

Going to great lengths

Machinery On Farm Opinion

The value of low-disturbance kit is rapidly gaining traction in UK agriculture. *CPM* finds out how trying something new has provided some unexpected results for one Notts grower.

By Charlotte Cunningham

As agriculture carefully approaches an era in which farming with the environment in mind will be at the forefront of priorities, there's much discussion over the "best" way of doing things.

This conversation is nothing new, and when it comes to how "best" to care for the soil — without hindering production — the pros and cons of traditional tillage vs minimum, or reduced, tillage have been the subject of a longstanding debate.

And as a result of the growing interest — and scientific backing — of the benefits of reduced movement, there's been a surge in low disturbance kit on the market.

Notts grower, Harry Barton, has been running this type of machinery on farm for quite some time. "We've run Horsch's Sprinter machines on and off for decades but last year, we thought we'd try the Avatar — also from Horsch — after hearing so many good things about it."

Despite its good reputation, Harry did

have some initial apprehensions. "When I first received the machine, I was concerned about the row spacing, so we decided to run a trial comparing the 12m Avatar with our Sprinter (also 12m)."

Row spacing is a big topic surrounding the use of the 12m Avatar at the moment as this model goes up to 25cm rows — compared with a 16.7cm coulter spacing on the standard version.

Coulter spacing

On the Sprinter 12 SW the coulters are at 30cm spacing and place the seed in a 15cm band, whereas the Avatar 12.25 SD has a coulter spacing of 25cm row spacing and places the seed in a single row — approximately 2cm wide.

The trial involved drilling a crop of wheat into a field that was previously OSR — one plot with the trusted Sprinter, and another with the new unproven Avatar, he explains. "In terms of conditions, the field had volunteers left to green up and were then terminated with a Horsch Joker. The land is medium bodied and the wheat went in under good conditions at the end of Sept last year."

And while it's too early to address the initial concerns over row spacing, Harry's trials have actually uncovered some unexpected results that highlight just how beneficial this low-disturbance approach can be. "What we've identified so far is that there's an interesting difference in root length between the two establishment methods. Initially the Sprinter-drilled crop looked the stronger, better crop. In Oct last year, the Avatar-drilled wheat was showing less biomass — though it did have more root growth

than the Sprinter crop.

"However, by Dec things had completely changed and the Avatar crop had more biomass and looked much healthier."

In terms of the numbers, in Dec, Harry recorded average tillers of 3.1 on the Avatar crop and 2.6 on the Sprinter crop. And in terms of root length, the Avatar-drilled wheat averaged 15.1cm, compared with 14.4cm on the Sprinter crop.

"From our initial observations, we noticed that that emergence percentage was without a doubt better with the Avatar than the Sprinter."

So what's the reason behind this? While again, it may be too early to tell, Harry has an inkling as to why this improvement may be so. "We've theorised a lot of things, but I think the most likely driver behind the improved rooting is that less soil movement effectively means less mineralised nitrogen. This means that the plant needs to search more for nutrition and therefore put a bigger root down.

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“ There seems to be a lot of demand for these machines at the moment and I can see why. ”



The Avatar SD range is available in a number of working widths and can be equipped with up to three hoppers.

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Horsch's Avatar – the spec

For those considering investing in the Avatar, there's a number of different options available – all with slightly different specs:

	3.16 SD	4.16 SD	6.16 SD	8.16 SD	12 SD
Working width (m)	3	4	6	8	12
Transport width (m)	2.99	2.99	2.89	2.98	2.98
Transport height (m)	3.5	3.5	3.06	3.98	3.8
Length lower linkage (m)	6.96	6.96	7.82***	7.82***	—
Length adjustable drawbar linkage (m)	7.80	7.80	—	—	—
Weight (kg)	3620*	4800*	5300***	7000**	9000
Seed hopper capacity single hopper (litres)	2800	2800	3500	3500	5800
Feed opening single hopper (m)	1 x 2.4	1 x 2.4	1 x 2.4	1 x 2.4	0.66 x 0.94
Filling height single hopper (m)	2.85	2.85	2.52	2.92	2.8
Seed hopper capacity double hopper (litre)	3800	3800	5000	5000	5800
Feed opening double hopper (m)	per 0.66 x 0.90	per 0.66 x 0.90	per 0.66 x 0.90	per 0.66 x 0.90	per 0.66 x 0.94
Filling height double hopper (m)	3.24	3.24	2.35	3.26	2.8
Feed opening triple hopper (m)	0.66 x 0.43 / 0.66 x 0.25 / 0.66 x 1.45		—	—	—
Seed hopper capacity triple hopper (litres)	3800 (30 : 10 : 60)		—	—	—
Filling height triple hopper (m)	2.95	2.95	—	—	—
Hopper capacity micro-granular unit (litres)	200	200	270	270	390
Number of seed coulters	18	24	36	48	48 (row spacing 25cm)
Coulter pressure seed coulters (kg)	350	350	350	350	350
Seed coulter (cm)	48	48	48	48	48
Closing wheels (cm)	33	33	33	33	33
Depth control wheels (cm)	40	40	40	40	40
Row spacing (cm)	16.7	16.7	16.7	16.7	25
Working speed (km/h)	6 – 15	6 – 15	6 – 15	6 – 15	6 – 15
Power demand (hp) from	125	140	210	270	300

*Weight of the machine with minimum equipment without additional weights at the front and at the rear (1000kg).

** Weights of the machines with minimum equipment without additional weights at the front and at the rear (1400kg).

*** Length of the machine with lower link linkage without filling auger.

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► why. It's a fantastic machine, very simple to use and remarkably good in the wet. It's definitely something I'll be carrying on with."

With weed control being a large part of the reason that some growers choose to switch to a lower disturbance system, Harry plans to test the Avatar's capabilities in this area too. "Going forward, we plan to assess blackgrass tiller numbers in the trial too. So far, things are looking rather interesting with noticeably less blackgrass where the Avatar has been used directly into stubble/catch crops, compared with where both the Sprinter and the Avatar were used into cultivated ground. Again, we believe this is due to the Avatar's very low disturbance drilling style."

Growing market

Though the Avatar fills a gap in a growing market, this style of drill is nothing new to Horsch, explains Stephen Burcham, director at Horsch UK. "Direct drills aren't a new concept to us. If you go back to the beginning of the company, Michael Horsch at that time built a machine that was suitable for no-till farming and that design has remained an integral part of what we do here."

However, what has changed is the pressures on both costs and environmental protection, and so the Avatar SD is very much the next chapter in the no-till farming story for the firm.

The Avatar is branded by Horsch as versatile, precise, and simple, but how exactly does it operate?

"The Avatar SD combines a two-tank design, a precise volumetric metering system, an agronomic based platform, and one of the lowest maintenance opener systems on the market," says Stephen. "Two individual tanks with a metering system on each create an agile unit when multiple products are needed."



In terms of root length in Dec, the Avatar drilled wheat averaged 15.1cm, compared with 14.4cm on the Sprinter crop.

The chassis system is slim for safe, narrow transport along with a weight transfer system during operation which takes the weight off the cart and distributes it to the tool bar to eliminate compaction risk and wheel tracks. A single rank tool bar gives easy access for adjustments, he adds.

"The Avatar SD takes a common-sense approach in design to incorporate basic agronomic principles for securing maximum yield potentials."

The Avatar SD range is available in a number of working widths and can be equipped with up to three hoppers, making it a versatile choice for growers, he adds.

The two-bar design, with a row spacing of 16.7cm and a clearance of 33.4cm per row, means reliability even with a lot of harvest residues or intensive catch crop population, explains Stephen. "Large transport wheels



The Avatar boasts a stable depth control wheel for precise positioning of the coulters in changing or difficult soil conditions.

help reduce soil compaction, even if the hopper is full, and there's also the possibility to mount additional weights to guarantee a safe forming of the furrow and firming of the seed with the SingleDisc coulters even in the most difficult conditions."

In terms of precision, the Avatar SD ►

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The Avatar SD takes a common-sense approach in design to incorporate basic agronomic principals for securing maximum yield potentials, says Stephen Burcham.

► boasts a stable depth control wheel for precise positioning of the coulter in changing or difficult soil conditions, he adds. "In combination with a coulter pressure of 350kg (maximum) this guarantees an exact placement of the seed in all sowing conditions — meaning optimum seed-to-soil contact for quick and safe emergence."

Stephen says the Avatar's closest competition is the John Deere 750A, however, he believes it does have a few advantages over its competitor, including bigger diameter discs, more coulter pressure, and less maintenance as a result of no grease nipples.

What's particularly interesting about the Avatar is its versatility, and Stephen says that although it's been designed with the no-till movement in mind, there are very few users who operate a completely direct-drilled

system. "We've found that users are mainly either drilling into cover crops or using the Avatar for low-disturbance drilling, rather than simply just direct drilling.

"It's suitable for all sowing conditions, including direct drilling, conventional tillage or drilling into standing catch crop, as well as on a variety of soil types — from stone to heavy clay.

"With the possibility of metering up to three individual components, and customisable closing wheels to adapt to the soil conditions, we're confident that the Avatar SD can be used pretty universally." ■



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Harry plans to also study blackgrass tillers within the trials as the Avatar crop currently has a lot less blackgrass than the Sprinter-drilled crop.



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Farm facts

Barton Farms, Gainsborough, Notts

- **Arable area:** 1800ha
- **Cropping:** Barley, wheat, peas, beans, linseed and oats
- **Soil type:** Mixed soils – predominantly heavy clay loams, but including everything, right up to light sands.
- **Mainline tractors:** Case Quadtrac 620; Case Puma 240 cvx; Versatile 405; JCB Fastrac 4220
- **Combine:** Claas Lexion 8800
- **Cultivation equipment:** Farnet Fantom; Horsch Joker; Sumo Strake; Horsch Avatar; Horsch Sprinter.