROWING SEASON RAINFALL: 280mm

SOIL TYPES: Sandy loams and gravelly loams

2018 CROP PROGRAM: 7000ha wheat, 4200ha canola, 1600ha barley and 2000ha lupins

SEEDING EQUIPMENT: 2 x 60-foot (18m) D-260 Series DBS on 10-inch (25cm) spacing, 3.5-inch (90mm) press wheels and 2.5-inch (65mm) closing tool with Pro-D system and Morris Air Cart



Brad West says key advantages of their DBS bars are their strength and that it is a locally built machine so it is easy to access parts when required.

PHOTO: CUSSONSMEDIA

With a significant cropping program east of Wongan Hills to put in each year, Brad West knows he has to have seeding equipment that is well prepared and ready to perform. The growers run two 60-foot D-260 Series DBS bars on 10-inch spacing, with 3.5-inch press wheels and a 2.5-inch closing tool. They also run the Pro-D system, being a 9-inch point with a splitter boot for the cereals and legumes and a bendy boot for canola.

“We sowed our canola one year with a standard boot and that wasn’t that great, so then we went to the new canola boot, which fixed that problem to the point where we have reduced our seeding rate because it’s too thick,” Brad says.

“1.8kg/ha is our common seeding rate now on our GM canola and then if we’re putting in ATR Bonito^{dl} or triazine tolerant (TT) canola, it’s usually around 2.5kg/ha.

“Seeding rates for wheat and barley is around 70kg/ha and legumes is 100kg/ha, while seeding depth on canola is anywhere between 5 to 10 millimetres, and cereals around 10 to 15 millimetres.”

FRICTION TUBE SYSTEM

The seeding rigs include Morris air carts, with liquids and two compounds through full variable rate technology via a Trimble unit. Variable rates with the UAN are 70 to 140L/ha, and the compound fertiliser is between 65 to 120kg/ha, depending on yield map data.

“We use a friction tube system for our UAN, designed by Furrow Management Systems, purely because there’s no blockages in the new system, whereas the old system failed with orifices and used to block all the time,” Brad says.

“It’s pretty simple, it works on friction – there’s a whole myriad of twists in it, which restricts the flow so you get back pressure, and

that’s usually why the old system had orifices, to create that back pressure, and we don’t have that so there’s no blocks.

“Seed separation is usually 3 to 4cm, and we haven’t had any toxicity issues at all, even at 140L/ha of UAN.”

RIP TO SEVEN INCHES

When seeding, Brad says they effectively rip to 180mm, although they also have a separate deep-ripping program where they rip to 350 to 400mm.

“We don’t think we can do that process all in one, seeding and deep ripping at the same time just wouldn’t work for us, primarily because deep ripping is a tough job and you break stuff and down time during seeding is just not an option,” Brad explains.

“We don’t have to rip too deep because we know where the hard pan is – we’ll go out and do compaction tests and dig pits to find out where that compaction layer is before we rip so we know what we’re doing, and then we’ll rip that paddock to the depth that it needs.”

“We use a friction tube system for our UAN, designed by Furrow Management Systems, purely because there’s no blockages in the new system, whereas the old system failed with orifices and used to block all the time.”

– BRAD WEST, WONGAN HILLS



With each machine sowing 7000ha dry in 2018, Brad was really happy with crop establishment, which he puts down to good depth control and accurate seed placement.

PHOTO: CUSSONSMEDIA

DBS ADVANTAGES

While not wanting to use the seeding bar to deep-rip country, Brad does say a key advantage of their DBS bars is the strength of the equipment. It is something that has been highlighted in tough conditions over the past two seasons (2017/18), where the program was put in 90 per cent dry.

“Each machine did 7000ha this year (2018) dry, and 500ha each wet, and there’s no failures, no breakages,” Brad says.

“On top of that, we got good establishment in those dry conditions, which I put down to good control. It’s all about depth and seed placement.”

In addition to the strength of the DBS, Brad says they also value that it’s a locally built machine.

“Boekeman Machinery is our local dealer, and if they don’t stock the parts, I just drive to Perth to get them, simple as that,” Brad says.

“We start seeding with everything well serviced and ready to go, with parts on hand if we do have breakages, and at the end of seeding, the machines are obviously cleaned down, serviced, packed away ready to start next year.”

LESSONS LEARNT

While it is obvious their system is working well, Brad does admit there have been a lot of lessons learnt over the past 10 years they have had the bars, the main one being to set the machines up right for the task at hand.

“For example, planting canola’s totally different to planting cereals and legumes – you’ve got to be all over it,” Brad says.

To maximise canola establishment, RI and EJ Sewell use a canola boot and ensure the closing tools are set at the correct depth.

PHOTO: CUSSONSMEDIA



“So, the canola boot has been pretty key, as has making sure all the closing tools are set to the right depths.

“It’s pretty much self-explanatory really, plus the manuals are good and the website has more information if needed.”

One thing to watch with the DBS, Brad says, is that trash flow can be an issue, although he believes that all comes down to good management at harvest time through cutting short, chopping and spreading the stubble.

Another key component to the success of their seeding operation is having a capable pool of staff. Brad says they bring a crew in from New Zealand every year and look after them well.

“I just pay them a good wage and fly them over, fly them back, and then feed them, look after them, it’s as simple as that – they’re only here for six or seven weeks, so you just look after them while they’re here, and they keep coming back,” Brad says.

LOOKING FORWARD

With one of the bars now being 10 years old, Brad says they will be looking to move it on as part of the rotation of machinery. However, he will not be changing anything about their seeding system.

Brad says they would not consider going to one larger bar rather than the two 60-foot bars, as he says they could not get their seeding program completed in the right time.

“There’s a timeframe to consider – I like to get it all in before 26 May and we’re now starting on 16 April to make that happen – that’s early enough, because if I went to one machine, it just pushes out for too long,” Brad says.

IN SUMMARY

- Canola boot aids establishment
- Friction tube system stops blockages
- Trash flow management starts at harvest



MORE INFORMATION

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RI and EJ Sewell run two 60-foot DBS bars to sow just under 15,000ha with the aim of finishing the program before 26 May.

PHOTO: CUSSONSMEDIA

Moisture Manager bar is delivering moisture retention at Mukinbudin

SNAPSHOT

GROWERS: Trevor and Ian Shadbolt

LOCATION: Mukinbudin

CROPPING AREA: 4300ha

ENTERPRISES: Cropping and livestock

ANNUAL RAINFALL: 250 to 275mm

SOIL TYPES: Clays

2018 CROP PROGRAM: 4040ha wheat and 260ha barley

SEEDING EQUIPMENT: 46-foot (14m) Moisture Manager™ seeding bar on 12-inch (30cm) spacings, with a Flexi-Coil 2320 box.



Trevor Shadbolt (pictured) and his brother Ian firmly believed that if they did not transition from their old Flexi-Coil to a bar that more efficiently managed moisture, it would have been the end of their farming careers.

PHOTO: CUSSONSMEDIA

Trevor Shadbolt admits if he and his brother Ian did not transition to a seeding bar that used and controlled moisture in a drying climate more efficiently than their old equipment, it would have been the end of farming for the family.

However, after Ian came across John Baker's Inverted-T point, from Massey University in New Zealand, they were convinced by its ability to retain moisture in the soil. After some research, the Shadbolts found Endure Agri Solutions in New South Wales were using the Inverted-T points in their Moisture Manager™ seeding bar, and after seeing the machine working they decided to purchase one.

UNIQUE FEATURES

Trevor says the Moisture Manager™ is unique in that it is the only type of design where the parallelogram, breakout tyne pressure and press wheels are all independently hydraulically controlled on the move from the tractor cab.

He says the Inverted-T point is also unique as it does not wear from the bottom-up like most tynes, where operators have to keep readjusting depth. Instead, it wears from the front to the back, so the winged shape of the point is retained throughout the life of the point. Trevor explains that the main benefit of the Inverted-T design is an ability to retain more moisture.

"When the knife point travels through the profile, it just breaks out and shatters soil everywhere. However, with the design of the Inverted-T point, it's a bit like water flowing around the bow of a boat, it doesn't just bust out, and so doesn't dry as much," Trevor says.

"Also, when you have a wing on a point, the size, the angle at the front, all of that matters in regards to soil flow, and they did enough trials to work out the ideal design.

"John Baker and his team worked out what the ideal seeding environment was to get a seed to germinate, and then created the point around that."

MOISTURE MANAGER™ ADVANTAGES

The Shadbolts have had the Moisture Manager™ since 2013, with Trevor summing up the benefits of the machine as follows: 45 per cent due to the design of the bar, including strength and weight, which allows it to hold the tynes in the ground; and another 45 per cent due to the impact of the Inverted-T point design. He says the last 10 per cent is the size of the boot and its position behind the Inverted-T point, which helps place the seed where it needs to be.

Having previously operated a Flexi-Coil bar, Trevor says they have found the Moisture Manager™ to be better in terms of trash flow.

"It's still the same one foot spacing, but some of it is simply the spacing between the tynes, as in from the front row to the back row – the Moisture Manager™ is only two rows, which helps," Trevor says.

"Also, we've got the disc cutting through trash – having that straight coulter on your front drum, you can go through melons or thick stubble or whatever, and it sorts it out quite well."

MAXIMISING YIELD IN TOUGH CONDITIONS

Trevor believes their bar is achieving what they set out to achieve – getting better establishment in more marginal seasons. In 2015, they did a comparison with their neighbours who operate a Flexi-Coil, the

"If we kept going the old way, we'd struggle to be viable, but having a machine where we can become more efficient, we can handle the dry years a bit better."

– TREVOR SHADBOLT, MUKINBUDIN



On the Shadbolts' Moisture Manager™ bar, the parallelogram, breakout tyne pressure and press wheels are all independently hydraulically controlled.

PHOTO: CUSSONSMEDIA

same bar as the Shadbolts had previously. They sowed neighbouring paddocks in similar conditions to see how the two machines compared, with the Moisture Manager™ coming out on top with a 2 to 2.7t/ha crop, while the neighbour's crop was around 1.4t/ha.

They were also involved in useful trial work the same year, when Endure Agri Solutions asked to do a demo on the Shadbolt property when seeding had stopped in May due to dry conditions.

"In that particular 20ha demo, our seeding depth was down around 4 to 5 inches and it all came up really well when everyone else in the district had stopped due to the dry conditions, and that plot ended up going about 2.1 to 2.2t/ha," Trevor says.

"Being able to capitalise on the machine's breakout pressure and precision to be able to put that seed in and achieve that result in dry top soil when the moisture is deep is a huge advantage.

"This machine weighs about 26t and you can go up to the equivalent of about 1200-pound (545kg) breakout, so no matter what soil type is in the paddock, you can hold the tynes in the ground, which is good."

Trevor believes that with seeding equipment often requiring a large investment, there needs to be a sound business case behind any purchase.

"If you're going to spend \$500,000 on a machine, it's got to be a business investment, not just wanting a new one," Trevor says.

"We wanted to see that there was a yield advantage in the Moisture Manager™, and now knowing we can sow earlier and get a better germination in dry conditions, we have seen a fairly significant yield advantage in it, and that's where it counts.

"If we kept going the old way, we'd struggle to be viable, but having a machine where we can become more efficient, we can handle the dry years a bit better."

DRUM CONTROLS SEED DEPTH

In front of the Inverted-T points are straight coulters to cut trash and a drum to control seed depth by riding on top of the ground.

"You set the tyne depth with a pin, and you might think you need to do that every time, but because the point wears from the front-back instead of the bottom-up, you don't have to actually readjust that often," Trevor says.

"It stays where you set it because the drum rides on the top of the ground and because the tyne is on the parallelogram, you can alter that pressure and that will affect how well it stays in the ground."

In dry years, the Shadbolts will set seeding depth to around four inches, depending on where the moisture is. In normal conditions, however, they will seed where the moisture is, and because of the hydraulic control and half-inch increments on the tyne, Trevor says they can put the seed exactly where they want it.

"Once you've set it, you could put a novice on there because all they've got to do is just flick the switch up and down at the end of each row, and it will always go back to the same depth," Trevor says.

"In the cab, it's all electric over hydraulic, so the bar doesn't go up and down, each unit does, so you just flick the switch and it comes up at the end of the row, turn, flick the switch, and it's back down and you're off again."

DIFFERENT BOOT FOR CANOLA

Interestingly, establishing canola in difficult conditions as well as good seasons is nominated by Trevor as one of their main learning curves. In year one, they learnt the value of not placing the seed too deep, finding it best to rip one inch below the seed and just place 'dust' on top.

“Part of our learnings was to put another boot on the back to deliver the canola, so it’s lifted up and pointing back a little bit to get the canola shallow,” Trevor says.

“Everything else we deliver through the front boot, because the way the boot is placed on the machine, the type of point and the diameter of the boot, you can get the wheat or barley right down to the bottom of the furrow where you want it with the moisture, and that way you get a really good germination.”

For wheat and barley, seeding rates are between 35 to 40kg/ha depending on soil types and canola is 2 to 3kg/ha at the most. The Shadbolts also apply DAP fertiliser at 30 to 35kg/ha.

DIFFERENT PRESS WHEELS FOR DIFFERENT CONDITIONS

A willingness to install press wheels to do a specific job in specific conditions is also important in achieving good germination results, with the Shadbolts’ line-up including single, double and wide press wheel models.

“We don’t mind stopping for 20 minutes here and there to install different press wheels to match different soil types in different moisture conditions, it’s definitely beneficial,” Trevor says.

“Conventional farming thinking is to keep the machine going, otherwise you’ll miss out, but if you’re just whacking it in, you can make mistakes.

“We’ll use a double press wheel, which actually leans out on the top and nearly touches on the bottom, to achieve a lot flatter furrow in years when moisture is closer to the top.

“But when we’re chasing moisture, or in an average year, we use a single V press wheel, but the critical issue is to not put too much pressure on. Basically we just run the weight of the press wheel on it and we can adjust that from the cab quite easily through the hydraulics.”

BIG HORSEPOWER

Consistent seeding depth is one of the main advantages of the system, Trevor says, meaning they can take better advantage of moisture, resulting in improved germination.

However, the desire to be able to keep the tynes in the ground at all times, coupled with heavy clay soil types, has meant they have had to upgrade from a 425-horsepower tyre tractor to a tractor on tracks.

“On heavy clay soils we will operate around the 1000 to 1200-pound (450 to 545kg) breakout to keep it in there, and to

make sure it seeds optimally from one end of the paddock to the other,” Trevor says.

“However, when we get to granite and sandier country, we’ll back off the pressure, otherwise it will push that drum into the ground about a half inch, which would affect seeding depth.”

MAINTENANCE

Like many bars that can operate at higher pressure, Trevor says the Moisture Manager™ contains a lot of bushes, as well as quite a few grease nipples. The Shadbolts grease the bar at the start of each season, and then halfway through the 4000 to 5000ha program.

“After four years, you’d be looking at doing some of the main bushes in it, there’s two lots of pins on every unit and we’re going to have to redo some of the bushes again this year, but we tend to be fairly proactive – as soon as we get movement, we’ll redo the bushes. Some people won’t, to make them last a bit longer,” Trevor says.

Although the machine came from the east coast of Australia, Trevor has found maintenance and support from Endure Agri Solutions in NSW to be good.

DISADVANTAGES

Trevor does admit there are some disadvantages with their Moisture Manager™, including issues with tynes moving in the holder.

“We’ve had to actually make up a couple of little spaces in there and the pins that hold it eventually bend or break, but the guys who own Endure Agri Solutions now, they’ve got a different design now to help hold the tyne better,” Trevor says.

“The original points, which were from the original dealership owner, they were only getting about 400 to 500 hectares out of them, but we’ve got that sorted now, and it looks like they’ll last the same as any knife point or similar.”

IN SUMMARY

- Parallelogram, breakout tyne pressure and press wheels are all independently hydraulically controlled
- Inverted-T point retains more moisture than knifepoint
- Use different press wheels for different conditions



MORE INFORMATION

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With a breakout capacity of 1200-pound (545kg), the Shadbolts upgraded their tractor to a track tractor.
PHOTO: CUSSONSMEDIA

High breakout and hydraulic tynes of DBS work well on rocky country at Mukinbudin

SNAPSHOT

GROWERS: Tim, Jill, Dudley and Janine Squire

LOCATION: Mukinbudin

FARM SIZE: 9900ha

ENTERPRISES: Cropping and sheep

ANNUAL RAINFALL: 300mm

SOIL TYPES: Salmon gum, gimlet, Morrell, sandy granite and some yellow sandplain

2018 CROP PROGRAM: 3400ha wheat, 900ha barley, 330ha canola, 250ha lupins, 100ha fieldpeas and 200ha triticale

SEEDING EQUIPMENT: 60-foot (18m) DBS D-300, coulters, 12-inch spacing, press wheels, RTK, Simplicity 12,000L tow-between air cart



Dudley (left) and Tim Squire (right) upgraded from a Flexi-Coil bar to a DBS in 2010 for its improved stubble handling capacity, higher breakout pressure and hydraulic tynes.

PHOTO: CUSSONSMEDIA

In 10 years, the Squire family has had quite a change in its seeding equipment, going from, a 46-foot (14m) Gason bar in 2000, originally with Woolford harrows and then Agmaster press wheels, to a Flexi-Coil 60-foot (18m) bar in 2004 before purchasing a DBS for the 2010 season.

“We changed to a Flexi-Coil bar, bit bigger 60-foot bar (18m) with Forward Farming Precision Seed Placement Units which trailed behind and it was pretty good, but not much good for stubble management,” Tim Squire says.

“That’s why we went with the DBS, also the higher breakout pressure and the hydraulic tynes was a big improvement on our rocky country.”

The Squires operate on 12-inch row spacings and run coulters, which they find particularly handy if they have any escapees from summer sprays.

“They do let you delay summer sprayings slightly to let the grasses get up and you’re still able to get through the melon vines, so we use them where we need them and otherwise we lift them out of the road,” Tim says.

DEPTH CONTROL ON DIFFERENT SOILS

While the Squires are very happy with their DBS, they do find they need to be particularly careful on sandy soils, where furrow fill can increase the depth their crops are germinating from. This is particularly important for canola with its small seed reserve. While they seeded 90 per cent of their program dry in 2018, they did have some small areas with moisture at depth, so they seeded canola at the same depth as their cereals, at 30 to 40mm.

“Where we chased moisture early and got canola into it, it came

up from 30 to 40mm and it was fine. But some areas that were dry sown got some furrow fill from rain and wind, and ended up with another inch of soil on top of the seed and it sat there for a month,” Tim says.

“Maybe we put it in a little too deep to start with, not allowing for the fill-in of the trenches.”

On their heavy clay country, occasionally when it gets really wet, the press wheels build up with clay, which can change the seed depth, so the Squires stop seeding if they have to and wait for the soil to dry slightly. To better manage the depth control across varying soil types within paddocks, the Squires would like to be able to change the closer set-up so it is simpler to change the seed depth between soil types.

“Because you’re busy at seeding, although the soil type changes, the bar stays the same and the seed can end up a little bit deeper in the sandier soil,” Tim says.

“If you run into sandy soil one end and heavy down the other end, you’ve got to find a happy medium somewhere.

“At the moment, the closing tool is bolted on and you can’t get to it with impact drivers so it’s fairly labour intensive to change them.

“There are systems out there where you can use a pin and change the depth a bit easier, so that might be something we have a look at.”

The Squires have recently returned to growing canola after last growing it in the early 1990s, and have now got their seeding rates down to 1.8 to 2kg/ha. For cereals, they seed about 60kg/ha on their lighter country, reducing it to 50kg/ha on the heavier soil types. If they have a drying profile, they generally rip deeper with the points rather than changing seeding depth.

RTK

The Squires have found their RTK system to be an excellent tool to aid germination. In 2017, which was a tough year, they had good results placing the seed in the previous year's furrow to capture any moisture at depth as the soil was dry in the inter-row.

SECTION CONTROL

The Squires would like to add section control to their bar because they have a lot of country where they have 10 to 15 per cent overlap.

"I think we could pay for section control pretty quick, but I wouldn't want to look at a new system," Tim says. "However, if we can retro-fit something, that would be good."

MAINTENANCE

Each year, the Squires replace a few bearings and check over the press wheels and coulters prior to seeding and by the time seeding has finished there are generally a few more bearings that need replacing.

"We had some cracking issues after the first few years, but Ausplow introduced some improvements and the bar hasn't cracked again, which is good," Tim says.

"Apart from that, I don't think we've had too many issues."

"Where we chased moisture early and got canola into it, it came up from 30 to 40 millimetres and it was fine but some areas that were dry sown, we got furrow fill from rain and wind, and ended up with another inch of soil on top of the seed and it sat there for a month."

– TIM SQUIRE, MUKINBUDIN

IN SUMMARY

- Watch depth control when soil types change
- RTK is good for in-furrow sowing
- Retro-fitting section control would be ideal



MORE INFORMATION

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While the Squires are happy with their DBS, they do find they need to be particularly careful on sandy soils, where furrow fill can increase the depth their crops are germinating from, which is particularly important for canola.

PHOTO: CUSSONSMEDIA

John Deere Conserva Pak fits narrow roads in the Avon Valley

SNAPSHOT

GROWERS: Glenn Smith and Jess Edmonds, Wayne, Debbie, David and Shaun Smith

LOCATION: Between Northam and Meckering

FARM SIZE: 5600ha

ENTERPRISES: Cropping and sheep

GROWING SEASON RAINFALL: 250 to 300mm

SOIL TYPES: Medium Tamar country into sand plain country (Meckering) and heavy jam red country (Northam)

2018 CROP PROGRAM: 1900ha wheat, 700ha barley, 500ha canola and 200 ha lupins

SEEDING EQUIPMENT: 56-foot (17m) John Deere 1870 Conserva Pak on 12-inch (30cm) spacings, with splitter boots for cereals with 1910 John Deere Air Cart



Glenn Smith and his family required, amongst other things, a bar that could fold up to travel the narrow roads of the Avon Valley. PHOTO: CUSSONSMEDIA

After having operated an older Flexi-Coil spring tyne seeding bar for several seasons, the Smith family decided after the 2016 season it was time to upgrade to a precision seeder and the decision was between a John Deere, DBS or Morris bar.

“The main reason we chose the John Deere machine is because we have a John Deere tractor and it all talks together, with the information on one screen,” Glenn Smith says.

“It’s also quite robust and holds up well to the dry conditions.”

LOGISTICS

One of the key considerations was logistics – with a need to move the seeding equipment 50km between farms, the Smiths needed a machine they could transport easily along narrow roads. The wings fold up from about a metre inside the main frame, so it is not as wide or as high as other bars.

SPLITTER BOOTS

The family’s John Deere Conserva Pak is 56-foot, using 12-inch single row spacings for lupins and canola and paired row splitter boots for the cereals, which gives them a three-inch split, although Glenn believes that if they were a bit further east, they would probably just go to the 12-inch row spacing.

“The splitter boots are a happy medium – we went from nine-inch spacings on the Flexi-Coil, but that was obviously over four rows,” Glenn says.

“If you tried to put 10-inch spacings on a three-row bar, you’d never get through any trash, so it’s a happy medium.”

VARIABLE RATE

The Smiths sow all their wheat at about 75kg/ha, with compound fertiliser applied at between 100 to 120kg/ha. The ability of the new bin to run variable rate is an added benefit.

“Our John Deere Conserva Pak offers variable rate systems, which is especially handy to put potash out in the sandplain which is deep banded at seeding time, which is another benefit with this new bin,” Glenn says.

DEPTH CONTROL

Seeding depth control is also an important factor for the Smiths with their new machine, with the dry start to the 2018 season being a good example.

“With the dry conditions earlier in the season, we tried to plant the canola as shallow as we possibly could, which was a good tactic, because with all the wind we had, the seed ended up being a bit deeper,” Glenn says.

“Because it’s a precision seeder, you’ve got to keep monitoring it, because you’re either 100 per cent on or 100 per cent off.”

– GLENN SMITH, NORTHAM

They continually modify and adjust seeding depths as they seed different soil types by adjusting their packing pressure.

“You have got to adjust between heavy country and lighter country, where obviously the machine sinks in more, but change your packing pressure and it changes the depth of your seed,” Glenn says.

“If you don’t put quite as much packing pressure on, it doesn’t sink as far into the furrow.”

While the starts to the past two seasons since purchasing the Conserva Pak were dry, Glenn believes there will be a huge benefit in being able to place the seed where the moisture is.

“We haven’t had it long enough to really chase moisture at depths, but you’ve just got to continually adjust to the conditions,” Glenn says.

“Because it’s a precision seeder, you’ve got to keep monitoring it, because you’re either 100 per cent on or 100 per cent off.

“In a wet year, if you can place that seed right on that moisture band, I think your yield benefit would be huge.

“The hardest part of growing a crop is getting it out of the ground and established, so I think in that situation, precision planters pay for themselves.”

In dry conditions, Glenn says they have the capacity to both chase moisture through ripping as well as placing the seed deeper, although he thinks seeding canola deep is a bit of a gamble.

“We like to dig in probably between five inches, just to get that moisture up that slot and give the roots a chance to chase moisture,” Glenn says.

LEVEL BAR

Glenn says one of the most important aspects to setting the machine up for optimal performance in the paddock is keeping the bar level. He says, particularly in dry years, they have had problems with the machine riding forward, even with jockey wheels at the front.

“We’re still playing around, trying to work it out by adjusting buckles and letting the machine heel back so when it drives into the ground, it pulls forward and the bar comes level,” Glenn says.

“I think that’s probably the most important thing with this type of machine, getting the bar level, and then everything will just run from there.”

CHALLENGES

While the first two seasons with the bar have been a success, Glenn says he has found some downsides to the machine. The manufacturer has moved away from a lot of grease points and instead opted for nylon bushes that wear more easily. Glenn also found in 2018 on some of their sandy country, where they had been digging a bit too deep, the wheels in the row pushed the furrow into the front tyne, so the furrow wall collapsed.

“Especially in what was a dry year, it was making the seed depth too deep, and we couldn’t work out what was going on, so we lifted the machine up out of the ground and that remedied the problem,” Glenn says.

Glenn says he also values the hydraulic system on the John Deere Conserva Pak, which has a closed off system, meaning



Glenn says one of the most important aspects to setting Conserva Pak up is to keep the bar level. He says, particularly in dry years, they have had problems with the machine riding forward, even with jockey wheels at the front.

PHOTO: CUSSONSMEDIA

if a hydraulic ram bursts the potential for hydraulic oil loss is much reduced compared with other makes with live hydraulics. However, he says not being able to see the hydraulic pressure gauges from the cab has been frustrating.

“Being a tow-between machine, it has been a little bit of a pain not being able to see the gauges from the tractor cab, but it’s not like you need to adjust it every five minutes after you’ve set it up,” Glenn says.

“We only run the pressure at about 400-pound (181kg) breakout, and when it’s wet, you can adjust it back to 350-pound (159kg).

“The capacity is there, when the country is tight, you can wind your pressure up to get the machine to bite into the ground, where on a spring machine you just don’t have that flexibility.”

CONTINUAL ADJUSTMENT

Underpinning Glenn’s approach to his seeding equipment is preparation, testing the gear and listening to those with experience.

“Spending the time to get the machine set up right the first time makes everything so much better,” Glenn says.

“My advice to others would be when you first get the machine, spend a while adjusting things and getting them right – and listen to other people.

“We’re still learning and adjusting things after two seasons with the Conserva Pak.”

IN SUMMARY

- Same brand of tractor, bin and bar all talk together
- Good fit for narrow roads
- Continual adjustment is key for depth control



MORE INFORMATION

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The main reason the Smiths chose the John Deere machine rather than a DBS or Morris was because they have a John Deere tractor and they believed having one brand would help the system work well together.

PHOTO: CUSSONSMEDIA

Consistent spacing is the aim with seed singulating technology at Tammin

SNAPSHOT

PARTNERSHIP: Bungulla Farming, Precision Ag Solutions and Ground Breaker Precision Agriculture

LOCATION: Tammin

SEEDING EQUIPMENT: Ground Breaker Precision Planter

Brad Jones is continually looking at how he can do things better on his farm at Tammin and if he can develop ideas without taking on all the risk, that is even better. Brad hails from the Darling Downs in Queensland, and it was his experience with seed singulation technology in cotton, corn and sorghum in the Sunshine State that made him want to bring the technology to WA.

The idea was to reduce the financial risk of growing expensive hybrid canola by lowering the seeding rate through seed singulating technology. So, a partnership to develop a bar with seed singulating technology for WA conditions was formed between the Jones's Bungulla Farming, Precision Ag Solutions and Ground Breaker Precision Agriculture, which is a division of Toowoomba Engineering.

From Brad Jones's perspective, having the three different partners in the collaboration is exciting, allowing some of the risk to be shared as well as providing the opportunity to learn, be involved and have good, practical input into a new system.

"You get access to their skills and because they work quite extensively up and down the east coast, they've got exposure to lots of different soil types, farming systems, crop types, and it's about trying to pick the best out of each one and put it into play in our system," Brad explains.

SEED SINGULATION

Seed singulation involves accurately spacing seeds an equal distance apart so they can best withstand challenging conditions, such as heat or moisture stress, because they have got space to grow.

"We are ideally looking to create about 15cm between each plant, give or take a few centimetres either side – it is really like looking at the tag when you buy seedlings at the nursery which says to space them 15cm apart – it is the same principle," Brad says.

HOW IT WORKS

Danny Weier from Precision Ag Solutions is providing the precision technology advice to the partnership, which will determine what type of seed meter they will use on the machine.

"The idea of a seed meter from a singulation perspective is that it is a flat plate with round holes, and we use a vacuum to basically suck as many seeds into the hole as we can possibly fit, and then



Brad Jones from Bungulla Farming (left) and Danny Weier from Precision Ag Solutions are working together with Ground Breaker Precision Agriculture to develop a bar with seed singulation technology for WA conditions.

PHOTO: CUSSONSMEDIA

from there, as it moves around the meter, we use a singulation device to knock off any of the excess seeds," Danny says.

"As the plate rotates around the meter, when it gets to the drop point above the seed tube, the vacuum basically ceases, and the seed releases from the plate and drops directly through the seed tube into the ground.

"The vacuum then picks up on the other side and basically continues again, so we pick up more seeds, singulate them and drop them, basically."

Seed singulation with a small, light-weight canola seed is quite difficult compared with larger and heavier seeds such as corn, as there are more variables between seed release and it hitting the ground. In addition, it has been difficult to accurately count the seeds, but now Danny believes they are achieving about 92 per cent accuracy.

"It's not about being exact in your seed placement, it's about being more consistent," Danny says.

"I guess we would expect that we're probably never going to see the accuracy of corn and sorghum being spaced effectively with a singulation device, but we believe that we're on the right track to be able to consistently place canola at depth and spaced evenly apart."

The Ground Breaker Precision Planter is set up with a leading tyne that breaks the seed trench open and contains the fertiliser, whether it be granular or liquid, which is banded below the seed. The row spacing is 30cm.

DON'T PUSH SEEDING RATES TOO LOW

The group first trialled the seed singulator technology in 2016 and in 2018 they are testing version two, which is a 6m frame bar that has the ability to have 3m wings attached to take it out to 12m.

"In 2016 we had a really good result, and we got our seeding rates down as low as 600 grams. Then last year, we pushed again for low seeding rates and we had a freak storm with up to 75mm of rain in one event, in a very short, sharp fall, which sealed the soil over," Brad says.

"The lesson we learnt was not to push our rates too low, because we gave ourselves no room for error, so this year (2018) we've moderated that back and we've come back to a population of about 260,000 seeds/ha, which works out to be 1kg/ha."

Brad also believes it was a mistake to lower their fertiliser to match the lowered population, as they probably have not provided the plant with the nutrition it needs to reach its full potential.

PLASTIC VS METAL METERING PLATES

While the original version had a Precision Planter metering system (plastic plate), version two is trialling two different seed meters and technology options. The front 10 seeder units are Monosem Seed Meters (metal plates) with Ag Leader SureDrive Electric Drives, and the back 10 seeder units are Precision Planting vSet Seed Meters with Precision Planting vDrive Electric Drives. However, at this stage there is no clear winner in terms of improved germination or ease of use, with the seed singulation technology being trialled in both canola and wheat in 2018.

"The lesson we learnt was not to push our rates too low, because we gave ourselves no room for error, so this year (2018) we've moderated that back and we've come back to a population of about 260,000 seeds/ha, which works out to be pretty much 1kg/ha."

– BRAD JONES, TAMMIN

"With the original generation one bar, we found that we were getting a lot of issues with static electricity, and that was coming from a plastic seed plate, whereas the Monosem is stainless steel, so that's taken away some of that risk," Brad says.

"On the flip side of that, the Monosem is a harder system to change plates between crops, so there is a trade-off.

"But being the first year, we're just learning our way, so it will get better, it's just a matter of us learning how to change the plates between canola and wheat."

TRIALLING WHEAT, TOO

While Brad believes it will be difficult to justify a seed singulating bar for one crop, he thinks as WA growers eventually shift to growing hybrid wheats there will be increased interest in the technology. He also has spoken to Philip Horsch, who says good



Ideally, Brad is looking to evenly sow his canola so seeds are spaced about 15cm apart, much like when purchasing seedlings at a nursery and the tag says to space them 15cm apart.

PHOTO: CUSSONSMEDIA



While the original version had a Precision Planter metering system (plastic plate), version two (pictured) is trialling two different seed meters and technology options. The front 10 seeder units are Monosem Seed Meters (metal plates) with Ag Leader SureDrive Electric Drives and the back 10 seeder units are Precision Planting vSet Seed Meters with Precision Planting vDrive Electric Drives.

PHOTO: CUSSONSMEDIA

results are being achieved from singulating wheat in Europe.

“We also trialled wheat in 2018, and the thoughts are that in the future there will be hybrid wheats here, and the cost of those hybrid wheats are expensive too, so it’s the same theory as what we’re trying to do with our canola,” Brad says.

DBS

The Joneses run a DBS system on their farm, which is known for having good seeding depth control.

“The DBS is a fantastic system – it’s well proven and this year we do have DBS and the singulation technology in the same paddock as part of a trial, and we’re doing seed counts and biomass imagery and things like that,” Brad says.

“It’s really hard to tell because this year it all went in dry, it all came up but once, so we couldn’t really put an answer to which is the best one yet.”

FUTURE PLANS

In the future, Brad would like to use a seeding system where both the fertiliser and the seed are placed in a more precise manner to optimise all of their inputs.

“I would actually like a system which is available in Europe now, whereas each seed goes down, fertiliser goes down with it, so you actually match your seed to your fertiliser in very close proximity, instead of the random way of application now where you can singulate your seed and be quite precise, but not your fertiliser,” Brad says.



Canola seed is sucked into the small holes of the Monosem Seed Meters by a vacuum and as the plate rotates around the meter, when it gets to the drop point above the seed tube the vacuum ceases and the seed releases from the plate and drops directly through the seed tube into the ground. PHOTO: CUSSONSMEDIA

For now, he will continually look forward, “As Winston Churchill says, ‘It is wise to look ahead but it is difficult to look further than you can see.’”

IN SUMMARY

- Trialling different metering plates in seed singulation bar
- Keep fertiliser rates up and do not go below 1kg/ha of canola
- Trialling singulation in canola and wheat



MORE INFORMATION

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Simple seeding system still performing at Corrigin

SNAPSHOT

GROWERS: Craig Larke and Peri Larment and Warren and Jan Larke

LOCATION: Corrigin

FARM SIZE: 4100ha

ENTERPRISES: 100 per cent cropping

GROWING SEASON RAINFALL: 300mm

SOIL TYPES: Medium loams

2018 CROP PROGRAM: 1200ha canola, 1200ha barley, 1200ha wheat, 400ha lupins

SEEDING EQUIPMENT: 40-foot (12m) Horwood Bagshaw Scaribar, 10.5-inch (27cm) spacing with Primary Sales tandem disc coulters, 16mm Stiletto points, 3.5-inch (90mm) solid V press wheels and Bourgault bin



Craig Larke believes the operation's simple Horwood Bagshaw Scaribar still enables them to sow their crop in time, have it establish and yield well.

PHOTO: CUSSONSMEDIA

Simplicity is key to the Larkes' seeding system on their property at Corrigin, where they aim to mesh performance with minimal maintenance and easy operating systems for drivers. Craig Larke has been continuous cropping for around 14 years on a semi-controlled traffic system and the Larkes seed their 4000ha program with a 2004 12metre Horwood Bagshaw Scaribar, being a basic spring tyne bar with 16mm Stiletto points. The tynes are on 10.5-inch spacing, with the Stiletto boots making a 90mm split, and they run Primary Sales tandem disc coulters on the front for trash flow, and Manutech individual 90mm solid V press wheels on the back.

SIMPLE SYSTEM

"The advantages of the system are it's very simple and low maintenance, so it's very cheap to run compared to a parallelogram," Craig says.

"We've stuck with this bar because it's simple and is getting good results – it's easy to put an employee in the tractor and there's very little to go wrong, so it makes it a lot easier for management. I know everyone's gone to hydraulic bars, and it's probably the way we'll end up going eventually. Even the salesman said he's sold one spring tyne bar in the last six years and all the rest have all been hydraulic tynes, so it's obviously the way to go, but it's just a matter of making time with all the other machinery repayments. When it's time to turn it over, it's about getting something that's not going to cost us a fortune to repair and is strong enough to do the job."

The decision to purchase the spring tyne machine came when Craig returned to the farm from ag school and his father, Warren, was still working up paddocks and seeding in a more conventional system. However, Craig, who had his eye on more of a minimum till system, convinced his father to change to the Horwood Bagshaw.

"I had probably only been home a couple of years at the time, and Dad was making the purchasing decisions, but I liked the idea of the bar as it was heavily built, simple and solid – it could handle the ironstone country we've got," Craig says.

"The large single wheels were also a good feature, there were no walking axles and small tyres, so that was good for flotation, and it was just solid, so that's what we went with."

DRY SOWING

Having had to sow their entire program dry for more than half the seasons they have owned the bar, Craig says the machine can be easily changed to suit climatic conditions and soil type.

"If we've got a completely dry start, and the forecast indicates it's not going to rain for a while, we can lift the whole bar up, set the shims a bit shallower and plant so the seeds are sitting in dryer soil," Craig explains.

"Alternatively, if we've got good subsoil moisture from summer rain, which we want to chase to establish a crop, we have that option with a fixed boot – it's just a matter of dropping it in further."

"2018 is a prime example. We seeded the whole program as dry and the machine is strong enough and the soils easy enough to work due to continuous cropping, we could seed whenever we wanted basically, we aren't stuck having a machine that's not capable of doing what we want for our soil type."

INTER-ROW SOWING

The Larkes have been running RTK guidance for the past 12 years with Craig saying that the system has worked well for inter-row sowing.

“We’ve got pretty good accuracy and the bar tracks well, so we can do things like inter-row sowing, and basically just leave standing stubble from canola and lupins for wind erosion just to hold the soil together,” Craig says.

“You can end up with up to two years of standing stubble and put your third crop in there and have a lot of the paddock still standing, so that’s quite beneficial.”

WIDER PRESS WHEELS

The Manutec individual 90mm solid V press wheels have also performed well, with Craig summing them up as a strong, simple press wheel that does not require much maintenance.

The press wheels have done four seasons at 4000ha/year and are only now needing new bearings and seals. Craig says the wider press wheels also suit their Stiletto boots, particularly in the 2018 season where there was quite a bit of wind damage across the state, causing furrow fill issues for many.

“The wider press wheels worked out quite well, as we don’t leave a hard shoulder which can collapse causing furrow fill and bury the seed too deep,” Craig says.

“The home property was alright, but we purchased a farm this year with a lot of lighter sand and it did have a bit of furrow fill – I think that was just a bit of bad luck because normally we’ve got full stubble cover and no livestock, whereas this new farm had things that were out of our control.”

ADJUSTING SEEDING DEPTHS

Craig says while their system is working well, there are some disadvantages to the set-up. One of these is that their controlled-traffic system has resulted in compacted wheel tracks and subsequently shallower seeding depth in those tracks –

something Craig believes would not be a problem if they had a parallelogram-style seeder, which would follow the soil profile.

To control seeding depths, Craig says they use shims on the hydraulics and adjust according to conditions and variety.

“We generally set the machine to seed at about 25 to 30mm for basically all the cereals, while sometimes with canola, we pull it up a little bit if we want,” Craig says.

“It just depends on the season, and if we want to chase moisture or whether we’ll try and leave it near the surface for a dry band and take a punt on the season.

“When we do go deep, we can get down to around 50 to 60mm quite comfortably, it’s just a matter of shifting the stops and the Stiletto points are probably ripping another 40mm below.”

FERTILISER PLACEMENT

From a fertiliser perspective, the Larkes apply between 70 to 90kg/ha of urea and 100kg/ha of Macro Pro extra fertiliser, with no toxicity issues to report.

“Those rates haven’t been detrimental to the crop from what we’ve seen over the last seven or eight years – we’ve even gone up to 100kg/ha of urea and the crops looked quite fine and healthy, particularly as there’s 30mm separation from the seed, so it works quite well,” Craig says.

“If it’s a dry start like 2018, we do make sure it is all banded, we don’t bother putting the compound with the seed.

“Having a good fertiliser history, we’re happy to band it all and the crop will pick it up in three or four weeks’ time, rather than trying to get it near the seed.”

Importantly, Craig says they can adjust their fertiliser delivery approach depending on the season, particularly in wet conditions,



The Larkes fitted their bar with spreader plates, which allow them great flexibility in their fertiliser placement. In wet years they may choose to spread 25 per cent of the urea out the front or they could block off all the other ports and put all the urea out the front.

PHOTO: CUSSONSMEDIA

after they fitted their seeding bar with spreader plates.

“The spreader plates at the front allow us to spread 25 per cent of the urea out the front while the reminder goes down the tyne, and if need be, we can block off all the other ports and just put all the urea out the front,” Craig says.

“In a wet year, if it’s excessively foggy or rainy and we’re getting blockages, the spreader plates are good because there’s only a couple of outlets and you can see it while you’re driving along splashing on the ground and you know it’s working, so it’s a bit of a foolproof system.”

SPEED TILLER

The Larkes also run a Speed Tiller, which they commonly use on their barley-on-barley paddocks to bury some of the stubble to aid its breakdown. They also spread lime as required in front of paddocks that are going to have the Speed Tiller run over them.

“If the rotation is barley going into barley, we’ll use the Speed Tiller to run the barley stubble in and plant it to barley again, just to try and bury a little bit of disease and straw, and just break it all down quicker,” Craig says.

“That means after that year we will leave one year of standing barley and then we’ll go into a break crop, rather than having two years of barley straw; there is just too much straw.”

In addition, the Larkes use the Speed Tiller for levelling paddocks and remineralising soil – in Craig’s words, it is an expensive toy, but does a good job.

“We find it can help to create a germination, just mix up the cycle of what we’re doing with the no-till, but we don’t use the Speed Tiller on everything, we’ll probably work on 30 per cent of the cereals, whether it’d be wheat or barley paddocks, every year,” Craig says.

FUTURE PLANS

“At the moment, we still manage to put things in on time, we’re doing a good job and getting good yields,” Craig says.

“How much we’re actually losing by sticking with what we’ve got, which is paid for, compared to spending \$700,000 to \$800,000 and having more repayments, that’s what we have to weigh up.”

One aspect of the current system he would keep are the coulters, which were added to the front of the bar in 2018 to handle high stubble loads after good seasons. Craig says the coulters have allowed him to avoid burning stubbles.

IN SUMMARY

- Scaribar is simple to operate and low maintenance
- Wider press wheels prevent furrow fill
- Speed Tiller aids barley stubble breakdown



MORE INFORMATION

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“How much we’re actually losing by sticking with what we’ve got, which is paid for compared to spending \$700,000 to \$800,000 and more repayments, that’s what you have to weigh up.”

– CRAIG LARKE, CORRIGIN



Primary Sales tandem disc coulters have been added to the front of the Scaribar to aid trash flow. The Larkes also run a Speed Tiller, which they commonly use on paddocks that are barley-on-barley to bury some of the stubble and aid its breakdown.

PHOTO: CUSSONSMEDIA

Seed Hawk bar is performing but Seed Hawk iCon box needs improvement at Mt Walker

SNAPSHOT

GROWERS: Pete, Felicity, Bill and Dianne Cowan

LOCATION: Mt Walker

CROPPING AREA: 9120ha

ENTERPRISES: Cropping and sheep

ANNUAL RAINFALL: 350mm

SOIL TYPES: Predominantly medium with some heavy and light sandy soils

2018 CROP PROGRAM: 3000ha wheat, 3000ha barley, 2500ha canola, 500ha oats and 120ha chickpeas

SEEDING EQUIPMENT: 84-foot (25.6m) Seed Hawk on 12-inch (30cm) spacings, with 21,000L Seed Hawk Air Cart and 7000L Liquid Tank



While Pete Cowan is disappointed in the performance of the Seed Hawk iCon air cart, he finds the seed placement of the Seed Hawk bar to be excellent.

PHOTO: CUSSONSMEDIA

It was seed placement that attracted Pete Cowan to purchase the family's first Seed Hawk bar for the 2016 season, when his family was looking to upgrade its Flexi-Coil 820 bar and Simplicity box. The Flexi-Coil was used to seed shallow and ran harrows behind to put the seed just under the surface.

"It used to get the cereals out of the ground really well but in the tough years, which we were getting more and more of, we just couldn't get finicky crops like canola out of the ground and it didn't matter what you did," Pete says.

"When it's wet, I don't think it matters what you put it in with."

The Cowans ran their original Seed Hawk for two seasons, covering 17,000ha in that time and then in 2018 upgraded to a 84-foot machine to cover their farms at Mt Walker, Lake Varley and Newdegate.

"We've had a Seed Hawk for three seasons now and I think the seed placement is as good as I can find, so that's the reason why we went for this machine, because the seed placement is almost always exact," Pete says.

"The only time we really run into problems is if we go into a heavy weed burden, if it hasn't been knocked down early, you get a bit of jumping of the wheel – that is probably the worst conditions we can go into."

ICON AIRCART NEEDS IMPROVEMENT

While initially enthusiastic about the ability to more accurately manage the Seed Hawk iCon aircart from an iPad, the Cowans experienced significant problems with the electronics and have now reverted to the standard system for better reliability.

"I think it's sad, because it is the most amazing seeder I've ever used, and calibrating it was incredible, you'd take an iPad out, dial

it in, tell which motor to run, it runs and then the same with doing your overlap because it has sectional control, so you could tell when it was going to shut off and on," Pete says.

"It has weigh scales on each bin and that's just incredible because you can then keep track of how much fertiliser you've had out your shed and how much seed you've used out of your silos – I think that's almost a no-brainer on a seeding system now.

"But we had issues with the electronics where it was changing rates, and the boys would think, 'Oh, well I must not have filled it up overly well' and then we really didn't catch it until it got so big that we just thought that it can't be right."

While the calibration problems with the Seed Hawk box have been extremely stressful and costly to the Cowans, Pete believes that if you take the box away from the system, it would be hard to fault the bar and the job it does.

ONE MACHINE NOT TWO

Pete believes while his Seed Hawk may not be the best bar, it generally performs well and it allows them to cover more ground faster. Having one larger bar also means a reduced reliance on seeding staff, with Pete if they had two smaller bars, he would probably need another three staff.

"I think if you look at last year (2017) being a pretty tough season, the best around was probably still the DBS which got things up and going well, but if you can get the crop out with our bar, I think we actually get everything coming up more evenly than the DBS," Pete says.

"However, the DBS can dig and our bar can only really dig to three or four inches but I think in general our machine is pretty good and we needed to be a little wider to get over the country."



While initially enthusiastic about the ability to more accurately manage the Seed Hawk iCon aircart from an iPad, the Cowans experienced significant problems with the electronics and have now reverted to the standard system for better reliability.

IN-FURROW WEED CONTROL

The new bar was set up for 12-inch row spacings, which Pete says did take a little while to adjust to ensure they were getting adequate soil throw to maintain good weed control.

“When we were first learning about the inter-row, making sure we got the inter-row covered, we were probably a bit cautious as we were making a nice mound in the middle, but then our furrows were just filling up with weeds,” Pete says.

“So, if we can, we’re going between 11 to 12km/h and we’re getting good coverage in the inter-row, but we’re also making sure we throw enough to get a little bit into the furrow so that we’ve got some chemical coverage in the furrow as well.

“In some of our heavy country here this year, we had to slow down to about 7 to 8km/h to get the bar to stay in the ground, but we were struggling to get the throw of the soil, so we’re getting the ryegrass and clover coming through the middle.”

“But we had issues with the electronics where it was changing rates, and the boys would think, ‘Oh, well I must not have filled it up overly well’ and then we really didn’t catch it until it got so big that we just thought that it can’t be right.”

– PETE COWAN, MT WALKER

Pete credits the accuracy of the Seed Hawk for ensuring their seed does not end up too deep. They also have not had the germination of their crops affected by pre-emergent chemical.

“The Seed Hawk is very precise where you put the seed, so our wheat and barley seed ends up about 19 millimetres deep with the extra soil over the top,” Pete says.

“We came from a system where we were using the scatter technique with our Flexi-Coil 820 bar and we were still using harrows and we always had really clean and tidy crops, whereas when we went to the press wheel, we found we were actually starting to get quite dirty in the furrow. We used to think it worked out well when the Flexi-Coil put seed absolutely everywhere, so it’s using a similar technique and it seems to be working well.”

The Cowans generally seed cereals at 40 to 80kg/ha with between 60 to 85kg/ha of compound fertiliser and 50 to 70L/ha of UAN. Canola is sown at about 2kg/ha.

HALF-WET HALF-DRY

Given the significant size of their program, the Cowans plan to start seeding at the beginning of April so they are finished in early May to maximise their yield potential. As a result, this means they sometimes face conditions where the soil is half-wet half-dry, something Pete believes is not so bad with larger seeds such as cereals but sowing canola in this scenario can be particularly stressful.

“When it’s dry, it’s consistent, so you always know what you’re getting and of course if you’re coming off a heavy red pasture, the job the bar does is limited, but if you’ve got sand or medium gravels, I think it just about does as good a job, if not better, than when it is wet,” Pete says.

“The half-dry half-wet is the worst we can come across, but I think not so much with your bigger seeds. However, you start crossing your fingers when you go on half-dry half-wet with canola. For us, if we still haven’t seeded our oats at that point, if we can we will then swing back into oats and keep away from the canola in those marginal sort of conditions, because it becomes high risk.”

Unfortunately, the delivery of their new bar this year was delayed, which proved crucial because they could not capitalise on 20mm of rain that fell just before the beginning of April.

“They rushed out a spare one for us to start going with and it was another three days before that really got going, and we probably lost optimum time, so in the same paddock we have now got cotyledon and flowering canola,” Pete says.

“The thing about the Seed Hawk is usually if you can press the seed into that wet soil, then it’s enough to strike. But by the time the tyne went through the soil, and then fluffed it up, then put the dry soil back on top, that dragged the moisture out of the side wall and so we were in strife. It was marginal, but I reckon if we had been three days earlier it would have been absolutely beautiful. That’s the crazy thing about canola; it could have been a perfect germination and it ended up being quite an average one.”

TRASH FLOW WITH TWO TYNES

To manage the trash flow around the two tynes, the Cowans harvest a few degrees off their seeding lines so the trash does not bunch up on the same tyne.

“What happens is it bunches up on the front tyne and jams between the two so it is more of an issue in really heavy crops, but we haven’t really had a drama since we have been harvesting at a slight angle to our seeding lines,” Pete says.

KEEP BAR TIDY

In their three seasons using a Seed Hawk bar, the Cowans have been very happy with their tyne assemblies, although Pete would love a bit more breakout so they can dig a little deeper.

“I think the tyne assemblies are very good – we just need to keep the Flexi-N off the nickel-plated tynes otherwise it just melts them,” Pete says.

Also, after having three liquid setups on bars, the Cowans have found the best method is to run their main hoses up to the heads and then break them off from there, so they have the smaller lines with the friction hose running to the seed hose.

“That means you don’t have any little hoses cable-tied to the bar, so you don’t trip over them at night, so that is what we have found is the best method,” Pete says.

IN SUMMARY

- Seed Hawk offers consistency in seed placement
- iCon air cart has electronic issues and is not reliable
- Travel at 11 to 12 km/h to get some soil throw into the furrow



MORE INFORMATION

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To manage the trash flow around the two tynes, the Cowans harvest a few degrees off their seeding lines so trash does not bunch up on the front tyne.



Pete Cowan believes his 84-foot Seed Hawk generally performs well and having one larger bar also means a reduced reliance on seeding staff.



After having three liquid setups on bars, the Cowans have found the best method is to run the main hoses up to the heads and then break them off from there, so they have the smaller lines with the friction hose running to the seed hose.

PHOTOS: CUSSONSMEDIA

Precision is not better in Cuballing

SNAPSHOT

GROWERS: Roger, Libby, Alex and Simon Newman

LOCATION: Cuballing

CROPPING AREA: 4300ha

ENTERPRISES: Cropping and sheep

ANNUAL RAINFALL: 450mm

SOIL TYPES: White gum gravels, sand, red gum sand, york gum, jam and salmon gum

2018 CROP PROGRAM: Wheat, barley, canola, oats and hay

SEEDING EQUIPMENT: 2 x 40-foot (12m) spring tyne, 350-pound breakout Flexi-Coils, Stiletto points and boots on 9-inch (23cm) spacings with 12,000 to 14,000L Triple Bin



With variable rainfall, variable soil type and variable seeding conditions, Roger Newman does not want to consistently place all of his seed at the same depth and so sold their DBS and purchased another Flexi-Coil bar.

PHOTO: CUSSONSMEDIA

While many growers believe precision seeders are key to optimum crop establishment, for Roger Newman with his variable soils, crops, rainfall and seeding conditions, the last thing he wants is to place all of his seed at one depth. As he sees it, precision planters put 99 per cent of the seed in the same spot, whether that be the right place or the wrong place. Roger speaks from experience after changing from a red tyne 35-foot (10.7m) Flexi-Coil to a DBS in 2007 and then back to a Flexi-Coil bar in 2010.

“The establishment with our original Flexi-Coil was okay, not brilliant, but we noticed the first row wasn’t nearly as well established as the back row, and the rows in-between were variable,” Roger says.

“When you looked at other people’s crops, particularly cereals sown with a precision seeder DBS system, every row was exactly the same, and we thought that was the way to go, because it produces a more even establishment, so we bought a 50-foot (15.2m) DBS.”

However, after three seasons, the Newmans felt that in their environment, with varying crops, soil types and seeding conditions, they were better off moving away from a precision seeder.

“We found in a drying environment that sometimes the press wheel didn’t stay close to the surface where they were designed to be and because it was a fragile soil, the press wheel would go down almost to the depth cultivated by the knife point,” Roger says.

“Therefore, the trench was quite deep and if the soil was wet, that trench would stay intact, but as the soil dried out and crumbled, the trench was filled in.”

To get around the collapsing furrow issues, the Newmans began sowing their seed shallow, which resulted in fertiliser toxicity issues, particularly in canola.

“We planted the seed very close to the fertiliser and the fact that we were running liquid as well meant that we had an issue with vertical toxicity, so while it didn’t actually sterilise the seed, I believe it inhibited its vigour,” Roger says.

The Newmans planted 2000ha of canola in 2009 and they experienced both furrow fill and fertiliser toxicity issues. While the canola did eventually germinate, it was weak and very susceptible to insect attack. The staggered emergence meant the insecticides were no longer active.

“The whole thing was just a disaster and we abandoned the DBS because we had a neighbour up the road with an old \$5000 scarifier with an air kit on it that had canola coming out his ears because it was on the surface and we consistently had row upon row where we would have nothing emerging for 20 metres,” Roger says.

“We learnt very quickly spending a lot of money to buy a better result doesn’t always work – it doesn’t necessarily put the seed where you want it because the soil types are so variable. The industry has variable rainfall, variable soil type, variable seeding conditions, so why are we using precision gear?”

TWO BARS ARE BETTER THAN ONE

After selling their DBS, Roger and Simon bought a 60-foot spring tyne Flexi-Coil, believing the wider 50-foot DBS seemed more efficient, and they figured that timing was the most critical factor.

“We had the 60-foot Flexi-Coil for about seven years and we found that it was very good on wide open country where the soil types weren’t as strong,” Roger says.

“The industry has variable rainfall, variable soil type and variable seeding conditions, so why are we using precision gear?”

– ROGER NEWMAN, CUBALLING

“But we found that when we came back to the home farm, which has a lot of granite country, and between trees, power poles, rock heaps, creeks, banks, fences, it’s a lot harder, and it’s not very economic driving a 60-foot bar around, and it’s very slow.

“Apart from breakages and things getting bent, we found the best way to use it was to have it semi folded up. We actually did a lot of work with it in a 40-foot position rather than a 60-foot position.

“That probably also taught us that having everything in one machine meant that when we had a blocked boot or a broken point or some work had to be done, the 60-foot bar stopped.”

So, as a result they sold the larger Flexi-Coil and instead bought two spring tyne (hydraulic tynes were not available) 40-foot Flexi-Coils, which they now run with Stiletto points and boots. They did try Agmaster but found the Stiletto system to be more forgiving, planting 20 per cent of the seed too shallow, 20 per cent too deep, and 60 per cent in-between.

Roger is pleased with the flexibility and productivity the two machines provide for their business. They consistently sow between 120 to 150ha in a 14-hour day, irrespective of whether they are in wide-open country or at the home farm.

“Often, a lot of the machinery is something that I’ve either modified or feel as though I’m probably in the best position to fix, so we find if one of the air seeders breaks, if it’s not the one that I’m driving, then we can just swap so that I can carry on fixing it,” Roger says.

While additional labour can be a challenge, Roger’s approach is to offer a permanent position rather than rely on seasonal workers, where consistency, competency and care are challenges. So, as a consequence of operating two air seeders, the Newmans purchased a second truck and cart all their own produce so they are using their staff all year. Roger also recognises the importance of his people enjoying their work, so rather than giving one person a job no one likes doing, such as the gopher, roles are shared.

ANGLE OF TYNE

Like most people with large programs to cover, Roger often has to sow in marginal conditions to complete seeding in a timely manner to optimise yield potential. This means often placing seed in drying and warmer soils where the soil surface dries out quickly. Roger believes point design has an important role to play, particularly in these conditions, and so he prefers the design of his Stiletto points rather than a more vertical point.

“Listening to a soil tech guy once, with vertical points, the soil gets blasted and impacted harder, and then flows around the sides of the point back into the trench,” Roger says.

“Whereas the point that enters the ground at an angle, a bit like a scarifier point, peels the ground open a bit like banana skins either side of the point and tends to push a lot of that dry, non-wetting soil into the inter-row, therefore exposing the soil underneath to less non-wetting soil.”

DOSATRON

For their wheat and canola programs, the Newmans operate Dosatrons to inject fungicide into the stream as it is leaving the tank and going to the bar.

“Rather than mix fungicides up in a big tank and therefore needing to keep them in suspension by having an auxiliary pump, we use a Dosatron mounted on the side to inject fungicide, so there is no product in the line or in the tank going off overnight or going out of suspension,” Roger says.



It was the experience of poor establishment in 2000ha of canola in 2009 from furrow fill and fertiliser toxicity issues that led the Newmans to sell their DBS.

TOW BEHIND BIN

When the Newmans had the DBS they ran a tow-between tank, which worked well because Roger felt he did not really have to keep an eye on the bar for depth control or breakages. However, when they went back to the Flexi-Coil system, he believed it was paramount to see the bar and he has not observed any reduction in emergence.

“You can’t basically see your wheel tracks, other than the dents that it makes, but it doesn’t impact on the crop’s emergence, so tow behind is fine,” Roger says.

FUTURE PLANS

When it comes to future bar purchases, Roger believes it is important to buy machinery that is going to hold value. While the cultivator-type bars have worked very well for them, he believes that once equipped with press wheels, liquid kit, air kit, boots and points, they do not cost a lot less than a precision seeder, so he believes they are pretty much worthless after about six years.

“However, something that’s got a little bit more technology and precision, which everybody seems to want, holds its value much better, so buy what somebody else wants rather than something that’s just for you,” Roger says.

Roger acknowledges precision seeders have come a long way since his experience with the first type of precision seeder, the DBS system, and he would like to transition to achieving more accurate establishment by adapting their own machinery.

“If money wasn’t an object, I think the ProTrakker system would be good as you’re putting the seed in last year’s furrow, however it is not necessarily realistic for here,” Roger says.

“I think we could probably get 75 per cent of our farm to run in a straight-line row-on-row, but at the end of the run, or if you’ve got a different driver going around a rock heap, and obstacles are a big part of the program here, it’s not going to be achievable. I’m looking for something basically where the boot and the point is

controlled a little better with a press wheel on an individual assembly, rather than one wheel controlling multiple assemblies. But that assembly must be paired row, and it must not throw dirt or create deep furrows, and I don’t want to compromise cost by tyne spacing.”

Ultimately, Roger believes spending a lot of money on those systems will not make it rain, and it will not necessarily grow a better crop.

“A precision seeder is probably perfect if you’re growing just wheat, just set and forget, but running a precision seeder in Cuballing to grow variable crops in variable soil types in variable conditions over a long period of time because of the frost risk, it’s not what you want,” Roger says.

IN SUMMARY

- Precision planters are not the answer everywhere
- Two bars work better than one
- Point angle is important in drying conditions



MORE INFORMATION

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Roger prefers the design of his Stiletto points rather than a more vertical point, which he believes impacts the soil harder and then flows around the sides of the point back into the trench. The Stiletto points enter the ground at an angle and peels it open either side of the point and tends to push the dry, non-wetting soil into the inter-row.

The Newmans are pleased with the flexibility and productivity the two 40-foot machines provide for their business. The machines consistently sow between 120 to 150ha in a 14-hour day, irrespective of whether they are in wide-open country or at the home farm.

PHOTOS: CUSSONSMEDIA



No clear winner between a Morris C2 and a DBS at Holt Rock

SNAPSHOT

GROWERS: Brent and Clare Hyde, Benjamin and Carla Hyde

LOCATION: Holt Rock, Varley, Little Italy

CROPPING AREA: 10,000ha

ENTERPRISES: Cropping and sheep

ANNUAL RAINFALL: 350mm

SOIL TYPES: Varied – heavy grey clay to Lake Bank Morrell-type country, yellow sandplain, some white sands and shallow ironstone

2018 CROP PROGRAM: 3000ha wheat, 3000ha barley, 2000ha canola, 600ha hay, 80ha peas, 1000ha lupins

SEEDING EQUIPMENT: 60-foot (18m) C2 Morris contour drill, 10-inch (250mm) spacing with Primary Sales seeding boot, 4-inch (100mm) press wheels and a tow-behind 15,000L Simplicity three-bin box 60-foot (18m) DBS bar, 10-inch (250mm) and a tow-behind 15,000L Simplicity three-bin box



Brent Hyde and his family run their DBS and Morris bars together and find that one does not consistently outperform the other. He believes the Morris probably does a better job when the ground is tight because even though it has less breakout, it can hold the point in the ground a bit better than the DBS. However, in terms of trash flow, he has found the DBS to be the slightly better bar.

PHOTO: CUSSONSMEDIA

Running two different 60-foot bars, a C2 Morris contour drill and an older DBS bar, in the eastern wheatbelt, Brent Hyde has found that one bar is not clearly better than the other. With his family, Brent is cropping 10,000ha between five properties spread about 50 kilometres apart.

Both the Morris and the DBS are on 250mm row spacing, which is the widest Brent will go because of their hay program. Prior to purchasing the second-hand DBS, they were using a 15m Fusion bar with Horwood Bagshaw hydraulic tynes. They made the move to the DBS due to its precision seeding capabilities.

The predecessor to the Morris was a Flexi-Coil 820, with 9-inch spacings, Harrington seeding system and gang press wheels. Price was a consideration when the Hydies transitioned from the Flexi-Coil to the Morris, as was a desire to use the new bar on shallow ironstone country to save the DBS.

RUN TWO BARS TOGETHER

The strategy for operating two bars is to try and run them together in cereals where possible, although at the start of seeding they can be separated when one is seeding canola, depending where they are on the farms.

Running them side-by-side, Brent says he has never noticed any difference between the two bars in crop emergence, other than some issues with wheel tracking on the Morris.

"I think that is due to the large bomber tyres on the Morris, but it could also be that the tractor in front of the Morris is on duals, while the tractor in front of the DBS is on triples, that could be a bit of a problem as well," Brent says.

"The Morris tends to leave a reduced emergence where the centre wheels of the bar are running, but only in certain conditions – mainly on deep white sand rather than in the gravel.

"We've been able to reduce the wheel tracking issue on the Morris in some country by raising some tynes up, plus going to a lug-type tyre rather than the smooth tyre might also fix that problem."

REASONABLE ESTABLISHMENT IN 2018

Brent says overall, he has been happy with the establishment he has achieved with the Morris and DBS bars in the 2018 season.

"Most cereals and the peas were good, however lupins and canola are all over the place but that looks to be standard this year, it doesn't matter what bar you've got," Brent says.

"I think the best lupin establishment I've seen this year is someone with a Flexi-Coil.

"We've got canola at the moment that's come up in certain country that's in flower and looking good, and other canola that's still coming up now, all of which was seeded on the same day, same paddock – it's just down to different soil types.



The Hydes have noticed some wheel tracking issues with their Morris, which Brent thinks is due to the large bomber tyres but it could also be that the tractor in front of the Morris is on duals, while the tractor in front of the DBS is on triples.

PHOTO: CUSSONSMEDIA

“It’s just probably been the hardest season to get canola out of the ground – in 2017 it all came up fine using low seeding rates, and this year we increased the seeding rates and some canola is very ordinary.”

GRADING SEED KEY TO CANOLA ESTABLISHMENT

The Hydes are using a basic bar set-up for canola, which Brent says is similar to what many people would use for cereals, including sowing canola to around 20mm. A key to their canola establishment, he says, is to grade retained seed.

“We’ll definitely continue to grade all seed to a big size – it does mean you are running a lot through the seed cleaner, but it’s worth taking an extra day to do it,” Brent says.

“We grade to a size but the seeding rate will still be at five kilograms per hectare just because of less seeds in the kilogram.”

DUAL SHOOTING IN MOIST CONDITIONS

Brent says they have had no problems with achieving their targeted seeding rates, up to the top rate for oats and beans at 120kg/ha.

“Both bars can handle 60-foot of dual shooting, all that’s fine,” Brent says.

“The problem that we have had with the Morris is dual shooting in

moist conditions, where the urea is blocking on the fertiliser chutes and we had the same problem with the old Fusion bar.

“A lot of people were saying to just not dual shoot, but it is annoying, however we’ve got around that issue by seeding dry, which is not a good thing – ideally we would like to deal with the problem, maybe lime in with the urea might fix that.”

SEEDING DEPTH ADJUSTMENT

In terms of seeding depth adjustment, Brent says they have found the Morris to be much easier to handle than the DBS.

“Along with a standard DBS closing tool, we were using Morris MaxiPoint slot mate points on the DBS, but we’ve gone to a bolt-on point because we were breaking too many bolts to hold them on,” Brent says.

“The Morris is quite easy – you pull a pin out, shift a cam, so one person can probably do the Morris in half an hour. The DBS, you’ve got to undo a bolt and raise or lower the closing tool, so with one person you’d be looking at probably two hours. We do try to do it with two or three of us, especially the DBS – the Morris is certainly a lot easier and a lot better that way.”

TIGHT SOILS

Brent has not really seen any difference between the bars in different moisture conditions.



Brent is interested in seeing how his Morris bar is faring in 10 years' time compared with the DBS, which is a proven machine. PHOTO: BRENT HYDE



If the Hydes have to replace their second-hand DBS and were staying at the same hectares, Brent would like to look at another DBS because there is no other machine that can be wider than 18m but operate at 250mm spacing, which is important for their hay program. PHOTO: CUSSONSMEDIA

"Probably the Morris does a better job when it's really tight going because even though it has less breakout it can probably hold the point in a bit better than the DBS," Brent says.

"Whereas when the DBS breaks out, it tends to go right out and the Morris probably doesn't tend to do that as much but, in really tight going pasture country, both machines were putting seed on top of the ground."

"There's no machine that will go wider than 18m at 250mm spacing, so to me it would be DBS – but, if it's a \$100,000 difference, you might look at something else."

– BRENT HYDE

TRASH FLOW

Brent says in terms of trash flow, he has found the DBS to be the slightly better bar, although he observes the Morris is probably better going into cloddy country.

"If you're seeding some heavy country that's coming up cloddy, the Morris does tend to get more press wheel pressure and break up the clods I think," Brent says.

MAINTENANCE

From a maintenance perspective, although the DBS they acquired had done a lot of hours, Brent says it was not a concern.

"On the DBS, we're just pretty much replacing bearings and bushes as they go, and replacing tynes as they break or need replacing, plus we probably do 10 housings, or towers, a year," Brent says.

"The DBS has done a lot of work, and a lot of it would've been fairly hard going – it came from a farm that was using Flexi-N as well so a lot of the grease nipples were seized, so we probably spend a week on it every year plus a couple of days before seeding.

"In addition, on the DBS, we'll go through probably half to a set of points a year.

"Being three years old, we haven't had to do too much with the Morris yet – we did do a press wheel on it a couple of seasons ago and couldn't get one for a fair while, but generally, accessibility to parts is all fine, although probably costly."

He says it will be interesting to see how his Morris bar is faring in 10 years' time, commenting that while there could be improvements made to DBS bars, they are a proven machine.

FUTURE MACHINERY REPLACEMENT

Like many farmers, Brent advises anyone considering a DBS or a Morris bar to do their research, talk to other locals about their experiences, and see how the economics stack up.

"The new DBSs have improved a bit – in certain soil types, it's hard to keep them level, so I'd like to see gauge wheels out the front or maybe a floating frame, I don't know whether they've looked at that," Brent says.

"The basic DBS machine hasn't changed much over time but, if it's still working, you probably don't need to change it.

"If we had to replace the DBS, and we're staying at the same hectares, I would like to look at another DBS – we don't want to go over 250mm spacings because of hay.

"There's no machine that will go wider than 18m at 250mm spacing, so to me it would be DBS – but, if it's a \$100,000 difference, you might look at something else."

IN SUMMARY

- No clear winner between DBS and Morris C2
- Morris is easier to adjust for seeding depth and is better on cloddy country
- DBS handles dual shooting better in moist conditions and is better for trash flow



MORE INFORMATION

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DBS a worthwhile investment in Great Southern granite country

SNAPSHOT

GROWER: Bradon Mott

LOCATION: Dumblebung

ENTERPRISES: Cropping

ANNUAL RAINFALL: 310mm

SOIL TYPES: Gravel, sand over clay and clay

SEEDING EQUIPMENT: 60-foot (18m) DBS, Pro-D set-up, 5-inch (127mm) knife points, 12-inch (300mm) spacing, coulters, V press wheels, ProTrakker RTK, dual liquid cart behind and Bourgault 6450 bin in-front



Bradon Mott has been pleased with the performance of his DBS, especially in years like 2018, where the higher breakout of the DBS has allowed him to keep seeding when others have had to stop.

PHOTO: CUSSONSMEDIA

With plenty of granite country on his Nairbin farm in the Great Southern region of WA, Bradon Mott was finding he was spending more time under his Flexi-Coil bar making repairs rather than seeding. The situation prompted Bradon to switch to a DBS bar in 2013 and he has not looked back since.

His 18.3m DBS is set to 18m to match the ProTrakker RTK control traffic system, with 300mm spacing. It has a DBS Pro-D system, narrow V-type press wheels and coulters on the front. There is a dual liquid cart at the rear, with one liquid line for deep banding Flexi-N in cereals and canola and peat inoculant for lupins and peas and the other liquid line runs down the back of the knife point to place fungicides and trace elements with the seed.

Importantly, the DBS bar has meant more time seeding for the Motts.

"With the DBS we're getting the breakout pressure we need, and the hydraulic recoil comes back nicely into the ground, so we don't wreck everything," Bradon says.

"It was the recoil of the Flexi-Coil that did the damage, slamming back into the next rock and breaking things off."

The ProTrakker RTK control traffic system also plays an important role, ensuring the Motts can get through high stubble loads with minimal blockages.

"The ProTrakker is doing 99 per cent of the work for getting the bar through stubbles, as it allows us to edge-row sow as close as possible – around 40 to 50mm generally – to last year's stubble," Bradon says.

"The other benefit to edge-row sowing is getting the seed in close proximity to moisture in the old stubble, plus any old fertiliser can still be there from last year.

"Coulters at the front also play a role to deal with moisture late at night, particularly dewy nights, they just give us a bit of extra capacity to avoid blockages."

DRY SEEDING

In 2018, at least half of the Motts' program was dry sown. Bradon says the DBS made a huge difference in the tough conditions because the greater breakout of their bar meant they were able to keep their machine in the ground.

"It just works, just does its job and digs in the ground where other farmers have had heaps of problems breaking gear," Bradon says.

CHASING MOISTURE AT DEPTH

The role of summer rain is becoming more important in the Great Southern, as growers learn the value of conserving moisture like their eastern and northern wheatbelt counterparts.

"It's about getting out there and spraying the weeds straight away, harvesting low and spreading wide – it makes a big difference to conserve moisture from any summer rainfall we get," Bradon says.

Seeding depth decisions are made depending on where the moisture is and with his DBS, Bradon is confident he can place the seed as deep as required.

"We'll go chasing moisture – we've been down at 80 to 90mm, and I reckon we can get it nearly down to 100mm if we had to – it's amazing how seed comes up when you think it's too dry," Bradon says.

"We're normally seeding to about 25 to 30mm with wheat and barley, and we probably go down to 40 to 50mm for lupins and peas and sometimes even down to 60mm.

"While we didn't seed canola in 2018, I would sow it to 40 to 50mm if we knew we had moisture down there, it was early and there was no rain forecast for the next 10 to 14 days or more."

The Motts use 5-inch DBS knife points, which can dig to 4-inches, followed by V-type press wheels, which provide a better water-harvesting effect than flatter press wheels.

"I don't really focus too much on ripping down deep, it's more about putting the seed where it needs to be in that moisture zone – in fact, the further you rip, the more moisture you can dry out."

USE AIR DIFFUSERS FOR CANOLA

Bradon Mott says he has not observed much of a difference in the performance of his DBS bar in different crops, presuming it has been set up correctly. They have chosen to use air diffusers for the canola to allow for better seed placement.

“We put seed diffusers in for the canola so we don’t have the seed bouncing out of the furrow. It drops nice and gently to exactly the depth we want,” Bradon says.

MAKE THE SYSTEM SEAMLESS

Bradon says while his system works well, it can be complicated as he is running a Case tractor with John Deer guidance, plus a range of systems including the ProTrakker set-up.

“My best advice is, buy it all the same colour otherwise, when something goes wrong, everyone wants to hand-ball the issue and blame someone else,” Bradon says.

However, for farmers thinking about getting a DBS bar, Bradon says he would recommend them after his experiences over the past few seasons.

“If someone was looking at changing to a DBS, I would say just hurry up and do it!” Bradon says.

“There’s some good new bars out on the market, so realistically I would say to other farmers to just have a look around.

“We have found DBS to be good; just know you’ve got to be prepared for stubble issues, so you need to set it up at harvest time, and I’d definitely recommend a ProTrakker, it’s good value.”

If there was anything Bradon could change with their system, it would be to sort out the stubble issues, although he recognises trash flow problems are a sign of a good season. Another improvement would be to have the DBS fully matched to a CTF system.

“If we could have no stubble issues at all, it’d be awesome, but I actually don’t really mind it, it’s a good problem to have blocking up, as you know you’ve got the stubble there,” Bradon says.

“With the DBS we’re getting the breakout pressure we need, and the hydraulic recoil comes back nicely into the ground, so we don’t wreck everything.”

– BRADON MOTT, DUMBLEYUNG

IN SUMMARY

- Stubble is managed by edge-row sowing and cutting low and spreading straw evenly
- Good breakout is important to keep sowing in tough conditions
- Use air diffusers for canola placement



MORE INFORMATION

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Coulters at the front of the DBS help to manage moisture and avoid blockages, particularly on dewy nights.

PHOTO: CUSSONSMEDIA



Bradon says while his system works well, it can be complicated as he is running a Case tractor with John Deer guidance, plus a range of systems including the ProTrakker set-up.

PHOTO: CUSSONSMEDIA

Cross Slot machine conserves moisture at Pingrup

SNAPSHOT

GROWERS: Paul and Siobhan Hicks

LOCATION: Pingrup

CROPPING AREA: 4500ha

ENTERPRISES: 100 per cent cropping

ANNUAL RAINFALL: 320mm

SOIL TYPES: Sand over clay through to lake bank heavy country with some gravelly soils

2018 CROP PROGRAM: 1650ha wheat, 1500ha barley, 800ha export hay and 400ha lupins

SEEDING EQUIPMENT: 60-foot (18m) Cross Slot on 12-inch (30cm) spacings with a John Deere Air Cart and 14,000L liquid cart



Paul Hicks settled on purchasing a New Zealand-made Cross Slot after seeking a machine that would accurately place the seed into the previous year's row, while at the same time not dry out the available moisture in the soil.

PHOTO: CUSSONSMEDIA

Non-wetting soils are a significant challenge for Paul Hicks, who over the years has been busy trialling soil wetters, developing a new seeding boot as well as an independent steering system for his seeding bar. He has also changed from a Flexi-Coil about 10 years ago to a John Deere Air Drill and has recently purchased a 60-foot Cross Slot, which is manufactured in New Zealand.

"There are some advantages in using knife points but one of the disadvantages is that you probably lose between 10 to 15 millimetres worth of rain every time you work the soil because it opens it up, so I started looking around for a seeder that would accurately place the seed into the previous year's row while at the same time not dry out the available moisture that is present in the soil," Paul says.

"The seeder had to have good soil throw for chemical incorporation on the surface, be able to get through trash, but at the same time not suffer from residue hair-pinning (stubble pushed into the furrow and not being cut) and so we ended up with a Cross Slot."

One of the key concepts of the no-till Cross Slot is that the disc creates a slot that traps 90 to 100 per cent of the moisture vapour present in the soil. When the slot is placed in the previous year's row, the crop can take advantage of the moisture already there. Paul explains that because seeds will germinate in 90 to 100 per cent relative humidity, it makes sense to use a seeding system that is designed to achieve this goal.

SEEDING IN THE ROW

When the Hicks were initially looking at the Cross Slot, one of the key benefits they identified was the robust opener design. The opener unit incorporates a 560mm vertical disc, allowing it to track very accurately along the previous year's stubble row.

"We quickly worked out in marginal conditions that seeding in the row was significantly better for seed germination due to the residual moisture stored around the root mass from the previous year's crop compared to seeding on the inter-row," Paul says.

"This is especially the case on non-wetting sands, which we have on about 80 per cent of our farm."

To facilitate the accurate on-row-tracking, Paul developed a system called iTiLL® that uses a crop row sensor to feel where the previous year's stubble is and then hydraulically steers the bar so the openers are placed precisely alongside the previous year's row.

EXCELLENT SEED FERTILISER SEPARATION

Another key benefit for Paul with the Cross Slot is its ability to use high rates of fertiliser because it has excellent seed and fertiliser separation.

"Seed and fertiliser separation is excellent and you can use high rates of fertiliser and you won't get any seed burn because there's a physical disc separating the two blades that deliver the seed on the left side and fertiliser on the right – there's no mixing at all," Paul says.

There are different length blades available so the fertiliser can be placed deeper than the seed, but Paul runs them both at the same depth.

During seeding in 2018 the Hicks mostly applied between 80 to 100kg/ha of a MAP potash blend, 40L/ha Flexi-N and 2.5kg/ha copper, zinc, manganese sulfate with a fungicide. They aim to sow the cereals at between 20 to 25mm depending on soil conditions.

SETTING THE PRESS WHEEL PRESSURE

Another bonus with the Cross Slot is the ability to automatically adjust the press wheel pressure across different soil types. There are load cells on three of the openers, and the machine automatically adjusts the amount of down force required to penetrate the soil according to that soil type.

"You can set the computer to 40kg down force on the press wheels and it will adjust the whole bar so that all the press wheels are at 40kg, regardless of soil type," Paul says.

“It changes the pressure within a couple of seconds when you go into a different soil type, which is great because you find with a lot of other bars that you can't set the press wheel pressure and it's got way too much in the sand and not enough in the clay.”

NINJA DISCS

Paul found the disc wear to be high and under very dry conditions was only able to seed about 800ha out of a set of discs, which led him to develop the ninja disc.

“The ninja disc design has seen a significant improvement in disc life, seed placement and a reduction in the disks stalling when they are getting worn,” Paul says.

Paul believes the ninja design further improves the cutting ability of the disc to go through thick stubble with no hair-pinning being evident. He is working with Cross Slot and they have several different designs being trialled that Paul thinks look very promising.

HAY PROGRAM

As a frost risk management tool, the Hicks grow oaten hay. The airseeder cart is configured so oats are sown on both sides of the disc to reduce the row spacing of the hay in a similar principle to splitter boots.

“We also mow at 45 degrees so that the hay swath will sit up on the stubble, but really we should cross sow if we had time, but we don't,” Paul says.

“Seed and fertiliser separation is excellent and you can use high rates of fertiliser and you won't get any seed burn because there's a physical disc separating the two blades that deliver the seed on the left side and fertiliser on the right..”

– PAUL HICKS, PINGRUP

IN SUMMARY

- Cross Slot has excellent seed depth and placement
- Moisture retention in the row is very good
- Excellent seed and fertiliser separation



MORE INFORMATION

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Paul has found the seed and fertiliser separation to be excellent because there is a physical disc separating the two blades that deliver the seed on the left side and fertiliser on the right.

PHOTO: CUSSONSMEDIA

Older DBS with spray line and liquid injection works well at Kojonup

SNAPSHOT

GROWERS: Jono and Emily Clifton

LOCATION: Ryans Brook

CROPPING AREA: 1000ha

ENTERPRISES: Cropping and sheep

GROWING SEASON RAINFALL: 350mm

SOIL TYPES: White gum gravels

2018 CROP PROGRAM: 400ha canola, 600ha cereals, including wheat, barley and oats

SEEDING EQUIPMENT: Self-manufactured spray bar on a 30-foot (9m) 1998 DBS, 2.75-inch (70mm) press wheels, 4000L spray tank followed by 2000L liquid injection and tow-behind Flexi-Coil bin



Jono Clifton, pictured with his son Fletcher, believes the addition of a spray line to his bar has enhanced weed control with trifluralin tenfold.

PHOTO: CUSSONSMEDIA

Having a sprayer set-up on his DBS bar is delivering excellent weed control, according to Jono Clifton from Ryans Brook, who has made plenty of additions to his 11-year-old bar over the years. Jono says weed control from the self-manufactured spray bar on his 30-foot 1998 DBS S series is one of the biggest advantages on the machine. When they first added a 4000L spray tank nine years ago it was primarily for trifluralin, but they have since added other chemicals. Jono believes the delivery of the trifluralin through the spray line on the bar, rather than the boom spray, is advantageous due to the lower speed and pressure it is applied, at which results in better contact and coverage.

“We apply trifluralin at 2.5L/ha and just having it go in immediately is hugely beneficial for weed control, it just smashes the weeds,” Jono says.

“They say four hours for trifluralin incorporation, but I’d love to see some trials on incorporating immediately, as I reckon the weed control is enhanced tenfold.

“It then just made sense to put whatever else you need out there, because you’re going over it anyway, so we add propyzamide, atrazine, bug sprays, whatever – just put it all in there and achieve a one-pass operation.”

ONE-PASS SYSTEM

Jono says 2018 was a good example of the one-pass system at work, with no knockdown sprays going out prior to seeding – everything went through the spray line on the bar. Sprays included propyzamide and chlorpyrifos for Roundup Ready® canola, and for the triazine tolerant (TT) canola he applied atrazine, propyzamide, trifluralin and chlorpyrifos.

To apply a mix of chemicals successfully through the bar, all chemicals are pre-mixed and mixing agents are used to avoid blockages in filters. They also keep agitation up if the mix sits in the paddock for a while and filters are cleaned every day.

“The key is getting your tanks clean and make sure you use the right cleaning agent to get every little bit of rubbish out and get in there with a vacuum cleaner if you have to,” Jono says.

“Just make sure everything’s nice and clean, all your water’s clean, and just filter everything – you need a bit of patience, too.”

LIQUID INJECTION

In addition to applying herbicides on the bar, the Cliftons also have a 2000L liquid injection tank to apply wetters, trace elements, liquid nitrogen and fungicides. To combat their non-wetting soils, they began applying wetters 10 years ago, and Jono believes they are making a real difference to his crop establishment.

“I think all these wetters are having a cumulative effect on these soil types, as everything gradually seems to be wetting up easier and so we are getting a better germination,” Jono says.

“We’ve actually got a DPIRD trial that shows the effect of wetter for three or four years against a control that’s had nothing, and the results are quite astounding – it would be 1.5 to 2t/ha better where it’s had wetter over a number of years.”

Since setting the bar up to apply the wetters behind the press wheel or band with the seed, Jono has not found too much of an agronomic difference with either method.

“Sometimes our press wheels cop a bit of a hammering, and the liquid tube can get knocked out, so we just put it in with the seed, and it just seems to be fine, works just as well,” Jono says.

“I have done paddocks where I’ve put half the liquid tube behind, and half with the seed, and been trying to pick it, and in a dry year the placement doesn’t make a difference, so I’m pretty confident that as long as it’s there, it’ll work.



2018 was a good example of the one-pass system at work for the Cliftons, with no knockdown sprays going out prior to seeding – everything went through the spray line on the bar. Sprays included propyzamide and chlorpyrifos for Roundup Ready® canola, and atrazine, propyzamide, trifluralin and chlorpyrifos for the TT canola.

PHOTO: CUSSONSMEDIA

“Setting up a system like this really is all trial and error – I guess if you don’t try, you just never know. Initially we were just doing wetting agents like Lure H2O™ and water.

“Then we started putting flutriafol in there, some Impact® and then we had trials here with DPIRD and then they were putting SE14™, trace elements and everything like that in, too.”

The liquid systems are both run on hydraulic pumps, with an Ace pump on the herbicide tank and a Hypro pump on the liquid injection tank, with two pressure gauges that run back to the cab for monitoring. Both systems can deliver 70L/ha.

CHANGING TYNE LENGTH

Controlling the depth of sowing has been an issue for the Cliftons, as they have found furrow fill to be quite bad with their DBS. Jono is aiming for depths of 10 to 20mm with canola and around 25 to 60mm in cereals. Being able to adjust depth on his soils is very important.

The Cliftons are using 10-inch spacing and 70mm press wheels, although they have made some changes in their approach to point length in recent years. They have always used a longer 8-inch point in cereals, but have now moved to a shorter 6-inch point with canola, plus a wider closer plate.

“Changing between the longer and shorter point is really about trying to manage seed depth – it’s a bit of a common problem with bars that rip so deep, and with canola being such a small seed it’ll just fall to the bottom of the furrow,” Jono says.

“We’ve noticed in 2018 that by controlling the depth through using the shorter points, we’ve certainly increased our plant numbers to around 60 to 70 per cent, where in previous years we were getting probably only getting 40 per cent germination.

“The DBS is probably not the ideal canola bar, but if you can get it established it seems to power away later in spring because of the ripping that it does.”

DRY SEEDING CANOLA

In addition to seeing a positive effect from using shorter points, the start to 2018 has convinced Jono that with his bar and his soil types, all their canola will now be sown dry. Jono aims to have all his gear ready by 1 March so he can seed canola dry. However, things do not often go to plan, so being ready and having the canola in the ground before the first rain can be challenging as he does not know when the season will break.

“We sowed paddocks here two days after rain, and we got a really mixed germination, probably 20 per cent came up straightaway and then the rest came up a month later, so we’ve got canola at eight leaf and canola shooting up a flower now, then some at three or four leaves, so it’s all over the shop,” Jono says.

“If we went two weeks before the rain, then I think it would have been a heap better because as soon as you run a point over a bit of gravel, it just dries it out.”



In addition to applying herbicides through the bar, the Cliftons also have a 2000L liquid injection tank to apply wetters, trace elements, liquid nitrogen and fungicides.

PHOTO: CUSSONSMEDIA

MAINTENANCE

With an older machine, maintenance costs are higher, and with the addition of the spray line on the front, it is complicated, too. Jono has purchased a hydraulic press to redo the bushes in the parallelograms, an investment he believes is essential for DBS owners.

“Overall, my maintenance is huge – it takes up a lot of time getting the bar ready, as you’ve got to pull it to bits in January to make sure the parts are here by March – you’ve got to be onto it, just to keep your bushes and pumps all up to date,” Jono says.

FIT FOR THE JOB

Patience is the key word when discussing the size of the bar, although they do not need to cover a huge program, Jono says a 9m bar can make seeding quite “tedious”. He also acknowledges his bar is not a ‘set and forget’ type of machine and they are lucky to have a competent driver who comes back for seeding every year. Overall, after 11 seasons with his DBS bar, Jono says he is pretty happy with his set-up.

“We like to go quite slow, at 7.5 kilometres per hour,” Jono says. “We have gone quicker, but just being at 10-inch spacing, the throw is probably not ideal – I’d love a 40-footer but it’s hard to justify that cost.

“I’ve often wanted to get a bigger and flashier unit to get over the ground quicker, but I just don’t think there’s anything out there that’ll give us the result that we’re getting at the moment, with weeds right down and germinations right up.”

“They say four hours for trifluralin incorporation, but I’d love to see some trials on how we incorporate immediately as I reckon the weed control is enhanced tenfold.”

– JONO CLIFTON, RYANS BROOK

IN SUMMARY

- Excellent weed control with trifluralin sprayed from the bar
- Wetters are having a cumulative effect on improving germination
- While not a flashy bar, it is keeping weed numbers down and crop germination up



MORE INFORMATION

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Section control and sprayer on seeding bar creating big efficiencies at Jerramungup

SNAPSHOT

GROWERS: Trent, Tina, Rex and Tracy Parsons

LOCATION: Jerramungup

FARM SIZE: 8000ha (arable)

ENTERPRISES: Cropping and sheep

GROWING SEASON RAINFALL: 260mm

SOIL TYPES: Granite yate loam with some deep white sands

AVERAGE CROPPING PROGRAM: 2000ha canola, 2800ha wheat, 1700ha barley and occasionally lupins

SEEDING EQUIPMENT: 62-foot (18.9m) Bourgault 5810 air drill, Agmaster knife points, 2.5-inch (65mm) Agmaster boots, 4-inch (100mm) square press wheels, Morris custom-built dual liquid all-in-one air tank



The Parsons have been spraying trifluralin through the bar for the past 20 years and Trent Parson believes not only have they increased their herbicide efficiency but it has saved them from purchasing another boom spray and having to find an operator for it.

PHOTO: CUSSONSMEDIA

Efficiency is everything on the Parson family farm at Jerramungup, where they have been spraying trifluralin through a seeding bar for the past 20 years. The set-up means one less boom spray and one less driver to cover their 6500ha cropping program, which represents significant savings.

The family runs an 62-foot Bourgault 5810 air drill with Agmaster knife points, 2.5-inch Agmaster boots, 4-inch square press wheels and a custom-built Morris dual liquid all-in-one air tank.

“There’s nothing special about the bar – the Morris air tank we run in front, and which is new to us this year (2018), allows us to deliver seed, super, Flexi-N and Treflan®,” Trent Parsons says.

“When applying Flexi-N, it’s obviously not a timeliness issue, it just means hooking another hose up, filling another tank up, but our current system works seamlessly – the Morris tank has full section control for all four products and we’re absolutely rapt with the job it’s done.”

TRIFLURALIN ON THE BAR

The trifluralin is sprayed along the front of the bar through yellow air mix nozzles, while the Flexi-N is banded about an inch below the seed.

“For us, the Treflan® side of it is really important – we run one boom spray and my father does the majority of the spraying, and if we were going to apply Treflan® through the boom, we’d definitely have to own another boom spray, and have another driver, so there are huge savings there,” Trent says.

With their spray program, Trent says while they try to get metribuzin and Logran® out through the boom spray, they can also put mixes through the bar with the Treflan®, which is a good back-up. However, with the dry start to 2018, the boom spray was not used much during seeding.

“Around 80 per cent of our program went in dry in 2018, and there was no summer rain prior, so there was no germination,” Trent says.

“That meant there was no need to go over the country with the boom spray, which saved us a full pass – the boom spray was basically idle for most of seeding, so there was another significant saving, it is a big advantage. Quite often, we’ll be doing a double-knock, so a paraquat or Spray.Seed® will be going in right in front of the bar. In that situation there’s not a lot of savings because we could be laying the Treflan® down, but again, we would definitely have to have another boom spray.”

Trent says setting up nozzle spacings for the Treflan is a bit of a contentious issue, commenting that there’s several growers around Jerramungup using nozzle spacings anywhere from 500mm to over one metre.

“We’ve got ours set around 800mm and use the height to set them up for no overlap so they’re just a single spray,” Trent says.

“The guys that have around 500mm have the double overlap, same as a standard boom spray, and that would certainly be the ideal situation, but you’ve got to go back to green 03 nozzles I think and that in itself creates issues with blocked nozzles.”

Another benefit of applying Treflan® through the bar is the efficiency gained by travelling so slowly due to the seeding operation.



The Parsons has found with Agmaster points and boots that if they get the speed right, they are able to displace non-wetting sand in the inter-row, a feature he believes is a significant advantage over the precision parallelogram planters.

PHOTO: CUSSONSMEDIA

“By travelling so slowly, and nearly always in the same direction as the stubble, we’re able to get better penetration and contact in the soil rather than when we’re spraying 20 to 30 km/h with a boom spray drop that’s moving forward – you can see the guys applying Treflan® with their boom sprays painting their white stubble yellow, whereas you can’t see that in guys that are spraying Treflan® off the bar,” Trent explains.

DISPLACING NON-WETTING SOIL

The bar itself is set up on 25cm spacings, and Trent has found with Agmaster points and boots that if they get the speed right, they’re able to displace non-wetting sand in the inter-row.

“Conditions determine seeding speed, but generally we travel at around 8 to 11km/h, while on non-wetting country, we’re trying to not throw the sand, so I’ll go back to 7.5 to 8km/h” Trent says.

“I think in quite severe non-wetting sand and gravels, our system seems to have quite an advantage over the precision parallelogram planters that allow non-wetting sand to flow back in behind the tyne.”

SECTION CONTROL = SAVINGS

The Morris tank is run by a Topcon X35 system, which Trent says initially was daunting to operate for his drivers. Once they had worked out how to operate the section control, things went well. Trent estimates the Morris tank has delivered about eight per cent in savings over the hectares covered in 2017 without section control.

“The results were pretty variable – some areas were barely two per cent savings, others up to 18 per cent, but I do know that all the savings are down to section control,” Trent says.

“Running an air drill, we have to seed headlands last because you can just flatten an entire headland by running over it, so we have to have all our headlands mapped and auto-steer all the headlands, because that’s quite accurate. You can’t be relying on drivers to be steering the outside laps because a small overlap will result in gaps missed on the overlap.”

While their system is not variable rate, they do vary rates paddock-by-paddock, anywhere from 60kg/ha of Agstar up to 110kg/ha of KTill, with the rates being dependent on soil tests and farm knowledge.

SEEDING DEPTH IS LIMITED

Trent says having not purchased a precision planter, they are limited by how deep they can pull the bar – with 30 to 35mm being the limit. The dry conditions in 2018 also created new challenges.

“We are generally targeting moisture at around 20mm – the air drill does create a very deep furrow so it does allow you to chase moisture without planting too deep, but you do need to be quite aware of furrow in-fill, which has happened a lot with the four severe wind events we had this year (2018),” Trent says.

“I’ve never seen an air drill riding out of the ground until this year, when on our northern place in heavy clay soils there were places where the press wheels were off the ground and it was just riding on the points, which for a very heavy bar, about 23t, is unbelievable.”

Trent found it took them a couple of seasons to better understand how to set up the seeding depth correctly on their air drill and advises others to be meticulous in getting the machine level as he says they are quite tricky to get right, and very small adjustments in depth can make a big difference.



The custom built Morris tank is run by a Topcon X35 system, which Trent says initially was daunting to operate for his drivers, but once they had worked out how to operate the section control, things went well. He estimates the Morris tank has delivered about eight per cent in savings over the hectares covered in 2017 without section control.

The Parsons says they are limited by how deep they can pull the 23t bar, with 30 to 35mm deep being the limit.

PHOTOS: CUSSONSMEDIA

“When setting up for canola, I’d say to go a bit shallower than what you think is ideal with air drills – a bit of furrow-fill in canola can create some issues, so look closely at what country you have,” Trent says.

“If you’re all heavy clay, the air drill is probably not for you, whereas if you have lots of sandplain and loamier soils, they’re okay.”

TWO SETS OF PRESS WHEELS?

The Parsons use 4-inch square profile press wheels, which they have found to be excellent in both sand and wet loams to create a wide furrow. However, in dry years they have found they do not harvest water all that well and do not pack dry clays well enough.

The solution, Trent believes, is to be able to swap between two sets of press wheels – a 3-inch V-shape and a 4-inch square – but he is not convinced he could find the right 3-inch press wheels.

MAINTENANCE

Overall, Trent says maintenance on the bars is fairly limited and standard.

“We have had the bar for five years now, and it hasn’t needed to be re-bushed yet – it’s got hydraulic tynes, so a nice cushioned breakout,” Trent says.

“We go through some pretty treacherous granite country with it and pull out rocks the size of car bonnets and obviously you do break some bolts and straighten out a few tynes, but other than that it’s pretty standard. Probably the main reason we didn’t go with a precision planter six years ago when we were looking at gear is that we’re still developing semi-cleared country and removing rocks and rock heaps and I think we would have just worn a precision planter out very quickly. The air drill is pretty robust as far as getting through all the rock and also trash clearance, which is important as we haven’t burned any stubble for a number of years.”

FUTURE PLANS

While admitting it is getting quite complicated in the cab with section control and four different products, Trent says he would also consider a ProTrakker drawbar steering system, either using a



receiver or a stubble feeler to steer the bar and seed right next to last year’s furrow.

“Obviously we could use it for when we’re not in non-wetting situations, we could use it for inter-row seeding to get it between last year’s stubble rows and help stubble handling,” Trent says.

“That’s the only reason I haven’t gone down that path cause there’s obviously clear advantages, it’s just another thing to try and teach people how to use. One other thing we’ll look at in the future is banding wetters – we’re not using Treflan® in front of the canola, so we’ve got a spare tank there, which allows us to set up another liquid system to band wetters such as SE14™ or Bi-Agra Band, with the seed or on the furrow depending on where we think it should be going.”

IN SUMMARY

- Trifluralin on the bar gives better contact
- Section control gave on average eight per cent savings in 2018
- While robust, seeding depth is limited with the air-drill



MORE INFORMATION

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Use of cameras aids monitoring at Mount Barker

SNAPSHOT

GROWERS: Iain and Kerry Mackie

LOCATION: Mount Barker

FARM SIZE: 3200ha

ENTERPRISES: Cropping and sheep

GROWING SEASON RAINFALL: 450mm

SOIL TYPES: Forest gravels

2018 CROP PROGRAM: 900ha canola, 450ha barley and 350ha wheat

SEEDING EQUIPMENT: 40-foot (12m) DBS double-shoot, 12,000L Bourgault 6350 bin with John Deere rate controller, 70mm V-press wheels, canola boots



With the challenges of establishing canola on forest gravels, Iain Mackie is considering reverting to the traditional boots on his DBS to sow his canola deeper at 20 to 30mm and using wetter to improve germination.

PHOTO: CUSSONSMEDIA

From farming 485ha 50 years ago in the Mt Barker region, to running around 3200ha in 2018, the Mackie family farming operation has grown significantly and its equipment has evolved to match.

“We went from traditional tillage to a basic, direct drill system and then we upgraded that about four years ago to a DBS, double-shoot system with liquid capability,” Iain Mackie says.

Iain says one reason he bought a DBS is that it will probably outlive his farming career, so he considers it an investment in the future.

“Previous consultants said to buy a good machine and use it well, and that’s what we’ve done with the DBS – it’s an investment for a long, long time for us,” Iain says.

“One of the largest costs in a cropping program is fertiliser and seed, and ultimately we can’t control the price we receive for commodities, but we can control the efficiency of the fertiliser and seed by having good placement with our machinery.

“I’ve always been keen on ripping below the seed, and that is where I could see the DBS hydraulic tynes being a winner for us in regards to keeping that tyne in the ground at all times and ripping that soil.”

The Mackies run their DBS at high pressures, up to 2000-pound (907kg) breakout, meaning the 10-inch spaced tynes stay in the ground unless they come to a fixture. As a result, the Mackies purchased a bobcat to assist in rock picking.

AIDING DRAINAGE

While standard DBS boots are being used to sow the cereal program 20 to 40mm deep, the Mackies are also trialling splitter boots after a wet first seeding resulted in excess water flow into the middle of the furrow, causing seed burst.

“I found in the first year, especially in some of my harder soils and some very wet conditions, the DBS left a bit more of a square trench and because things were quite wet I didn’t get the fracture as much as I would like,” Iain says.

“So seed was planted in the middle of that trench where all the nice, soft soil was and it was easy for water to flow into, so I ended up getting quite a bit of burst seed the first year.”

It is for this reason the Mackies are not only trialling some splitter boots to try and get into the side walls, but they are also being more strategic about their direction of seeding. After initially trialling seeding both east and west as well as north and south to alleviate waterlogging issues, Iain discovered his best-performing paddocks were those that had been sown straight up and down the hills. From this, the Mackies have decided that as long as there is not more than around a 2.5 per cent fall, they will try to seed straight up and down the hills.

“What we’re trying to do is get that drainage effect from each of the furrows and because the DBS is so capable of holding the tyne in the ground, we actually did a small trial this year where we put a very deep point on occasional tynes,” Iain says.

“So instead of ripping every furrow nine inches deep and making the paddock into a total quagmire, we’re actually deep ripping with the nine-inch tynes spaced about 1 to 1.5m apart.

“The key is ensuring a drainage effect while maintaining trafficability – I have been involved with the raised bed work that was initially done by the research station and saw that the raised bed system, at about 1.8m, would drain adequately, so I’m pretty confident 1.5m will do it as well.”

AIDING CANOLA ESTABLISHMENT WITH WETTER

In the past two years, the Mackies have been placing their canola at 5 to 15mm deep using canola boots. However, with the challenges of establishing canola on forest gravels, Iain is considering changing his system and reverting to the traditional boots to sow his canola deeper at 20 to 30mm and using wetter to improve germination.

“The reason we’re thinking of taking the canola boots off and going deeper is I’ve got some local friends who are running a very similar system and they’re finding by running wetter with the system, they are getting a better germination of their seeds in those tough conditions,” Iain says.

“I’m a little bit of a nerd in regards to technology, so we run cameras to provide a live feed into the tractor on important things, so we know they’re working.”

– IAIN MACKIE, MOUNT BARKER

“If you’re using the canola boot sometimes your seed is in 5 to 15mm, and an occasional rain event can spark the seed up, but it won’t have enough moisture to keep on going.

“However, if it’s a little bit deeper, it probably will have enough stored moisture around with the aid of wetters to be able to get its roots further down.”

With too much water in July sometimes being a problem, it may seem surprising that Iain is trialling wetters, but he explains it is actually about using them to get the crop up and going before the water-logging events have an impact.

“I might be a total convert the other way next year, but from what I’ve seen the last couple years people are using those wetters to successfully get their crops going, and managing to achieve good coverage, good germination earlier in the season when conditions aren’t ideal,” Iain says.

DBS ADVANTAGES

Iain says there are plenty of structural benefits to his seeding bar set-up, including the fact that it is a tow-between, with the bin between the tractor and the bar. Once they drive across the ground with the seeder, they are not compacting the soil with another 20t of machinery behind it. In addition, he has found the strength of the DBS to be exceptional.

“You wouldn’t believe some of the country I’ve put it over – you wouldn’t take a four-wheel-drive over what I’ve had to pull it through, yet it survived, not one single crack in it,” Iain says.



As a means to improve the trafficability of his paddocks, Iain seeds his paddocks straight up and down the hill as long as the fall is 2.5 per cent or less and is trialling spacing a 9-inch tyne 1 to 1.5m apart on the bar to improve drainage.

PHOTO: CUSSONSMEDIA

So far maintenance on the four-year-old machine has been negligible, although it was quite a process to set up the equipment initially. The main reason for this, he says, was because of the different brands of gear he wanted to use together. However, by working with the local dealer, they were able to get through all the compatibility issues.

“We haven’t had a lot of wear on the DBS, but one of the key things I was told when I first got a DBS was to avoid running it at low pressures – the hydraulics are there for a reason, to keep the tynes in the ground, and they don’t want to be moving unless they hit a hard object – that’s why we’re running up at 2000-pound breakout,” Iain says.

Like the advice he got on high breakout pressure, Iain says for those considering a DBS machine there is lots of value in speaking to other growers about their experiences.

“The book does have some answers, but it’s a case of experience does tell a lot of stories, so before I bought the DBS, I did go around and speak to plenty of people with alternative bars and then once I’d settled on a DBS I spoke to as many people as I could, because farmers are generally honest people and will tell you the good and the bad,” Iain says.

“They had plenty of good to say about them, and the resale value on a DBS is a testament to that as well. There are very few out there second-hand, that’s why we bought new.”

One of the biggest strengths Iain Mackie sees in the DBS – being good seed placement control – could also be considered a downfall of the machine.

“It is a precision seeder almost, in that it’ll put the seed within 5 to 10 mm of where it should be, so if you want that scatter effect to spread your risks by spreading the seed, DBS is not ideal for that,” Iain says.

CAMERAS TO AID DECISIONS

One area where Iain has been particularly innovative is the use of cameras across the machine to ensure that vital operations are being monitored in real-time. He has connected cameras to gear boxes, bins and even critical cogs.

“I’m a little bit of a nerd in regards to technology, so we run cameras to provide a live feed into the tractor on important things, so we know they’re working,” Iain says.

“We’re running variable rates now, and we know the settings should be at a certain place, or a cog should be going at a certain speed, so we are getting the staff to keep an eye on those cameras.”

IN SUMMARY

- Trialling spacing a 9-inch tyne 1 to 1.5m apart to aid trafficability
- Trialling wetter and seeding deeper to aid canola establishment
- Cameras assist in monitoring



MORE INFORMATION

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The Mackies use cameras on gear boxes, bins, and even critical cogs across the machine to ensure that vital operations are being monitored in real-time from the cab.

PHOTO: CUSSONSMEDIA

Discs have multiple benefits at Gairdner

SNAPSHOT

GROWERS: Chris and Kym Ross

LOCATION: Gairdner

FARM SIZE: 2000ha

ENTERPRISES: 100 per cent cropping

GROWING SEASON RAINFALL: 450mm

SOIL TYPES: Light sands to heavy clays

2018 CROP PROGRAM: 1000ha wheat and 1000ha canola

SEEDING EQUIPMENT: 60-foot (18m) K-Hart bar with Yetter coulters, K-Hart low profile discs with 4-inch (100mm) soft-type press wheels, variable rate Ezee-On bin, RTK



Chris Ross believes in his environment there are multiple benefits from using discs, including less disturbance, which is beneficial for soil erosion, as well as improved weed control and trafficability in wet seasons. PHOTO: CUSSONSMEDIA

Chris Ross approaches his farming system with a philosophy of simplicity, and that principle is certainly followed in his seeding program and equipment. The cropping rotation on the Ross family property at Gairdner is canola/wheat, which has been working well for more than 12 years.

The program is planted using a K-Hart bar on a 12m tramline system, with Yetter coulters and K-Hart low profile double discs.

“The only thing I’ve changed on the bar is to put on bigger discs, so I can get more wear out of them,” Chris says.

“I also went from a 3-inch to a 4-inch press wheel, because the low-profile openers are quite heavy, and in the light country we would go through sections where we’d seed too deep.”

Chris also used to have liquid placement between the twin discs; however, “that was all too messy”, so he moved the Flexi-N® behind the press wheel and it seems to be working well.

“We’re only laying it on the top and in our type of country, because of our rain events, I don’t think it’s an issue,” Chris says.

“I have tried deep banding and I have found the yield benefits aren’t great enough for what it costs.”

REDUCED DISTURBANCE

Chris is a firm believer that by reducing soil disturbance with his K-Hart machine, he has fewer weeds germinate, which results in cleaner crops. He uses Boxer Gold® and Sakura® with good results.

“The shift to discs – albeit with a higher chemical rate – has resulted in really weed good control,” Chris says.

“The less you disturb the ground the better – if you’re ripping it up and throwing dirt everywhere, you’re also throwing seeds everywhere.”

In tough starts such as 2018, with multiple wind events resulting in the need for many growers to reseed, Chris believes reseeding with a disc machine is a far better proposition than a tyne machine as it creates less soil disturbance, less erosion and dries out the soil less.

“That’s the advantages of discs, especially on a dry year like this year, if we wanted to go back and reseed, we’re not disturbing the ground again,” Chris says.

“Anyone that’s using a tyne implement at the moment, on a hard start like this, if they go back over it again, they’re just causing another problem on these fragile sandy soils.”

While too much moisture after seeding was not a problem in 2018, in other seasons South Coast growers are faced with large rain events that can result in challenging conditions for in-crop spraying. However, Chris finds with their reduced tillage, that paddocks are more trafficable because there are fewer boggy areas.

LOW HORSE POWER

Another advantage of his disc system is that Chris does not need a large tractor to pull his bar.

“I think the system that I’m using is low horsepower orientated and it’s probably not high maintenance either. Yes, there’s a lot of nuts and bolts, but we don’t probably work on it any more than anybody else,” Chris says.

CREATING A CHANNEL

Chris uses a turbo coulters that digs a channel, which is good for moisture harvesting in the dry years, while in a wet year when water harvesting is not required the coulters can be reversed so they cut through the stubble rather than dig a channel. On his parallelogram system, depth control is set by the press wheels.

“On most years, especially on the sandplain, it’s the depth control that’s the important part, as we rely on the small 10 to 20mm rain events to fill that channel and germinate the crop,” Chris says.

“The main advice, I think, is to not sow too deep – when we’ve got normal seasons with moisture, the shallower you sow the better.”

STUBBLE MANAGEMENT

To ensure the discs do not ride up onto the stubble, Chris advises spending the time to make sure the coulters are lined up properly with the discs. In 2017, they had good establishment even when sowing into 4t/ha wheat stubbles.

“If you’re travelling at 10 to 12km/h in a high residue stubble, you can ride up on the stubble,” Chris says.

“So, you’ve got to make sure you’ve got the coulters lined up well with the double disc openers to make sure those double disc openers stay in the soil, and we try to stay between two and four centimetres deep.”

PERFORMANCE ON HEAVIER COUNTRY

While many growers consider discs a less attractive seeding system in heavier soils, Chris has found his disc system still performs well on his heavier soil types.

“You look on the ground and find there’s a bit of wheat laying on top and you think, ‘Oh no, I’m not getting into that’, but then you’re very surprised at harvest time as it all comes up eventually,” Chris says.

“So, you’re probably wasting a bit of seed as the heavier country doesn’t need to be sown as thick.”

“The less you disturb the ground the better – if you’re ripping it up and throwing dirt everywhere, you’re also throwing seeds everywhere.”

– CHRIS ROSS, GAIRDNER

SLOWER EMERGENCE

Chris does not really see any disadvantages with his system, although he has observed crops sown with discs seem to be slower to grow than crops sown with tyne systems.

“We can seed on the same day, germination seems to be the same but tyne-sown crops seem to get away a lot quicker – perhaps it is the mineralisation of nitrogen,” Chris says.

FUTURE TILLAGE

While the Rosses have run a no-till system for about 25 years, Chris believes the addition of some tillage into his system will be beneficial to level his paddocks. He also says that adding tillage would assist in incorporating their lime.

IN SUMMARY

- Discs create less disturbance, which is beneficial for soil erosion, weed control and trafficability in wet seasons
- Aim to sow shallow for best establishment
- Discs perform well in sands and heavier soil types



MORE INFORMATION

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The Ross' use a Yetter turbo coulters that digs a channel, which is good for moisture harvesting in the dry years. In a wet year when water harvesting is not required, the coulters can be reversed so they cut through the stubble rather than dig a channel.

PHOTO: CUSSONSMEDIA



Since purchasing the K-Hart, Chris has increased the disc size to improve wear and increased the press wheel from 3-inch to 4-inch, because the low-profile openers are quite heavy and in the light country they could sow too deep. In addition, he moved the Flexi-N placement from between the twin discs to behind the press wheel.

PHOTO: CUSSONSMEDIA

Morris Air Drill still performing on all soil types at Grass Patch

SNAPSHOT

GROWERS: Lee and Chantelle Hallam

LOCATION: Grass Patch

CROPPING AREA: 3000ha

ENTERPRISES: 100 per cent cropping

ANNUAL RAINFALL: 350 to 400mm

SOIL TYPES: Mixed, including good loams, heavy reds, sticky grey clays, sand over clay and non-wetting sand

2018 CROP PROGRAM: 1000ha wheat, 1000ha barley and 1000ha legumes – field peas and faba beans

SEEDING EQUIPMENT: 60-foot (18.3m) Morris Max III Air Drill, 10-inch (25cm) spacings, spring tynes, 3-inch Root Boot splitter boot, 3.5-inch V-style steel press wheel with an 8 Series Morris bin



Lee Hallam's Morris Max III Air Drill performs well across his range of soil types, including heavy clays.

PHOTO: CUSSONSMEDIA

There are two critical elements to the seeding system Lee Hallam operates at Grass Patch – flexibility to cover a broad range of soil types and the ability for the machine to stay in the ground on heavy country.

Since 2006, the Hallams have been running a 60-foot Morris Max III Air Drill on 10-inch spacings with spring tynes with Root Boot splitters and 3.5-inch V-style steel press wheels. Their Morris 8 Series bin has variable rate capacity, with two tanks for granules and one for liquids.

Lee says the key to the system is that it can handle all their soil types, which range from loams and clays through to sand-over-clay and non-wetting sands.

“It does a good job on any of the softer loam country as well, like anything would, but on the heavy hard stuff it’s got the weight and going slow, it just stays in the ground – as far as I’m concerned if you don’t get it in the ground the first time round, you’re in trouble for the rest of the year so it’s got to be in the dirt,” Lee says.

“Especially with a lot of the pre-emergent chemicals we’re using, if you sit the seed on top of any of that it’s useless, and this Morris just seems to be able to dig, unlike a lot of precision seeders where a press wheel governs sowing depth.”

KEEPING IN THE GROUND

Lee does say that with some moisture on their heavy country, increasing the packing pressure to keep the sowing boot in the ground can seal the soil over, meaning the seed will not make it through unless it gets 10mm of rain to soften the crust.

“The machine can be a bit heavy on the press wheels, which is why we’ve gone to the splitter boot to get the seed out to the edge of the furrow where it’s a lot softer than right in the bottom,” Lee says.

“It also stops the slotting problem we had in the heavy clays, where the seed just drops right to the bottom and it never makes it up.”

STILL PERFORMING AGAINST NEWER MACHINES

The Hallams make sure they do adequate research into their machinery choices, including trial work on the property in 2017 and 2018, testing a different precision seeder each year against their Morris.

They seeded half a dozen strips with the Morris and then use the demo machine to fill in-between on the same day at the same rates across a 50ha paddock, which varies from heavy greys and reds to a bit of Gilgai country and some loams.

“Those trials are why we’ve still got this set-up, because neither of the bars we tested have at this stage shown an improvement on what we’re doing – they’re both just as good in the good soil types but in the poorer, harder country, the Morris still seems to do the job,” Lee says.

“I don’t believe precision seeders actually are doing it the right way for my country. You need to be able to back that pressure off on the press wheel but keep the sowing boot in the ground and as soon as you back the packing pressure off, the sowing boot comes out of the ground. So they’re doing it a bit differently to what I think a precision seeder should be – it’s just I don’t know how you design it to do it.”



While they initially opted for Root Boot splitter boots to eliminate issues with sealing over in the bottom of the furrow and slotting, Lee says they have also found their 25cm spacing and splitter boot combination to be excellent for early weed competition.

PHOTO: CUSSONSMEDIA

LOW MAINTENANCE

From a maintenance perspective, Lee reports the machine is simple but has cracked up a lot over time; however, the work history of the bar has played a role. Previously the machine had been used for seeding on two properties, when Lee and his brother farmed together, with the extra hectares meaning they pushed the seeding speed up to 11km/h, which resulted in wear.

“We went through it a few years ago and really braced and welded up things properly at one of the local shops here and haven’t had too many cracks since,” Lee says.

“These machines are simple, we don’t have many parts wearing out – this bar has probably done over 40,000ha of sowing, and not one tyne has been rebushed, so maintenance is pretty easy – weld up a few cracks here and there, and that’s it.”

The Hallams now limit their seeding speed to 7 to 8km/h for much of their program, whether it’s damp or dry. Seeding rates are 50kg/ha for barley and 60 to 65kg/ha for wheat, while fertiliser rates are 65 to 70kg/ha of MAP and 50 to 55 kg/ha of UAN.

“Those trials are why we’ve still got this set-up, because neither of the bars we tested have at this stage shown an improvement on what we’re doing – they’re both just as good in the good soil types but in the poorer, harder country, the Morris still seems to do the job.”

– LEE HALLAM, GRASS PATCH.

FLEXIBLE SEEDING DEPTH

Lee says he will look to place seed deeper in the profile if the moisture levels are good, explaining that with the splitter boots, 90 per cent of the seed will emerge without a follow-up rain. Usual seeding depths are 1.5 to 2-inches for cereals, while faba beans and field peas are a bit deeper.

However, 2018 was an unusual situation in which they had subsoil moisture from summer and a dry band between 3 and 6-inches deep. Then there was a small amount of moisture at the top, with just enough rain to get started, meaning they seeded the shallowest they ever have.

“The cereals were in only three-quarters of an inch to an inch, and that was lucky because the small one and two millimetre rain events, which is all we’ve had since then, have been enough to wet it up shallow and actually get a good percentage out of the ground,” Lee says.

“However, the early beans went deep and each time we got a little rain they’d just get damp and then dry out – some of them went mouldy and didn’t come up.

“It’s just different every season, you could do that next year and it’d be a failure – generally though, if we’ve got a good starting rain and subsoil moisture we go a bit deeper and we find, especially with the splitter boot, that a lot of it comes up.”

SPLITTER BOOT ADVANTAGES

While they initially opted for splitter boots to eliminate issues with sealing over in the bottom of the furrow and slotting, Lee says they have also found unexpected benefits in terms of crop competition.

“I wanted to spread the seed out to get more out of the ground without it being set so hard in the bottom of the furrow, especially with 10-inch spacings and the splitter boot, we’re getting a lot of ground cover in that first six weeks, which I think is good competition for weeds and retaining moisture,” Lee says.



The Hallams trialed a different precision seeder in 2017 and 2018 against their Morris and found they were both just as effective in the good soil types but in the poorer, harder country, the Morris seemed to do the job better. Precision seeder-sown wheat (left of photo) and Morris-sown wheat (right of photo).

“I keep toying with the 12-inch row spacing ideas and I just don’t think I could go to it – it looks too open up the rows, unless you had a splitter boot that was about five inches wide and then you start to disturb a bit of dirt, which can in turn bring up more weeds, so I’d have to do some trials before I went down that path.”

GOOD TRASH CLEARANCE

Trash clearance is another good characteristic Lee nominates for air drills, mainly due to there being no wheels within the frame.

“They do have a good tyne layout and a lot of precision seeders have wheels out the back, which I just find ridiculous that you want to drive a wheel over something that you’ve just seeded, especially for people concerned with compaction,” Lee says.

“Those little wheel tracks out the back can actually make sandy country blow, and they can pack our heavy country a bit harder – plus, I don’t think you’ll find a precision seeder with anywhere near the trash flow performance of an air drill.”

HEAVY ON THE PRESS WHEELS

There are some disadvantages to their system, Lee says, including being too heavy on the press wheels, but he admits that is in part because they did not match up the weight of the machine to the size of the press wheel.

He says next time he will work out the total weight and distribution of the machine and install adequate press wheels to match.

COULTERS FOR SUMMER WEED MANAGEMENT

The Hallams have had coulters on their Morris for 10 years, but Lee says they have realised that if the moisture is not there for them to penetrate, the coulters will help hold the machine out of the ground.

“A lot of the time now we won’t use the coulters unless we’ve really got a weed issue or something like that, but we do slash our stubbles so we can get through them better, plus we can change our run lines to get through thick stubbles because we’re not into tramlining,” Lee says.



An example of the harder clays in which Lee is yet to see an improvement above the establishment he obtains with his Morris bar.

PHOTOS: CUSSONSMEDIA

“We just pin the coulters up, it takes two blokes about 10 minutes, and then if we hit a problem paddock with summer weeds, we can drop them back down.

“The coulters also add weight to the machine, which probably also makes it break up a bit more, but they’re also adding weight to keep it in the ground, so I’m a bit concerned if I go to an air drill that’s lighter, we won’t get the same digging ability as this machine.”

With Lee looking to change the machine over “before it breaks”, he says ideally he would purchase another air drill, but with hydraulic tynes instead, to cushion the machine more as it moves over the ground.

IN SUMMARY

- Air drill suits a range of soil types including heavy clays
- Splitters boots aid germination and are good for competition
- Good trash clearance with wheels outside the frame



MORE INFORMATION

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Seed Hawk delivers for large and varied program at Cascade

SNAPSHOT

GROWERS: Jason and Tara, Brad and Mykala, Rory, Hughie and Lee Vermeersch

LOCATION: Cascade and Mount Madden

CROPPING AREA: 21,000ha

ENTERPRISES: 100 per cent cropping

ANNUAL RAINFALL: 350 to 400mm

SOIL TYPES: Heavy grey clay (Cascade), sand over clay and sand over gravel (Mt Madden)

2018 CROP PROGRAM: 8100ha canola, 6250ha wheat, 4850ha barley, 1200ha lentils and 400ha vetch

SEEDING EQUIPMENT: 2 x 80-foot (24.4m) Seed Hawks on 12-inch (30cm) spacings with 21,000L three-bin, eight-section tow-behind bins



Jason Vermeersch believes the Seed Hawk is one of the best bars on the market in terms of seed placement.

PHOTO: CUSSONSMEDIA

With a big cropping program at Cascade and Mount Madden, it is important that seeding equipment in the Vermeersch's farming operation is flexible enough to handle a range of crops including, in 2018, canola, wheat, barley, lentils and vetch.

For the past six seasons the Vermeersch's have used two 80-foot Seed Hawks on 12-inch spacings with 21,000L three-bin tow-behind bins, pulled by John Deere 9510 RT tractors.

EXCELLENT SEED PLACEMENT

Jason Vermeersch says, an agronomist recently told him that every bar is a 90 per cent bar, so none of them do everything perfectly – but some of them do things better than others.

One thing the Seed Hawks do very well, Jason says, is seed placement, with every module being independent and having its own press wheel and parallelogram.

"They're one of the best in the market in terms of seed placement – which means you can either get it all in the right spot, or you can probably stuff it all up as well," Jason says.

TWO TYNES

When the Vermeersch's were considering an upgrade of their old 60-foot Flexi-Coil bars, they spent a couple of years looking at different set-ups, and initially thought the Seed Hawk was quite complicated having the two tynes.

"We walked away from it at first thinking, 'Geez, it looks like a dog's breakfast', but the longer we've had it, the more we use it, the more we love it – it's just very simple, there's not many moving parts," Jason says.

"The Seed Hawk has a two-tyne set-up, with the front tyne doing most of the ripping and it deep bands the urea and then the back tyne is offset 1.5 inches to the left-hand side, which puts the seed and the MAP together, so it has got really good separation of urea from the seed."

In 2018, Jason says they started off applying around 70kg/ha of urea, before dropping back to around 55kg/ha due to dry conditions, while rates of MAP were around 50kg/ha. Seeding rates were 3kg/ha for canola, 70kg/ha of barley and wheat, and lentils at 55kg/ha.

KEEP CANOLA SHALLOW

Normally the Vermeersch's either have some moisture in the profile from summer rain, so they have not really had to chase moisture, or they have received rain just afterwards, which has been anticipated and planned for by referring to long-term forecasts.

However, the 2018 season took a different turn. Although they started off with some confidence, having had some summer rainfall in February, conditions were marginal enough that they did chase some moisture by sowing their ATR Bonito[®] canola deeper.

"We all went home after a couple of hours of seeding and read the GRDC GrowNotes™ on dry seeding canola and it all pointed to seeding a bit deeper and at a higher rate, so we did that," Jason says. On the canola we went down to three-quarters of an inch, so deeper than the usual half an inch, and we usually seed at 2.5kg/ha, but we put it up to 3kg/ha this year to compensate for the dryness.

“The Seed Hawk generally germinates most of the seed quite well, so the plants per square metre have been pretty high in the last few years, but we just felt there’s not really too much downside to seeding a little bit higher.”

In this instance, sowing the canola deeper to chase moisture did not work in their favour, with Jason saying the deeper canola was quite patchy, while the shallower canola established nicely. He says the lesson is that in the same situation in the future, they would be likely to stick to the usual plan of keeping the canola shallow.

TRASH FLOW MANAGEMENT

Jason says the Seed Hawks do have some downfalls, including trash flow, which he says is probably an issue that others would associate with the brand. However, the Vermeerschs have turned this into a positive, prompting them to focus on improving trash levels and stubble hygiene.

“Management really starts at harvest the year before; basically, you have to cut really low, and chop and spread everything really well and after doing that for number of years, the system is really starting to fall into place and it’s working quite well,” Jason says.

“We’ve had a string of good years and we’ve managed to get through most of the stubbles quite well – we have had to use a box of matches every now and then, but 2017 was an exceptional year and we got through most of the stubble quite well.”

WHEEL SPACINGS

Aside from trash flow challenges, Jason says they are also still trying to get wheel spacings sorted on the bar and bin, which he says does not fit in with their 3m centre tramlining system.

“The width is spot on, but the bin has quite a big footprint, with dual wheels on the back with about 4.2m centres, so after 10 years of tramlining, we’re really starting to notice the tracks,” Jason says.

“There’s some big wheels on the back of the bar, but they’re also quite wide, so that would be a pretty big downside to anybody looking at tramlining – it has put quite a lot of people off that I’ve spoken to.”

SIMPLE MAINTENANCE

Maintenance-wise, the Vermeerschs spend a lot of time on the seeding equipment during February and March, but much of it is simple work, such as torquing bolts and nuts up to limit wear and making sure all the bearings are right.

“We do travel a bit with them on the road so we have to make sure all the wheel bearings are fine and looking at the fans and other pretty basic sort of maintenance,” Jason says.

“Frame cracking is one thing to look out for – we haven’t had many issues, but just with the number of hectares, that’s always an issue.

“The width is spot on, but the bin has quite a big footprint, with dual wheels on the back with about 4.2m centres, so after 10 years of tramlining, we’re really starting to notice the tracks.”
– JASON VERMEERSCH, CASCADE



The Seed Hawk has a two-tyne set-up, with the front tyne doing most of the ripping and also deep banding urea, while the back tyne is offset 1.5-inches to the left-hand side, which puts the seed and MAP together, resulting in excellent separation of urea from the seed.

Trash flow management can be an issue for the two-tyne Seed Hawk, so Jason cautions against using them in the high-rainfall zone. On their farms, trash flow management begins at harvest where they cut low, chop and spread the straw.



The Vermeersch family advises putting stubble guards on the front of the tyres, as they have replaced every single tyre on the front of the bar in the 2018 season.

PHOTOS: CUSSONSMEDIA

“Seed Hawk came out with an upgrade gusset kit to put on to prevent cracking, so they’ve obviously had some issues somewhere along the line, and we’ve done that and haven’t noticed any issues.

“There’s a lot of rebushing going on some bars, so they seem very complicated, while the Seed Hawks are just so simple, quite robust and easy to fix if anything goes wrong.”

ADVICE

Jason says for those growers considering a Seed Hawk, he could certainly recommend them, depending on where the farm is located.

“If they’re in a high rainfall zone, it might not be the ideal bar because of trash flow, but they do come out with a coulter now, so that’s something we’ll be looking into next year, which would alleviate a lot of problems for people,” Jason says.

“Other things to look out for include just the wear on the machine – they have wear pads on the tyne set-up, so just keep those tensioned up and make sure they are torqued every year, and torque them up about halfway through the season as well, just to prevent wear – it’s pretty simple.”

One thing Jason also advises for the Seed Hawks is to put stubble guards on the front of the tyres, as it is something they have had a lot of trouble with. He says it is a common issue for machinery, with tramlining technology meaning tyres are either running over a stubble row all the time or off it.

“We probably replaced every single tyre on the front of the bar in the 2018 season and they generally last about three years – we’ve done two sets of tyres basically over both the bars since we’ve had them, so that’s probably something to look out for,” Jason says.

“I’d also look at the hydraulic requirement on the tractors I think they may be changing to an accumulator set-up, but on ours we need to have the hydraulics running all the time to keep the bar going and they’re very basic, it’s a very easy machine to use and maintain.

“If we do need support, there’s always someone in Esperance and initially, when we got the bar, they had a guy running around the state who was a guru on it all and he was very good to talk to, so they’ve been excellent with backup and service in helping out.”

FUTURE PLANS

When asked what he would improve with his seeding equipment, Jason does not hesitate to nominate greater capacity with his bins and getting them on 3m centres.

“They probably need to look at larger-capacity bins if they want to continue to sell into the Australian market, it’s the way quite a large percentage of the market is going,” Jason says.

“There are quite a few 80-foot seeding bar options out there now, and I think most people are seeing that as the next market, as they try to cover more hectares with less people.

“They’ve sort of alleviated the trash flow issue with the coulter option, so they’re always improving.”

IN SUMMARY

- Two tynes allow excellent separation between urea and seed
- Coulters are now available to improve trash flow
- Does not fit 3m centre tramlines



MORE INFORMATION

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Purpose-built DBS Stiletto boot is a good addition at Cascade

SNAPSHOT

GROWER: Kirk and Lisa Jeitz, Roger and Gail Jeitz

LOCATION: Cascade

CROPPING AREA: 6500ha

ENTERPRISES: 100 per cent cropping

ANNUAL RAINFALL: 450mm

SOIL TYPES: Ranging from grey clays to gravelly sand, red loam and sand

2018 CROP PROGRAM: 3250ha wheat, 3250ha canola

SEEDING EQUIPMENT: 2 x 60-foot (18m) DBS Bars with DBS purpose-built Stiletto boot, 12-inch (30cm) row spacing, 3-inch (76mm) press wheel with 7700 Bourgault air cart



Kirk Jeitz would like to be able to include a shared coverage map on the monitors of the tractors that pull his two 60-foot DBS bars, so when both tractors are in the same paddock the drivers can see what the other machine has seeded.

PHOTO: CUSSONSMEDIA

Despite an unusually dry seeding in 2018, long-time DBS owner Kirk Jeitz believes using a purpose-built DBS Stiletto boot is a much better system than a banana boot or s-canola boot. In the Jeitzs' system, the original DBS closing tool is removed and the Stiletto boot becomes part of the closing tool. When they first tried the Stiletto boot, the Jeitzs initially planned to use them just for their canola program but now they are also used on their wheat.

"The problem with the banana boot was you were seeding into a fluffy environment, so within three hours of seeding the moisture had already gone from around the seed," Kirk says.

"Whereas if you place the seed on the edge of the furrow, it is always wet and basically the plants will germinate on that moisture."

It is not uncommon for the Jeitzs to receive large rain events at seeding, which has previously caused seed burst, particularly when wheat was placed in the bottom of the furrow. By placing it in the shoulder, Kirk believes they are minimising this risk.

PERFORMANCE IN A DRY START

While the Jeitzs often have some moisture, or even too much, at seeding time, 2018 was a very different start, with no subsoil moisture present despite receiving 100mm of rain in February.

"The rain didn't come at seeding time and having the seed on the shoulder of the furrow didn't really work because there was no moisture in the furrow – basically the canola didn't germinate," Kirk says.

"So the things we've learned out of this year is that canola seed can sit in the ground for three months before germinating and basically we need be able to keep on top of the insects and bugs."

SEED SHALLOW

Generally, the Jeitzs sow all of their canola and wheat in the zero position, which basically places the seed on the surface with the 75mm press wheel providing the seed-to-soil contact.

"We don't go chasing moisture for canola, we've been caught too many times seeding our canola too deep and not having a strike," Kirk says.

"However, due to dry conditions, we did change our approach to wheat seeding depth in 2018, sinking it in to the 8mm position and it worked. We got establishment of wheat relatively easily on our gravel soil types, whereas on our clays, which were super dry, we changed the depth back to the nil position and then we waited for the rain to germinate the seed."

SEEDING RATES

Traditionally, the Jeitzs have sown canola at 3kg/ha, which Kirk believes is too thick. With the capability of the triple flight auger on their Bourgault bin to lower their seeding rate, in 2018 they trialled 1kg/ha.

"We planted some Roundup Ready® GT 50 at 1kg/ha and basically that's too thick as well. But in the future, I think we'll stick to 1 to 1.5kg/ha, which gives us a little bit of leeway if something goes wrong with bugs, we're not chasing it every five minutes, but the establishment on the right soil type in the right year is pretty awesome," Kirk says.

All of their wheat is sown at 70kg/ha, and in a normal year Kirk says the moisture on the side walls germinates the wheat.



Kirk believes using a purpose-built DBS Stiletto boot is a much better system than a banana boot or s-canola boot. In their system, the original DBS closing tool is removed and the Stiletto boot becomes part of the closing tool.

PHOTO: KIRK JEITZ

TRASH FLOW

Kirk believes the trash flow with their DBS machines is good, but he does start the process of managing trash flow early by harvesting stubbles at beer can height. He also has a trash cutter that he will use if necessary.

“Even by harvesting at beer can height, we still have problems with the root systems of the stubble wrapping around the tynes on different soil types and the snail trails which come out of the headers and I don’t think any header in Esperance can fix that,” Kirk says.

The Jeitz family has shifted away from growing barley because of the amount of stubble it produces in their environment.

“We’re able to grow 10t/ha of straw, that’s easy, but we’re not able to grow 3 to 4t/ha of barley with 10t of straw,” Kirk says.

“Basically, on a sand or gravel the root system of the plant is very mouldable and pliable, they just hang on and then they create a bulldozing effect and it becomes a nightmare.”

BOURGAULT BINS

The Jeitzs have five section controls on their Bourgault bins, through which they run seed, fertiliser and liquids. Kirk says that in the early days they used to add a lot of trace elements to Flexi-N, which resulted in blockages, but they have now simplified the system by using just Flexi-N and putting Impact on their fertiliser.

“Basically, we are getting away from all the blockage issues at seeding time, so we were able to get the crop planted and established quickly,” Kirk says.

“If you can get the crop established before it gets too wet in this environment, you’ve got it, it’s home because if we get our normal June, July rainfall, it comes in very wet, and trying to get things to grow in a wet environment is very hard.”

Kirk says that with better sprayers, it is now a lot easier to apply copper, manganese and zinc afterwards on an as-needs basis.

Another bonus of trying to keep their system simple is that it makes it easier to manage staff at seeding.

“We employ foreign backpackers to drive expensive equipment, which is key to our livelihoods, and we need good-quality drivers so that we are able to walk away knowing that they can get the basics of that machinery without having to be micro-managed as such,” Kirk says.

“So having the right equipment and the right gear to achieve that is probably critical in our system and how we do things.”

MAINTENANCE

With their machines being nine years old in 2018, they are checked annually for cracks and the wheel bearings assessed on the press wheels. They have not had to adjust any of the parallelograms or rebush them yet. They also apply a rust preventive at the end of the season.

Even if the wear-and-tear on the Stiletto boot in the gravel limestone soils requires them to be rebuilt each year, Kirk believes it is a cheap investment for the establishment they are able to achieve with them.

FUTURE PLANS

The Jeitzs would like to be able to include a shared coverage map on the monitors of the tractors, so when both tractors are in the same paddock the drivers can see what the other machines have seeded.

“On the seeders, we’re running Topcon X35 and we’ve got section control on those machines, but those two seeding units can’t see each other, so, if one unit runs down the next run, it might be seeding over an area which has already been covered,” Kirk says.

“We’ve also proven to ourselves that we can save about 10 to 15 per cent on our inputs on awkward triangular paddocks, but we can’t put the two seeders together there because they’re not seeing each other’s involvement in the paddock.”

In addition to technology improvements, Kirk is keen to ‘hedge his bets’ by being able to place a little bit of wheat and canola seed in the middle of the furrow, rather than it all being placed on the shoulder by the Stiletto boot.

Kirk also believes that because they know where their weeds are and he is now confident that canola can sit in dry soil for three months before germinating, they will be able to push their seeding start date earlier than the current start date of 15 April.

“If you can get that crop established before it gets too wet in this environment, you’ve got it, it’s home because if we get our normal June, July rainfall, it comes in very wet, and trying to get things to grow in a wet environment is very hard.”

– KIRK JEITZ, CASCADE

"I'm not concerned about false breaks because I think canola's proven to us that it can hang on if you get it established – as long as you're not going in February, you've got to be realistic about it," Kirk says.

"In 2017 everyone raved about Esperance and how good the canola was, but in June, July, we had an awful period there, whereby canola was going purple to a shade of orange, and it still held on and yielded."

IN SUMMARY

- DBS Stiletto boot optimises establishment for wheat and canola
- Do not chase moisture with canola
- Bourgault bin can manage 1kg/ha seeding rates



MORE INFORMATION

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Initially Kirk planned to just use the DBS Stiletto boot for canola, but when they tried it on wheat they found they were also minimising the risk of seed burst by putting it in the shoulder.

PHOTO: CUSSONSMEDIA



The Jeitz family have five section controls on their Bourgault bins, through which they run seed, fertiliser and liquids. Due to the capability of the triple flight auger on their bin to lower seeding rates, in 2018 they trialled 1kg/ha for canola.

PHOTO: CUSSONSMEDIA

Two DBS machines keep seeding running north of Esperance

SNAPSHOT

GROWER: Ash Reichstein

LOCATION: Neridup

CROPPING AREA: 5800ha

ENTERPRISES: Cropping and sheep

ANNUAL RAINFALL: 425 to 500mm

SOIL TYPES: Mixed, including sandy gravel over clay, sand over gravel over clay, sandplain and sandy loams

2018 CROP PROGRAM: 2200ha wheat, 1900ha canola, 1500ha barley and 150ha lentils

SEEDING EQUIPMENT: 2 x 40-foot (12m) DBS, 12-inch (30cm) spacing, splitter boots and 90mm square press wheel



Ash Reichstein prefers to run two 40-foot DBS bars rather than one larger 80-foot machine because if one bar has to stop seeding, they still have 50 per cent of their seeding capacity available.

PHOTO: CUSSONSMEDIA

On Ash Reichstein's property north of Esperance, seeding equipment has to be effective yet simple enough for operators to use without errors. It is a philosophy that has led him to run two 12m DBSs on 12-inch spacing, with the simplicity and flexibility of the machines being critical.

"We employ seasonal staff, including backpackers, at seeding time and it's great, you set the depth on the parallelogram with the closing plate," Ash says.

"Then for tillage or depth control for the tyne, you go back to the basic clamps on the hydraulic rams, so it doesn't matter if the guys drop it down to the stoppers on the rams, they can't go any deeper so you know it will be right.

"But even if they bring it up a little bit and they haven't actually dropped it right in, you still know the seeds are going in at the right depth so it's a bit of a foolproof system that way."

TWO SMALLER BARS ARE BETTER

The history behind having two 12m DBS machines is an interesting one, with the purchase of their first DBS 18 years ago being a 15m bar, before a desire to introduce a controlled traffic system led to the purchase of a 60-foot DBS.

"We had been looking at buying a little more land at the time, but that didn't happen, so I thought with the seasonal staff I'd go back to 40-foot because in a 12, 18 and 36m system, you've got to use offsets in your guidance and that's not good for seasonal staff, trying to get them on the right one," Ash says.

"So, I thought, let's simplify it, we'll go back to 12m bar and run it 24 hours a day.

"We ordered the bar and about three months later some more land came on the market, so we bought the land and then last year we did 5800ha with one 40-foot bar."

Ash says to get that program in, it was basically seven days a week, 24 hours a day for six weeks, with one large 650ha paddock showing him what the smaller bar was costing agronomically.

"That big paddock took us just over three days to seed and on the yield map we could actually see a big difference, where from the start of the paddock to the end of the paddock in the canola there was probably about 300kg/ha difference in yield," Ash says.

"I didn't want to go back to 60-foot, because I like the 12 metre system, so when a second-hand 12-metre DBS came up, I snapped that up pretty quickly and now we're running two of them."

Ash says it all comes back to timing when planting a program over such a long period of time.

"A few people are going to 80-foot bars down here, but I needed another utility tractor anyway, so I brought another tractor to pull the second bar, and now if something stops, we've still got 50 per cent of our seeding capacity going instead of when an 80-foot bar stops, it's 100 per cent, you've got a lot of people standing around doing nothing," Ash says.

"It also provides a little bit more flexibility in that if you need to, you can split bars up and they can work in different areas."

SINGLE ROW OR TWIN ROW

With marginal moisture at the start of the 2018 season, Ash made the decision to remove the splitters and go with single row seeding because he was worried the twin row set-up would push the seed into the side walls, where it would be in the dry soil and not establish well.

"We've got the option of going single row or twin row, and we normally make that call at the start of the season, just go out and have a dig around and see what the moisture's like, so it's got that flexibility," Ash says.

In addition, to try and improve germination, Ash tries to sow the barley as close as possible to the previous year's wheat stubble.

"Our rotation is canola/wheat/barley, so all our barley went onto the wheat stubbles and I went about 50mm beside it and that's where I had a lot of the patchiness in the germination, as it wasn't close enough to last year's stubble row to get the moisture," Ash says.

"I wasn't able to get any closer to the row, mainly because it makes a bit of a mess with the DBS and the 7-inch blade going through it."

SEEDING DEPTH VARIES

Before the current DBS machines, Ash says they were operating a Flexi-Coil 820 conventional spring tyne single shoot machine with spring boots. An ability to control seeding depth was an important factor in deciding to move to DBS machines.

"The seeding depths we chase depend on the year, so the ability to be able to go to different depths is important," Ash says.

"It takes a little while to change seeding depths on the DBS bar, it will take you probably 45 minutes to go through and change the seeding depth but you know it won't change after that."

In a season with good moisture, the Reichsteins will seed canola at 10 to 12mm. If they are happy with the conditions, they will seed all crops at that depth. If they are chasing moisture, Ash says they will go down to about 30 to 40mm, depending on where the moisture is coming up from.

AVOIDING RIPPING CHAFF LINES

A new tactic in the 2018/19 harvest will be chaff decking, with Ash explaining they are putting their chaff lines onto the wheel tracks. It is a system he has been moving towards for a few years, but has now been able to bring it all together.

"I've found a bolt-on disc module, so where the tram lines are and the chaff lines are, instead of running tynes through there and ripping it all up and disturbing it, I've got a double-disc opener bolted in there so it just slots it in and doesn't disturb it," Ash says.

DIFFERENT PRESS WHEELS

Another area the Reichsteins have been experimenting with is press wheels, after having some issues with furrow-fill on non-wetting sands from using narrow 50mm press wheels on their first bar.

"The subsequent 60-foot bar came with a wider V-press wheel and I was really happy with that. I think it just gave us a bit more surface area for a furrow, caught a little bit more water, but the crucial thing was we didn't get the furrow-fill, we didn't get that sidewall collapse," Ash says.

"In 2017, DBS actually gave me six 135mm press wheels to try and we did notice a difference. We actually had to increase our spring pressure on the press wheel because the width wouldn't allow the seeding tyne to pull right into the furrow, so they did actually seed a bit shallower again.

"If you're using those press wheels you'll find it hard to really chase moisture with your seeding module because it won't allow it to go in.

"In 2018 we just used a standard 90mm mid-size square press wheel and I'm happy with that. We're not getting furrow fill, it's providing a nice wide furrow."

MORRIS BINS

Two Morris bins, which are two years old, complete the seeding rigs for the Reichsteins, both of which are tow-behinds as Ash likes to see the bar and believes it is easier for his staff to fill.



Ash has added a bolt-on disc module to prevent running tynes through his wheel tracks where he is planning to chaff deck in the 2018/19 harvest.

PHOTO: CUSSONSMEDIA

They have three granular bins, which allow for deep banding, and a 5000L Flexi-N tank on the front. 2018 was their second year with section control, technology which has produced real benefits on certain country.

MINIMAL MAINTENANCE

Maintenance on the DBS bars has been minimal, with some work required on the second-hand machine they purchased in 2018.

"I think it's 12 years old and it does need rebushing, so we went through it this year and rebushed the worst of it and by the time we start again next year I think we'll have it completely rebushed," Ash says.

"There's not a lot of moving parts on it and if you just nip up the little nuts on the end of the parallelograms you're pretty right."

FUTURE IMPROVEMENTS

Ash believes it is hard to get a bar that will perform across 100 per cent of a farm. He says that their DBS machines perform well across 90 per cent of their country, quite a satisfactory result. However, if he did nominate any disadvantages with their DBS rigs, the list would include the depth of machine.

"It would be nice if they would go to a four-row machine, and just spread those tynes out a bit deeper," Ash says.

"They've also improved the bearings in the coulters, as there was an issue in the earlier ones wearing out.

"If they could have an adjustable hydraulic coulters system on the front it would be fantastic, but I'm really happy with them."

"I found a bolt-on disc module, so where the tramlines are and the chaff lines are, instead of running tynes through there and ripping it all up and disturbing it, I've got a double-disc opener bolted in there so it just slots it in and doesn't disturb it."

– ASH REICHSTEIN, NERIDUP

IN SUMMARY

- Two bars are better than one larger bar
- Will sow single row or twin row depending on moisture conditions
- Using disc modules to avoid ripping chaff lines



MORE INFORMATION

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In 2017, Ash learnt the cost of trying to seed a larger program with one 40-foot bar. One 650ha paddock took just over three days to seed and on the yield map there was about a 300kg/ha difference in yield between where they first started the paddock and where they finished.

PHOTO: CUSSONSMEDIA

Case study key findings

NO SILVER BULLET

After interviewing 25 growers, it is clearly evident there is no 'silver bullet' seeding bar that is best for all growers across every port zone, rainfall zone and soil type. Several growers also commented that if conditions are wet, it does not matter what bar a crop is sown with, it will establish well. It is also clear that while the brand of a bar may be the same between growers, there can be significant variation from one machine to another including:

- tyne spacing;
- single boot;
- splitter boots;
- point length;
- press wheel shape;
- press wheel width;
- press wheel material (metal versus rubber); and
- tyne type – spring or hydraulic.

PRECISION SEEDERS

Precision seeders are widely acknowledged as being 100 per cent right or 100 per cent wrong in terms of seed placement. DBS owners are generally very happy their machine allows them to keep sowing in very dry conditions because they have the breakout capacity to keep the bar in the ground. Some growers commented that precision parallelogram planters allow non-wetting sand to flow back in behind the tyne, so establishment can be challenging on non-wetting soils.

80-FOOT BARS

For growers wanting a larger bar, there are fewer options available on the market than for smaller bars. On the wider bars many growers feel the 12-inch tyne spacing is wider than they would like, so they are using splitter boots to improve competition against weeds.

PURCHASING DECISIONS

The decision on what brand and type of bar to purchase includes factors such as:

- budget;
- size of program;
- one larger machine versus two smaller ones;
- labour skill;
- labour availability;
- soil types;
- dealer support;
- maintenance requirements;
- belief in benefits of precision sowing or not; and
- local performance of machines.

FURTHER RESEARCH

To aid purchasing decisions, several growers commented that they look at the performance locally of different bars, commonly comparing neighbours' machines against their own. Many of the grower groups also run demos with different bars, which can be useful but are often limited in terms of soil type and length of trial.

Unfortunately, in Western Australia a large-scale trial looking at different seeding systems has not been conducted. However, WANTFA has just begun a four-year project looking at different seeding systems and establishment as part of a GRDC investment.

