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JOURNAL

October 2022 // Issue 102

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EDITOR Peter Skilton

peter@farmmachineryjournal.co.uk

ART DIRECTOR David 'Spike' McCormack

DESIGNERS Sarah-Jane Mortimer, Claire Trent

RETOUCHER Linda Duong

ADVERTISEMENT SALES Alex Cronin 020 8639 4405

ADMINISTRATOR Martin Attis 020 8639 4409

PUBLISHING DIRECTOR Paul Cosgrove 020 8639 4401

CONTRIBUTING WRITERS AND PHOTOGRAPHERS

Simon Henley, Ken Topham, Mick Roberts,
Graeme Kirk, Howard Sherren, David Laley,
David Wylie, David Pullen, Jim Gerrard.

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Sundial Magazines Ltd, Sundial House,
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TEL 020 8639 4400 FAX 020 8639 4411

EMAIL info@farmmachineryjournal.co.uk

WEB www.farmmachineryjournal.co.uk

SUBSCRIPTIONS

Farm Machinery Journal subscriptions
Trinity House, Sculpins Lane, Wethersfield,
Essex, CM7 4AY

TEL +44 (0)1371 853634

EMAIL farmmachineryjournal@escosubs.co.uk

NEWSTRADE

Seymour Distribution
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October 2022
Issue 102

COVER IMAGE
Simon Henley



Welcome

to *Farm Machinery Journal*, the monthly magazine
dedicated to modern agricultural equipment.

It's fair to say that we were impressed by what we saw
when John Deere introduced its two new X9 combines
at Agritechnica back in 2019. Even more so when we
got to see it in action in the UK in 2020. This year
we went harvesting with a new X9 1100 and its owners,
Staffordshire farming brothers Phil and Dave Rowe.
Impressive, again. You can read more about our latest
verdict, plus the thoughts of its operator, on page 17.

As well as offering astonishing performance statistics,
there's another startling figure that you need to get your
head around - the price tag. Yet despite costing in excess
of £1.1m, farms across the country have taken the plunge
and around 25 are now in action.

For some farms capacity is king when it comes to
combines, with bigger machines offering the potential
to get on with harvesting when it's dry, saving on drying
costs. There's also the argument in favour of better
fuel consumption, fewer workers and easier logistics.
Also, one bigger combine is arguably cheaper to run
than two smaller combines.

The problem is, not every season offers
such a continuous spell of dry weather,
and not every farm has its fields in
close proximity. For covering
distance and in catchy conditions
two combines will always have
more appeal. One combine at
£1.1m is quite an investment,
let alone two. As Dave Rowe
puts it, the retail price 'puts the
John Deere X9 at the threshold
of being unaffordable'.

Peter Skilton, Editor



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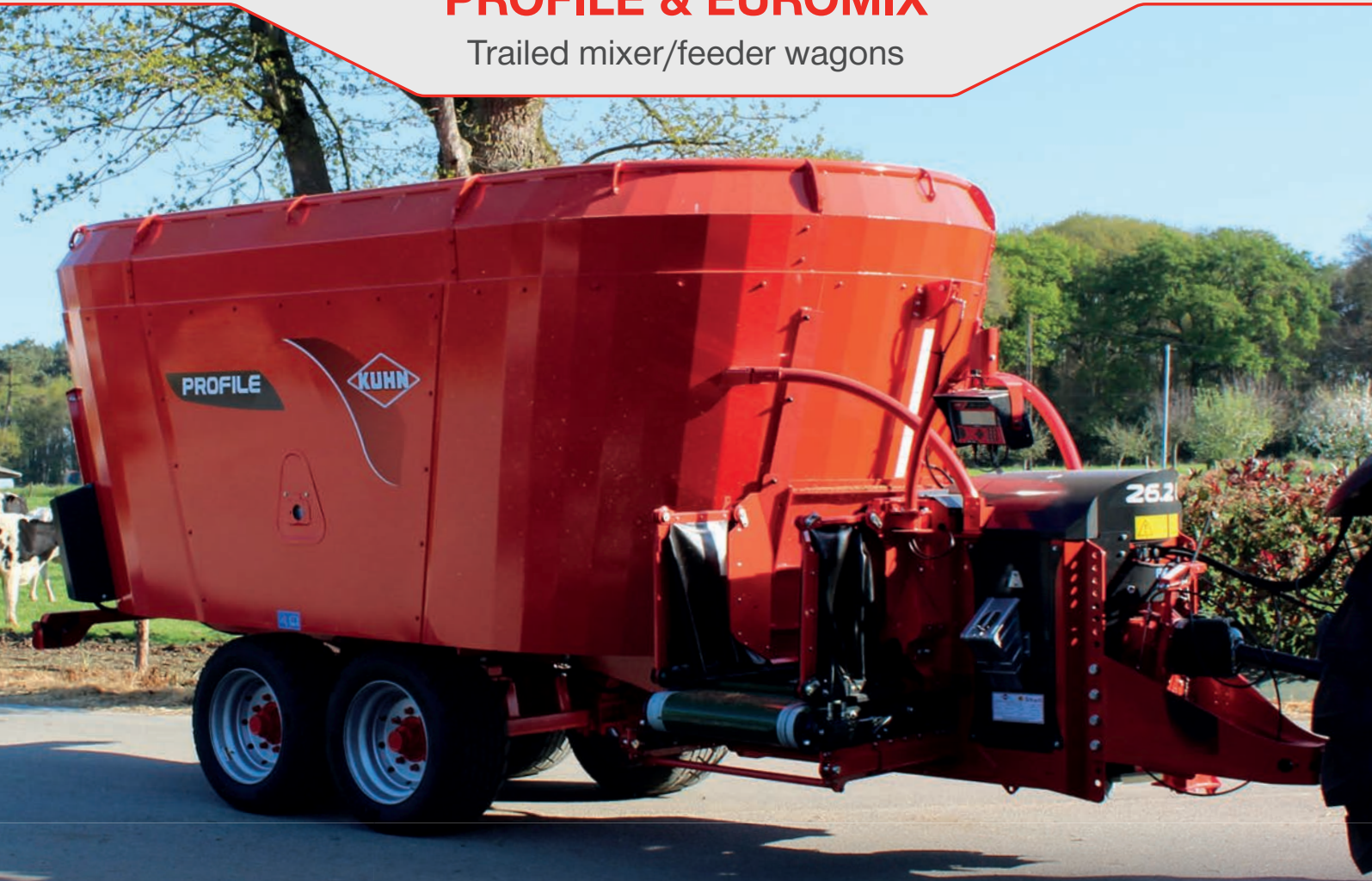
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PROFILE & EUROMIX

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PROFILE 2



EUROMIX 3

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NEWSDESK

The latest machinery developments, launches and updates



Performance upgrades for John Deere foragers

John Deere has announced revisions to its 8000 and 9000 series self-propelled forage harvester portfolio for the 2023 season. The focus is primarily on the smaller models of the 8000 series, but the 9000 series also receives important updates to further increase performance.

In addition to a facelift, the 8100, 8200 and 8300 models receive additional horsepower. The 8100 forager with the 9.0-litre engine now delivers a maximum power of 431hp and replaces the current 8200. For 2023, the new 8200 forage harvester receives the larger 13.5-litre engine and increases its output by 34hp to 465hp. The power increase of the smaller 8000 models is rounded off by the new 8300 that now has a maximum output of 505hp instead of the previous 490hp.

Like the 9500 and 9600 forage harvesters before, the 9700 model also now gets the JD18X engine, which does not require AdBlue. This 18-litre engine not only increases the harvester's performance, but also introduces HarvestMotion Plus that provides an exceptional torque increase and even more power at low engine speeds. As a result, the 9700 now delivers up to 825hp.

To further enhance performance and reduce operating costs, the Dura Line Kernel Processor has a new Busa Clad coating. It has been specially developed for highly stressed machine components and is available for all

This picture: 9000 series foragers will still offer power between 700 and 970hp for 2023 season. Only the mid-range 9700 gets more power, gaining the JD18X engine and 30hp for a maximum 800hp

Below: Kemper's 2.7m-wide, R30 grass pick-up has an 80cm-diameter auger, 20cm auger flights and six tine bars with 6.5mm tines



8000 and 9000 series models. In addition to a longer service life, it results in reduced wear costs per tonne to be achieved.

All models in the 9000 series are now equipped with a newly designed discharge

chute that is 20cm longer than before. Thanks to its optimised contours and design, it enables higher throughput and provides a better overview during chopping. Additional openings also facilitate easier maintenance.

To utilise fully the power available from Deere's latest 8000 and 9000 series foragers, Kemper has developed the new 30R grass pick-up with a working width of 2.7m.

Equipped with a large 80cm-diameter auger, deep 20cm auger flights and six tine bars with 6.5mm tines, the new pick-up features a chainless drive and heavy-duty wear parts and is designed for high throughput.

AUTOMATED TMR FEEDING FROM KUHN

Kuhn has unveiled the Aura, its new self-propelled, autonomous diet feeder capable of feeding herds of up to 280 cows. It will initially be distributed in France, while other countries in Europe will follow. The first units are expected in the UK from 2024/25.

The Aura works autonomously using GPS and RTK to move around the farm, collecting and feeding out a TMR. Inbuilt loading and weighing modules calculate



the exact mix of forage material including grass and maize, along with any supplements and concentrates required.

A 56hp diesel engine can power the Aura for up to a week of continual loading and feeding. It has a 3cu.m mixing tank, featuring two vertical augers, but remains remarkably compact, standing 2.6m high, 1.9m wide and just short of 7.0m long.

NEW PÖTTINGER RAKE OFFERS MAXIMUM FLEXIBILITY

Pöttinger's new Top 632A with CurveTech is a side-swath rake that is highly flexible thanks to an ingenious steering system on the rear rotor. It allows the working width to be varied through a large range to suit the following machine. Obstacles and awkward field shapes can also be raked round without any problems.

The twin-rotor rake can reach a working width of up to 6.30m in double-swath mode. To rake a double swath or two single swaths,

the rear rotor, which is connected to the front one by a flexible frame, can be steered to the left or right by a hydraulic cylinder.

The CurveTech system utilises two hydraulic cylinders that work together to steer the rear rotor. When cornering, an additional linkage between the front pivot point of the main frame and the hydraulic cylinders ensures optimised overlap of the two rotor units. The optimal working width is achieved as a result.



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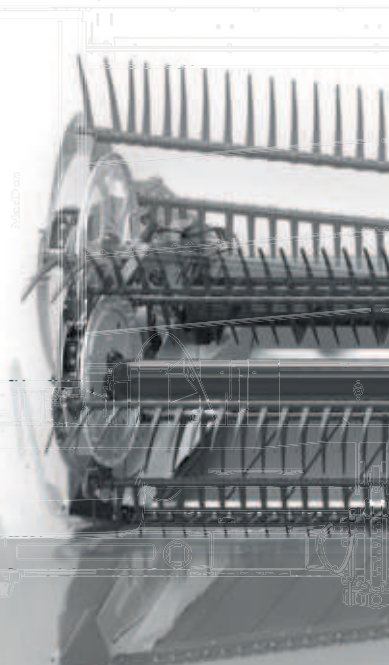
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McCormick trials direct centralised tractor sales

Argo Tractors' McCormick brand is trialling direct sales by the team at McCormick UK in the counties of Nottinghamshire and Lincolnshire. If the initiative proves a success, it could be rolled out to other areas as well.

Argo Tractors' business development director for the UK and Ireland, Ben Agar, told *FMJ* there were two main drivers behind the move: the first is an opportunity to get closer to end users at a time when the industry's 'big' names were distancing themselves even more from the actual farming customer.

"We want to be close to the end user and build relationships," he added. "More so than ever, we believe that the farmer needs to know that the manufacturer is there to

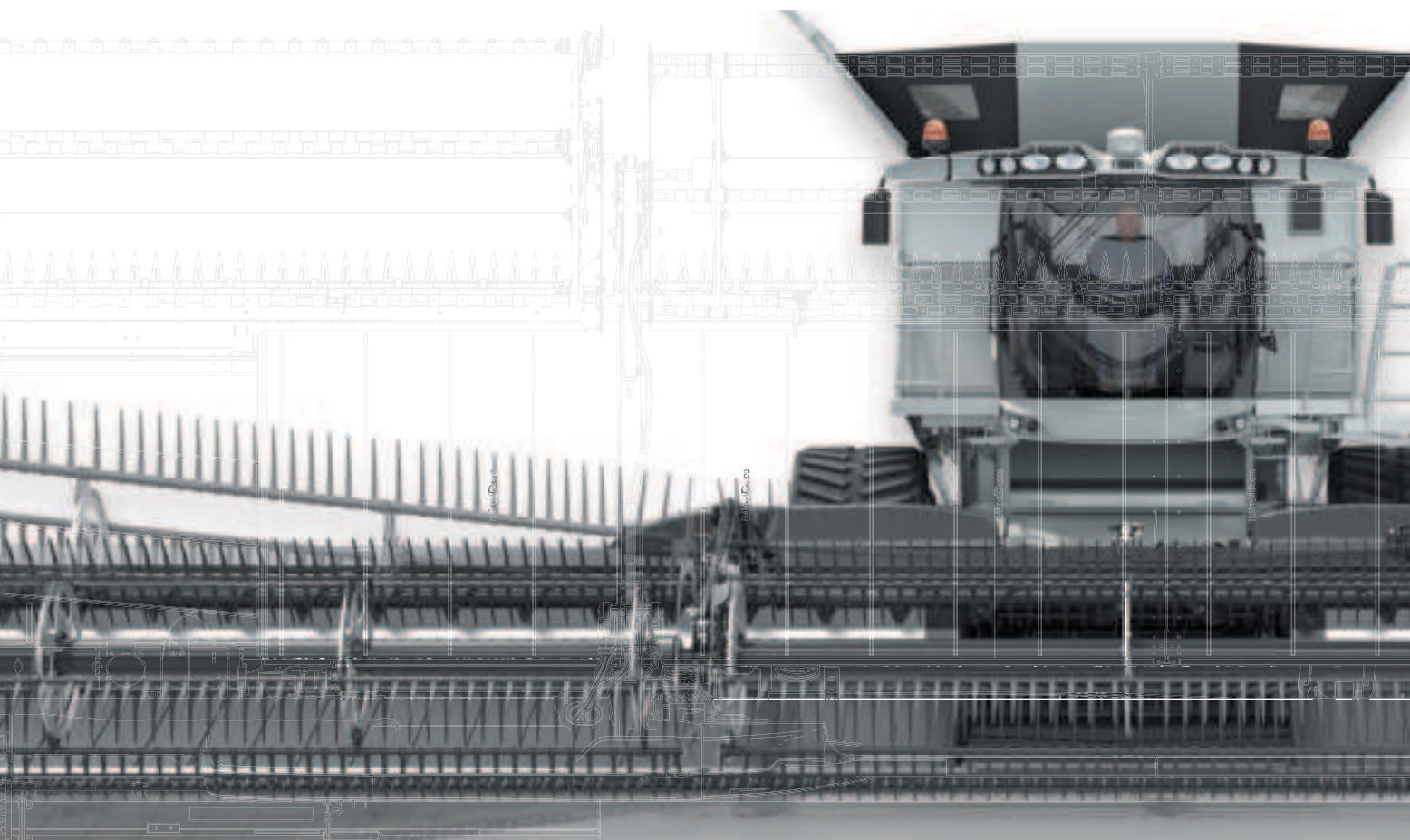
support them. This is a tripartite relationship with the dealer. Our customers are individuals, not just names on a database."

Secondly, Mr Agar said it was a way to provide further support to McCormick's dealers. "We are a family company in Italy and generally work with family-run dealerships," he added, "not the faceless, highly capitalised giants that most of the competition are now effectively running.

"We want to support our dealers, so where we have strong service-led dealers

- and Lincolnshire and Nottinghamshire are a good example of that - we are taking the opportunity to support them further by working a lot more on the sales function with the dealer. This means we may create and handle the lead, nurture the relationship with the end user and support demonstrations and so on.

"But we are not removing the need for the dealer, as they are vital to the whole process. We are recognising that the dealer strength is in after-sales support."



SEE IT IN ACTION!
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Dedicated loaders for Kubota M-series

A range of MX-built Kubota loaders is now available for the brand's M-series tractors, including the M4, M5, M6 and M7 models that span 66hp to 170hp.

The LK range of orange-liveried loaders is available in three variants: the LK U (utility-mechanical); LK M (mechanical); and LK H (hydraulic). LK U and LK M



versions offer a mechanical parallel lift and a headstock that uses automatic mechanical attachment locking, while LK H loaders benefit from a hydraulic parallel lift system.

The three series offer lift capacities ranging from 1180kg to 2410kg and maximum lift heights at the pivot point from 3.50m to 4.15m.

GRIMME LAUNCHES ROAD LEGAL FOUR-ROW PLANTER

Grimme is introducing its first four-row trailed potato planter with a transport width of less than 3.0m, the Prios 440, for the 2023 season.

Featuring a gooseneck drawbar that is coupled to an intermediate frame and a separate lifting mechanism, the planter can be combined with any common implement for active soil cultivation.

Depth control for cultivation, the fertiliser outlet discs, furrow openers, covering discs and the ridge-shaping unit are all independent of each other.

Four feeler wheels at the front of the machine and two ultrasonic sensors in front of the ridge-shaping unit detect the working depth to ensure optimum depth control and consistent emergence of the tubers.



STEKETEE SOLUTION CLEARS WEEDS FROM RIDGE CROPS

The new Steketee EC-Ridger offers a modern solution to keep ridge crops free from weeds without the use of agrichemicals.

Designed for a row width of 75cm, it works in three stages: the hoeing discs cut weeds on the top and the sides of the ridge; spring tines loosen the spaces between the ridges; and ridging bodies return the ridge to the desired shape.

The implement is currently available in three variants, with front- and rear-mounted options, including a highly configurable version that can be adapted to changing conditions and the various growth stages of the crops.

NEW FUNDING FOR MUDDY MACHINES

Robotics company Muddy Machines has secured new funding worth £1.5 million to help it on its path to automating specialist vegetable harvesting.

The company's technology allows farmers to precision harvest crops like asparagus. Its Sprout robot can work accurately for up to 16 hours a day with no need for breaks and no decline in performance.

The new money will allow Muddy Machines to build a small fleet of Sprout robots for the 2023 asparagus harvest season, and to continue the development of different crop harvesting capabilities.

It is hoped the technology will help address the UK's shortage of agricultural workers.



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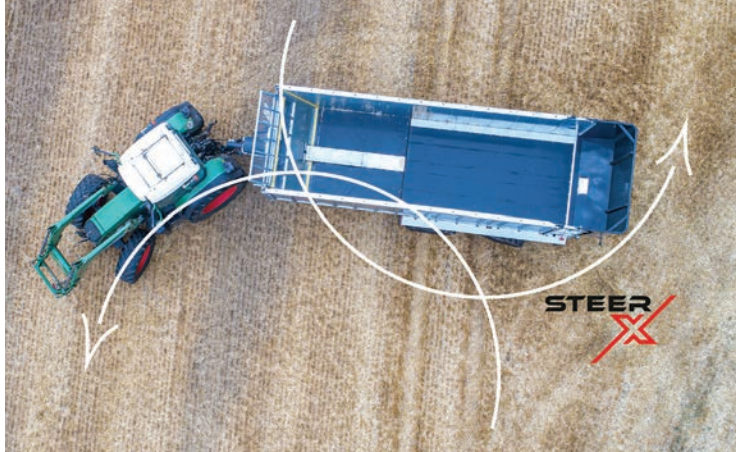
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TYRES

Fliegl reveals new axle steering



Fliegl's new SteerX electronic forced steering system broadens the scope of axle steering because it no longer requires a mechanical actuator situated between the towing tractor and trailer.

Innovative sensor technology allows the optimal steering angle to be calculated based on the

inclination and driving speed. A hydraulic steering cylinder then moves to the correct position, minimising lateral forces when cornering, protecting the axle and decreasing tyre wear.

The system requires load-sensing hydraulics on the tractor and either an existing ISOBus terminal or an ISOBus cable and display.

NEW HOLLAND SIGNS ESSEX RACECOURSE

New Holland Agriculture and local dealer Ernest Doe & Sons have signed a multi-year partnership with Chelmsford City Racecourse in a deal that marks the tractor brand's UK base in the county of Essex.

The two tractors delivered include a T6.180 DCT in New Holland's heritage blue/white livery – celebrating 100 years of tractors from Ford – that the racecourse owns, and another standard-liveried T6.180 DCT that will be changed annually under the agreement.



BIGGER WHEELS FOR YAMAHA'S 2023 GRIZZLY

Yamaha's ATV range will include a revised Grizzly 700 with a MK II 686cc engine and upgraded 14in wheels.

The On-Command 2WD/4WD drive system with diff-lock – that enables operators to move between two- and four-wheel drive via a switch on the handlebars as ground conditions change – makes it well suited to hilly ground and wet conditions.

Meanwhile, Yamaha's Ultramatic CVT automatic transmission and independent long-travel adjustable suspension are said to make the Grizzly easier to control and more comfortable on difficult terrain.



BALEARIC CROP TRIALS FOR HARVEST EYE



The researchers and developers behind the machine-learning driven crop insights tool HarvestEye have been taking advantage of the Mediterranean climate's earlier potato harvesting season, working with growers on the Spanish island of Mallorca to conduct field trials of current and future iterations of the technology.

The company's patented technology provides timely insights on root crops as they're lifted, helping growers understand the precise size profile of a crop so it can be marketed more profitably, and mapping crop variability across precise field locations for targeted agronomic data.

NEWSINBRIEF

New Deere outlet in Shropshire

John Deere dealer Tallis Amos Group will open a new depot at Allscott, Shropshire, between Shrewsbury and Telford. Opening in autumn 2022, it will be the biggest in the group.



Househam targets Scottish market

Househam Sprayers has appointed Tom Bannon as area sales manager for Scotland. Based in Dundee, his new role is part of the company's drive to expand sales north of the Border.



Tong moves into new British HQ

Vegetable equipment manufacturer Tong Engineering has officially opened the doors on a factory in Spilsby, Lincolnshire, after a three-year, two-phase project to build the facility.



AgXeed extends reach in Europe

Dutch autonomous agricultural robot manufacturer AgXeed has appointed Groupe Serco to manage Switzerland and France, and AllAgBots Nordic as distribution partner in Denmark.





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BIG ON BALING

Thomas Watkins of TE Watkins was facing just two more days of the wheat harvest halfway through August. Conditions had generally been perfect for baling and Tom was well into the swing of the fleet's new Krone BiG Pack 1270 baler, which arrived in time for the 2022 harvest and was averaging over 400kg per bale in the wheat straw, which was less than eight per cent dry matter most days.

Kicking up the dust on the hill behind is the Watkins Claas Lexion 760TT, giving Tom a view of the work ahead of him, although there was rarely any stress this year, as baling was able to run late into the night before the dew became a problem. The JCB Fastrac up front is an 8330 model. After several 3000-series Fastracs, the business upgraded to the 8000 to better handle the growth of the business and larger equipment. Keep an eye out for a first impression in a future issue of *FMJ*.

IMAGE **KEN TOPHAM**





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Green is for GO

FW Rowe & Sons recently purchased a John Deere X9 1100. Given an invitation to join the world's highest capacity combine in action, FMJ jumped in the cab with Dave Rowe to harvest winter wheat

WORDS AND IMAGES **SIMON HENLEY**

John Deere introduced the two-model X9 series of combines back in 2020. FMJ was at the official UK press launch and to say we were impressed by what we saw would be an understatement. And it wasn't just the 700hp range-topping X9 1100 combine's 100t-per-hour harvesting potential that astonished us. We were also astonished by the new model's price tag.

At the time (August 2020), we concluded: "With an MRP of £725,908, plus £124,420 for the new HDX header, the John Deere X9 1100 needs to be the highest capacity combine on the planet to earn its keep."

Order an X9 1100 today and you'll add 10 per cent, or at least another £100,000 to the purchase cost we quoted back then. But it doesn't seem to have stopped arable growers from buying them. So far, more than two

dozen X9 combines have found homes on British farms.

So, what do you get with a combine that costs over one million quid? Designed from scratch, the X9 models introduced a wider body for increased throughput, a new STS rotor design, a larger Dyna-Flo XL cleaning shoe, a new 13.6-litre PowrTech engine and a new ProDrive XL transmission.

They added a new cab and completely revised harvesting systems drivetrain. The latter introduced larger pulleys and longer, premium heavy-duty belts to provide up to 95 per cent operational efficiency.

Also new was the aforementioned HDX (Hinged Draper Xtended Table) cutting table. Developed specifically for European harvesting conditions, it is available in widths ranging from 10.7-13.7m (35-45ft). The HDX header features a centre hinge frame, which is essentially a parallel link design. It provides up to 10 per cent of total wing tip travel between the left and right side of the cutting table. That's 150cm upwards or downwards of travel at the outer wing tip, on either side of the hinge frame at any one time.

Family business

FW Rowe & Sons is a family-owned arable farming business based near Tamworth in Staffordshire,

FW Rowe & Sons replaced a New Holland CR10.90 with a new John Deere X9 1100 equipped with a 13.7m HDX header for this season

"More than two dozen X9 combines have found homes on British farms"



► managed by brothers Dave and Phil Rowe. Cropping from year to year can vary, however this season there were 364ha (900 acres) of oilseed rape, 607ha (1500 acres) of winter wheat and 445ha (1100 acres) of winter barley to cut.

For the past seven years the Rowe family has relied on two New Holland CR10.90 combines to gather the harvest. This year that changed when the decision was made to replace one of the New Holland machines with a new John Deere X9 1100.

The exceptional weather in the UK this year has seen many farmers cutting wheat earlier. At FW Rowe & Sons, having completed the OSR and winter barley, the combines broke into wheat on 3 August. With Dave Rowe at the helm of the X9, *FMJ* joined him in the cab to find out how the farm is getting on with the new combine.

Inside the cab

Farm Machinery Journal:

What prompted the decision to buy a John Deere combine?

Dave Rowe: We've been running the two New Holland CR10.90s with 40ft headers for seven years. In the past,

we've usually swapped combines after five years, but they've really been impressive machines so we held on to them.

The weak link on the CR10.90 is the header. In damp conditions or on rougher ground the cutting table simply cannot match the throughput of the combine. The design of the CR threshing system is excellent, but New Holland just hasn't made any new header developments. We felt the header was actually holding the combine back.

New Holland is obviously aware of this because they now supply MacDon headers. We tried one last year and it was certainly an improvement. There was even some talk that New Holland was going to introduce a larger CR11.50 combine, but to date that hasn't happened. So, we decided to take a look at what John Deere and Claas had to offer.

FMJ: Which combines did you look at?

DR: First we went to look at the John Deere X9 1100, which was equipped with the 12.1m HDX header. A key attraction to the X9 is that the threshing system is very

Right: Dave Rowe states the cab is comfortable with excellent front and rear working vision

similar in design to the New Holland. We were impressed by what we saw but before we made any commitment we wanted to take a look at the Claas Lexion 8900.

We had a demo with the 8900 last year. There is no doubt it's a very good combine, which is well designed and capable of covering a lot of ground. However, when it came to the crunch, we preferred the John Deere header design, so we ordered a John Deere X9 1100 with 13.7m (45ft) HDX cutting table.

FMJ: What features make the HDX a better cutting table?

DR: The header is the combine.

It's the header that gives the combine the ability to maximise its working capacity. The HDX has a very wide throat, which allows a high intake rate and a better view of the crop entering the combine as you're working.



TECH SPECS

John Deere X9 1100

Engine John Deere 13.6-litre PowrTech

Power 700hp @ 1900rpm

Transmission Pro-Drive XL (40kph)

Cutting width 10.7-13.7m (HDX) or 10.7-15.2m

Channel width 1.72m (from feeder housing)

Rotor length 3.51m (x2)

Threshing area 4.0m²

Separation area 22.5m²

Cleaning shoe area 7.0m²

Max throughput 100t/hour

Grain tank 16,200 litres

Unloading auger 186 litres/sec

Fuel tank 1250 litres (14 hours running time)

The HDX is also hinged in the centre, which enables the header to follow contours in the ground. With this combine, instead of one 40ft header, it uses two 22ft headers. Both headers are independently controlled. There are two hydraulically operated gauge wheels on either side of the combine, which carry the headers and maintain a constant working height.

I like draper headers. The HDX header has an extra-deep belt design, which features a patented grain-saver pattern. This helps prevent crops like OSR rolling back down towards the cutterbar. Another feature I really like is that the table belts and the augers automatically slow down when you raise the header.

FMJ: How has the John Deere X9 1100 performed so far?

DR: We were looking for a high-capacity combine, which provides a decent sample without putting grain over the back. We don't like drying grain. We've always preferred being over-capacity with combines. That way we can get on harvesting when ▶

"It's the header that gives the ability to maximise working capacity"

The X9 1100 holds 16,200 litres of grain and has an unloading capacity of 186 litres per second (max). Filling grain trailers is made easier using the unloading auger's adjustable chute



► it's dry and save on drying costs.

So far, we've done just over 220 hours with the John Deere and it's performed very well. I'm not about pushing a combine to its limit, but I can tell you that we've been harvesting 10t crops of wheat at 7.0kph and it has plenty of capacity in reserve. I can also tell you that even with the extra header width,

"The volume out of the unloading auger was simply too fast for standard grain trailers"

the X9 is more economical than the CR10.90, consistently using around 10 per cent less diesel.

The X9 is a very easy combine to set up. You basically tell it what crop you are harvesting and off you go. Once you get going you can make the final adjustments yourself. The only downside to the X9 is that it doesn't have self-levelling sieves, but it does have an active terrain adjustment feature that seems to work well, so it's not a problem.

One thing we didn't get with the combine is the cameras we ordered for the spout or grain tank. Apparently because of component issues, there are none currently available.

Above: Dave Rowe claims his X9 1100 has been harvesting 10t crops of wheat at 7.0kph using around 10 per cent less diesel than the farm's New Holland CR10.90

FMJ: Has the change from New Holland to John Deere been an easy transition?

DR: The John Deere is very similar to the New Holland CR10.90 in terms of operation. There are a few differences in the controls and in the placement of switches on the joystick hand control, but there's nothing you don't quickly adapt to.

Two of the things we learned when we were combining OSR with the X9 is we had to raise the top-mounted feed augers to prevent the crop tangling. We also needed to put baffle plates in the base of the tank to slow down the unloading rate. Before we did this the volume of crop coming out of the unloading auger was simply too fast for loading standard grain trailers.

FMJ: Have you had any teething problems with the new combine?

DR: When the combine was in OSR we noticed the header was a bit leaky where the side belts transfer the crop on to the central belt at the back of the header. Our John Deere dealer (Farols Ltd) corrected the problem by adding additional rubber.

FMJ: How does the straw quality compare to the New Holland?



DR: In wheat, the straw quality is comparable, but I'd say the New Holland CR produces a neater swath. The force at which the straw and chaff exit the X9 produces an untidy swath, which is not as well formed as the New Holland.

We also think the chaff spreader wants modifying. It will spread material 50ft, but the distribution isn't even. It tends to leave more material directly behind the combine. Having said that, the straw chopper and the straw distribution are literally incredible - far superior to the New Holland CR10.90.

FMJ: How would you conclude your experience with the John Deere X9 1100 to date?

DR: This is a very well designed machine. Daily maintenance is minimal. There's one chain to oil and a few grease points that require lubricating every 50 hours. The cooling system is excellent. The automatic reversing fan system makes quite a noise, but it keeps the radiator and engine bay very clean. Even the air filter stays clean, and the crops this harvest have been very dusty.

The John Deere ProDrive XL transmission and track system works extremely well, both ▶

Right and above inset:
"The force at which the straw and chaff exit the X9 produces an untidier swath (inset) than the CR10.90. However, the X9's straw chopper performance is literally incredible," says David Rowe

Below right: "We think the chaff spreader wants modifying," says Dave Rowe. "It will spread material 50ft but the distribution isn't even. It tends to leave more material directly behind the combine."



Above left inset:
FW Rowe & Sons is a family-owned arable farming business based near Tamworth in Staffordshire, managed by Dave Rowe (pictured) and his brother Phil

► in the field and on the road. In fact, I'd describe road travel as really good, even when I pushed it up to 40kph. I also was surprised just how well this combine harvester pulls up hills.

With a combine of this capacity we could technically manage the acreage we farm with just one combine. The problem is our land is scattered and not in one block. Moreover, most seasons we end up doing some contracting for neighbours.

What concerns me is the price of these machines. Purchasing the X9 1100 represented a considerable investment when we ordered ours last year. Since then, the price has increased by over 10 per cent. The MRP is now £1.1m, which I think puts the John Deere X9 combine at the threshold of being unaffordable.

I know costs have risen for everyone, but John Deere must keep the X9 affordable if it's going to compete with other high-output combines from the likes of Claas and New Holland. For the time being, I think we will probably keep our older New Holland CR10.90 and continue using it to do all the outlying ground. It hasn't got the harvesting capacity of the X9 but it's been a very reliable machine and I see no need to replace it yet.

EMJ

Right: In terms of operation, the X9 is very similar to the CR10.90 with only minor differences in the control layout



Above inset: The HDX draper belts feature a patented grain-saver pattern design developed to prevent small grains and seeds rolling back towards the cutterbar



Above right: The John Deere engine features a colossal cooling pack equipped with variable-pitch reverser fan, which keeps the radiator clean, even in this year's exceptionally dusty conditions

"John Deere must keep the X9 affordable if it's going to compete with other combines"

This picture: FW Rowe's John Deere X9 1100 was ordered with a 13.7m (45ft) HDX cutting table. The centre hinge frame is a parallel link design, which provides up to 10 per cent of total wing-tip travel



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TOGETHER FOR A HEALTHY AGRICULTURE

An orderly Q

Valtra has launched its new Q series tractors, which for the first time come equipped with the AGCO Fendt Vario CVT. *FMJ* went to Lincolnshire to preview the new top-spec Q305

WORDS AND IMAGES SIMON HENLEY

At first glance you would be hard pushed to tell the difference between the all-new Valtra Q series and the current S and T series models. Yet, apparently that's the whole point because the Q series has been developed to fill the vacant horsepower gap between the S and T ranges.

The result of a five-year development programme, the Q series completes the AGCO-owned manufacturer's fifth generation portfolio by introducing five new models with power outputs from 230hp up to 305hp. And it's about time.

The demand for medium-weight, high-spec, powerful tractors equipped with a CVT transmission has grown significantly

in recent years. But Valtra is a late arrival to the party in this popular sector of the European market, where there's already plenty of competition from other manufacturers.

Valtra's offering

The new line-up has been designed with a low working height and a long wheelbase - 55mm longer than the T series. Valtra claims this has been done to lower the centre of gravity and improve operational stability. Power is provided by the proven AGCO Power 7.4-litre, six-cylinder engine, which is the largest cubic capacity engine in this market sector.

Maximum power occurs at 1850rpm and the peak torque figure of 1280Nm comes in from 1000rpm upwards. Tipping the scales at an unladen

weight of 9.2t, the range-topping Q305 boasts an impressive power-to-weight ratio of 30.1kg per horsepower. For the record, that's the highest ratio in this horsepower category.

Underneath its unmistakably Valtra sheet metal design, the new Q series shares its powertrain with the Massey Ferguson 8S range. Yes, that's right: Valtra engineers have pillaged the AGCO parts bin. Like the MF 8S models, the Q series has adopted the Fendt-designed AGCO ML270 Vario transmission instead of using its own in-house direct CVT unit.

Although no official reason has been cited for adopting the AGCO Vario transmission, we suspect it's the ability of the famous Vario to reliably handle huge torque loads, like those produced by the 7.4-litre engine. However, there is one feature available in a Fendt tractor that buyers won't be able to specify in the Q series.

TECH SPECS

Valtra Q305

Engine AGCO Power 7.4-litre, 6-cylinder

Transmission AGCO ML270 two-range CVT

Hydraulics 200L/min

Rear linkage 10.0t

Weight 9.2t (unladen)

Payload 16t (max)

Wheelbase 3.5m

Turn radius 6.7m

Rear tyres 710 R42 (max)

Price £197,350 (base price)

Below: The Q series has been launched as an easy-to-use, intelligent tractor range with what Valtra describes as a favourably low cost of ownership



"We suspect some in-house corporate politics have influenced this decision"



► Unlike Fendt Vario models, which offer a maximum speed of 60kph, AGCO has mandated the Q series models will only be available in 40kph or 50kph specification. Again, we suspect there may be some corporate politics that have influenced this decision.

Extremely comfortable

In terms of comfort, the Q series operator will not be disappointed. The cab, which is borrowed from the T series, is a well-designed, extremely comfortable operator station that shares identical specification levels

Right inset: The cab retains T series features, including the high-definition A-pillar display. The optional front axle air-suspension system is also shared with the T series

Below: The Q series cab is shared with the T series. The cab interior of this demonstration model has been upgraded by the Valtra Unlimited studio

and the same updates to the internal layout of the T series, including the A-pillar display introduced last year.

Upgrades to the cab include roof-integrated indicators for better visibility from behind and a rear linkage/PTO light to assist hitching up in the dark. Additional comfort can be specified from options for front axle air-suspension, Valtra's excellent Evolution temperature-controlled air suspension seat and either mechanical or air cab suspension systems.

For those who want a little more bling on their tractors, the Q series can be upgraded with numerous exterior paint colours, interior trim upgrades and bolt-on parts at the Valtra Unlimited customisation facility. Today, around 30 per cent of all Valtra tractors are sold with Unlimited options. The Unlimited workshop once employed just two people but that number has grown to 22.

In terms of tech, the Q series is available with Valtra Connect telematics, Auto U-Pilot and the SmartTurn headland system. The Valtraguide system now features 96 sections for section control, having previously used 36. Additionally, the variable rate control will now handle five separate tasks simultaneously.



VALTRA Q SERIES RANGE

Model	Power	Max power	Torque
Q225	230hp	250hp	1000Nm
Q245	245hp	265hp	1100Nm
Q265	265hp	290hp	1200Nm
Q285	285hp	305hp	1280Nm
Q305	305hp	N/A	1280Nm



Pictured between the smaller S series and the heavyweight T series, the Valtra Q series was developed to fill the vacant horsepower gap in the Valtra portfolio

“The Q could be the most refined tractor equipped with the ML270 Vario gearbox”



Below: The Q series cab now features roof-mounted LED indicators for improved visibility and greater safety when turning

Right inset: Spool valve blocks are now fitted with decompression levers



Driving impression

FMJ's opportunity to preview the new Q series took place in Lincolnshire in July. In case you've already forgotten, that was when temperatures reached the highest ever recorded in the UK, peaking at 40.3C just a few miles from the location of our introduction to the new Q305.

We didn't get too much time in the cab, but needless to say you couldn't help but be impressed by the Q series. The Valtra cab is arguably one of the best on the market and with the demonstration tractor's leather trimmed interior it's more like a luxury

car interior than an agricultural vehicle.

If you are a fan of the AGCO-Fendt Vario transmission then the Q- series is going to make you smile for a while. The fact is, we think it's a better gearbox than Valtra's own DirectCVT and even just pottering around it matches the torque and power delivery of the 7.4-litre engine very nicely.

Our time with the Q305 was too brief but the tractor left us thinking. The new Q series could arguably be the most refined and comfortable tractor range on the market that's equipped with the ML270 Vario gearbox. Production is scheduled to start this autumn and the first examples should arrive in the UK in October.

FMJ



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Scottish spectacle

FMJ joined AgXeed's new northern partner SoilEssentials Ltd at a demonstration of the fully-autonomous AgBot track-type tractor in action on a farm in East Lothian

WORDS AND IMAGES DAVID WYLIE

SoilEssentials is a precision farming business set up over two decades ago by farmers Jim Wilson (MD) and his neighbour Robert Ramsey (commercialisation director). Both farmers constantly strive to operate in a sustainable and ecological way, which resulted in them co-founding SoilEssentials Ltd in 2000 and representing Trimble Agriculture since 2010 as the sole agent in the 'Northern UK' territory for precision farming products.

SoilEssentials employs 25 skilled people and has three teams to deliver products and advice to farmers in the areas of precision agronomy, machine

Right: SoilEssentials is co-owned and run by MD Jim Wilson and his neighbouring farmer commercialisation director Robert Ramsey

control and software development & projects. Now, SoilEssentials has made another big technological leap forward as it has been appointed distribution and service partners of AgXeed BV and its range of fully-autonomous track and wheel-type tractors.

Digital competence in service, a strong personality, understanding of local agriculture and the will to be a strong, long-term partner of the

farmers were key characteristics that AgXeed looked at when selecting its distribution partners. SoilEssentials having been appointed for the northern part of England and Scotland, a southern dealer is due to be appointed by the end of the year.

"We are very excited to have been given this opportunity by AgXeed," says Gregor Welsh, SoilEssentials general manager. "The AgBot is a complete game-changer for our farming and contracting customers."

Service from the start

For AgXeed and its partners, the term service means more than just providing assistance in the event of damage or maintenance. Service begins with the consultation and analysis of the farms, up to the complete implementation of the autonomous systems from AgXeed.

With the integrated software tools, farmers can virtually plan their operations in the field in advance. The AgBot will then carry out the pre-planned task fully autonomously. It can operate with standard implements such as cultivators and drills thanks to its front and rear linkage, an electric PTO and a powerful diesel engine connected to a generator to provide electric power to the drivetrain.

With autonomy, AgXeed says size is replaced by continuity and precision in the field. These are

TECHSPECS

AgXeed AgBot 5.115T2

Engine 4.1-litre, 4-cylinder Deutz diesel, Stage V
Power 156hp
Max torque 610Nm
Diesel tank 350 litres
AdBlue tank 30 litres
Drivetrain Electric
Working speed 0-13.5kph
Hydraulics 85L/min at 210bar
Valves Up to 4 double-acting proportional (Load Sensing optional)
Rear linkage Cat 3, 8t lift capacity
Front linkage Cat 2 (hooks cat 3), 3t lift capacity
Track widths 300-910mm
Track width adjustment 1.8-3.2m
Crop clearance 42cm
Available From January 2023
Starting price From £225,000

Below: AgXeed currently offers the 5.115T2 tracked version (seen here), plus a 2.055W3 three-wheel robot and recently launched 2.055W4 four-wheel model

Below inset: An easy-to-use remote control like that for model cars is used to move the AgBot around



"The AgBot is a complete game-changer for our farming and contracting customers"





► new approaches that require distribution partners who are close to agriculture, who understand the need to manage resources differently and who believe that autonomy can be a solution.

AgXeed currently offers the 5.115T2 tracked version and the narrow track width 2.055W3 three-wheel robot, and has recently launched a four-wheel, two-wheel drive model with 55kW, called 2.055W4. Pre-orders are now being taken for all three models, and SoilEssentials claims the model seen here – a 5.115T2 tracked version

– is available for Jan 2023 delivery from £225,000.

Quick set-up

On hand to answer questions was Malte Höner from AgXeed, covering everything from how AgBots can significantly reduce soil compaction to complexity and operating costs. Taking the AgBot by remote control off the back of the truck, Malte used a downloadable app on his smart phone and GPS antenna to simply and quickly map the field boundaries with RTK correction. Precise guidance



Far left: AgXeed says the hybrid diesel-electric drive offers a performance more like a six-cylinder 160-170hp tractor

Left and inset: Sensors on the three-point linkage and a powerful onboard computer help to control the AgBot

information is also downloadable over the phone cell network direct from the farmer's PC or other compatible device.

The AgBot is powered by a 4.1-litre, four-cylinder Deutz diesel engine with 156hp and max torque of 610Nm,

however AgXeed says the hybrid diesel-electric drive means the AgBot's performance is more like a high-torque six-cylinder 160-170hp equivalent tractor.

The AgBot is designed to pull and operate implements that are 3m wide, depending on soil, terrain and implement type, which in some scenarios could allow for wider implements. During the demonstration SoilEssentials operated with ridging ploughs, a deep cultivator and 3m disc harrows on reasonable slopes, all of which the



AgBot tackled with ease.

Fuel consumption-wise, with a 350-litre fuel tank on the demo 5.115T2, AgXeed has shown that at 70 per cent workload this lasts 20 hours. That would approximately work out at 17.5 litres per hour (at a constant 70 per cent workload) and is said to be very favourable in comparison to 'normal' tractors in this horsepower bracket.

It is expected that the AgBot will have significantly less maintenance costs than conventional tractors too, as there is simply less to go wrong – no cab, cabin interiors and controls, and it doesn't have a complicated mechanical transmission, just a well-proven diesel engine with a large capacity generator bolted to the flywheel. Engine maintenance is simple too, the standard Deutz engine requiring 500 to 600-hour oil change intervals.

AgBot in action

During the demonstration, the AgBot worked at two-hour intervals, while onlooking farmers and contractors ▶

Right and inset: Malte used an app on his phone and GPS antenna to simply and quickly map the field boundaries

Below right: Once programmed, the AgBot will carry out pre-planned tasks fully autonomously

“I could use less staff or re-deploy my tractor drivers on to more complicated work”

Below: Note the fertiliser pipework on top of the engine hood to blow fertiliser from the front box (3t three-point linkage) to the rear-mounted drill



► were complimentary about its overall performance. Many could see the machine working practically on their farm, and one farmer commented: "I could quite easily see the AgBot working for us during harvest time, as I could be working away in the combine and the AgBot could be coming in straight in at the back of me to do tillage or direct drilling of the next crop or cover crop. In this scenario I could keep an eye on it when working in either the same or an adjacent field and I could use less staff and/or re-deploy my tractor drivers on to more complicated work - such as shuttling back and forth to the farm with grain trailers."

The AgBot used its 8t-capacity three-point linkage to pull an Opico 2.7m-wide Sward Lifter subsoiler, which is specifically designed to break up hard pans and surface compaction

while lifting and opening up the subsoil for aeration and drainage.

As you would expect from a GPS-guided tractor, the AgBot's passes were pinpoint accurate. You almost had to pinch yourself to see it automatically slow down on the approach to the headland, lift the implement, slowly

sprag the inside track, while rotating the faster outer track to make the turn with the absolute minimum of soil disturbance and compaction. It then quickly lowered the implement again and started to head back down the field at a working speed from 0.1-13.5kph to make the next pass, again and again. It's quite an incredible sight!

Track width is adjustable from 1800mm to 3200mm (with 300mm-wide tracks) and the AgBot has four safety systems starting with LiDAR, a radar system, ultrasonic sensors - similar to those found on modern car parking systems, and finally tactile - a physical touch bar to act as an emergency stop should the other systems fail to detect an object. The AgBot can also have an optional camera mounted on top of the vehicle

Right: The AgBot is designed to reliably pull and operate implements that are 3m wide, with a partnership with Amazone



Above left inset: Options include an electric-drive PTO (up to 100kW and 700v), a full set of hydraulic valves and high-voltage connectors

Above: The AgBot has four safety systems, including LiDAR, which is a more advanced version of radar

Below: Full technical support is provided by SoilEssentials, whose field engineers will be fully factory trained by the end of the year

Below right inset: The 5.115T2 fits on a standard 2.5m-wide truck or tractor trailer for ease of transporting to the field

so farmers can see in real-time where and what their AgBot is doing on a PC or portable device screen.

Next big thing

"As a technology company, automation is obviously something that we've been looking at for a number of years," says Graham Ralston, SoilEssentials hardware director. "Auto-steering application control and all of our other services are still entirely relevant to our market, and there is still a massive uptake for these products and smart Ag services.

"However, there is a requirement to move on to the next big thing as these products become more commercialised and a built-in item straight from the manufacturer. We believe SoilEssentials exists in the





front edge of new technology and innovation, so with that in mind in 2018-2019 we started really looking at autonomous machines and began discussions. What grabbed us about AgXeed was the design and most importantly the people behind it all.

"The senior management team at SoilEssentials, including myself and Gregor, are farmers, and we are looking after the interest of other farmers and contractors. That's always been our motto, so we know what works and we know the expectations of the farmers first hand because the technology must be cost effective for us as well as our customers.

"The AgBot is very configurable, with different size tracks and electric PTO options available, and the demo machine has got pretty much

everything. However, as a development machine, it wasn't fitted with the standard anti-collision sensor bar package and track slip monitors."

With skilled labour shortages and wage pressure increases, the AgBot from AgXeed and its dealer partners offers farmers and contractors a high-tech, practical and workable solution to these ongoing issues. The AgBot's front and rear linkages and both mechanical and electrical PTO options, give the opportunity to use a low-operating cost tractor that is future proofed and can tackle a wide range of implements, drills and fertiliser boxes. Once delivered, it can be left in a field to get on with the job safely and productively for many hours unsupervised, leaving farmers and their skilled staff to do other work. **FMJ**

"The AgBot is very configurable, with different tracks and options available"



AgXeed strategic partnerships

In a recent announcement, Claas has entered into a co-operative venture with AgXeed BV and acquired a minority shareholding in the company's international funding round as a mark of its commitment. The aim is to co-operate on the development and commercialisation of autonomous agricultural machines.

Claas says the farming industry must further increase productivity in the decades ahead to meet the needs of a growing global population. At the same time, the number of people employed in the industry, measured in terms of land area, continues to decline, while skilled labour is increasingly difficult to find and farmers still work longer hours than many other sectors.

The machinery industry has come up with various solutions to address these challenges, ranging from operator assistance and machine optimisation systems to precision farming technologies, and even autonomous machines in different size and performance classes. For Claas, collaborating with and investing in AgXeed marks a logical step towards future-proof technologies.

Netherlands-based AgXeed offers a smart, sustainable and fully autonomous system with scalable hardware, virtual planning tools and extensive data models, making it one of Europe's leading companies in this sector today. The aim is for this autonomous field robot with diesel-electric drive, wheels or crawler tracks, up to 156hp and standard three-point linkage, to assist farmers with a wide range of tasks in future.

'Innovative technologies'

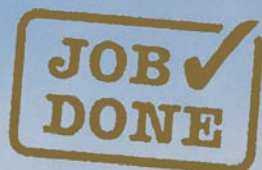
"Our involvement provides Claas with access to innovative technologies in a familiar market segment and complements our own expertise in autonomy and robotics," explains Thomas Böck, CEO of the Claas Group. "In turn, AgXeed benefits from our extensive expertise and networks in many areas such as data transfer, interfaces and drivetrain solutions. It's a win-win situation in our view, and one reason why we decided to invest in this start-up company, as well as the fact that the targeted AgXeed technologies are in an advanced state of development. This solution offers farmers and contractors concrete economic added value, and what's more, it will soon be available."

"This type of co-operation reflects exactly what we stand for at AgXeed", adds co-founder Joris Hiddema. "And this means setting up future-orientated alliances between innovative companies striving for sustainable agriculture where farmers are able to optimise productivity, while preserving the soil and the environment. In Claas we have a partner on board that believes in and shares our ideas on the future and will accelerate bringing our solutions to the fields."

From an early stage of development, Amazone was also part of the financing round and with AgXeed will develop implements suitable for autonomy.

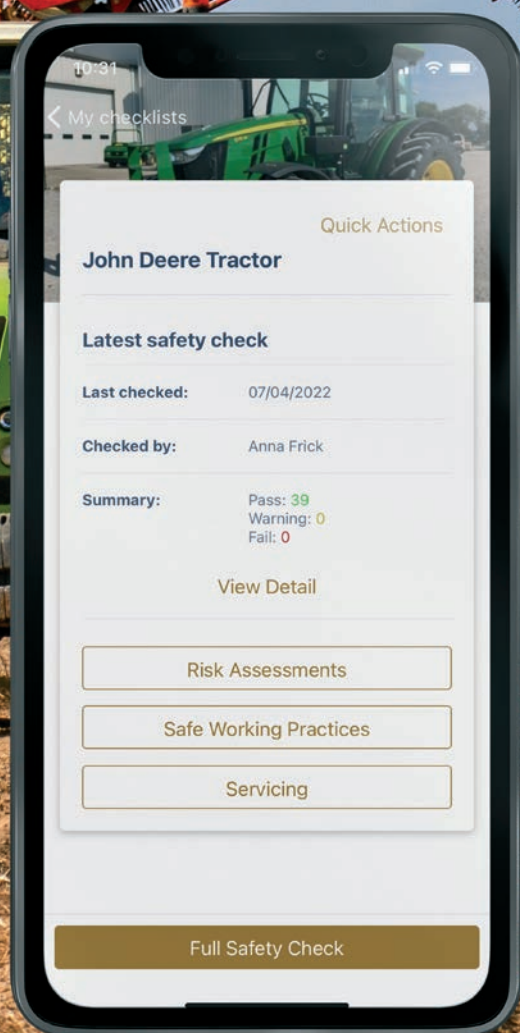


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Right: This 1997 Claas Xerion 3000 was baling with a Quadrant 2200 Fine Cut baler, introduced 20 years ago this year. In 2023, Claas celebrates 35 years of Quadrant baler production



The Kiel reveal

This year's Claas international press event was hosted at the city of Kiel in northern Germany. *FMJ* was on hand to see the many updates and new features introduced by the German manufacturer for 2023

WORDS AND IMAGES **SIMON HENLEY**

COVER
STORY

How time flies. Can you believe it is 25 years since Claas introduced its pioneering Xerion tractor range? It's also 25 years since the company unveiled its Terra-Trac system. Yes, Claas has had a great deal to celebrate this year. So what will we see in 2023?

To find out, *FMJ* joined 85 other international journalists and Claas

"Claas has revealed a whole range of updates to the Lexion combine ranges"

representatives at the Gut Wetterade farm in north-east Germany. This was the first major Claas press event since 2019, so naturally there was an air of anticipation among the visiting press, as the company unveiled what we can expect to see in its product portfolio in the upcoming future.

Claas Lexion

Let's start with combines. Claas has revealed a whole range of updates to the Lexion combine ranges, including the introduction of a new generation cab, which was launched on the Trion range of combines last year. For a start, working visibility has been improved by the introduction of slimmer A-pillars and roof-

mounted cantilever mirrors. The new cab design features additional glass area for improved vision to both the front and sides of the cabin. The new cab also features more storage space thanks to the introduction of cubby holes integrated into the interior and the option of a 30-litre coolbox. There's more head- and legroom, additional floor space, while footrests are also available for improved seating comfort.

Updates to the controls include the use of a high-resolution 12in Cebis monitor as standard, with direct access buttons located on the adjustable control armrest for instant access to the harvester's threshing and cleaning settings. The armrest ▶

Below: More than 85 people attended the 2022 Claas international press event, held near the city of Kiel in northern Germany





Above and below: The Claas Lexion 7700 Hybrid (top) and Claas Lexion 5500 straw walker (bottom) are the latest combines to benefit from the availability of the slope-compensating Montana hillside chassis option



► also integrates the CMotion multi-function lever for single-handed operational control. And we're not done yet.

The new cab now comes with a split-level, dual-airflow climate control system, which Claas claims can warm the operator's feet while it blows cool air-conditioned air to the upper body and face. In areas of Europe and North America where farmers are combining maize in October, warm feet and a cool head will be a welcoming prospect.

Options for the cab include dynamic steering (which reduces steering wheel input by 40 per cent), a 360-degree LED package and a multimedia package that includes a high-output sound system with a sub-woofer and gooseneck microphone.

New models

New to the Lexion 8000 series line-up are the 8600 and 8600 Terra Trac models. These high-performance hybrid combines have been developed to slot between the existing mid-size Lexion 7700 and the high-capacity 8700 model.

Equipped with a 1.7m drum and powered by a 549hp MAN D26

Claas has also announced the introduction of an optional pivoting auger spout, which is available on Lexion combines with 330mm and 420mm unloading augers



12.4-litre engine, the 8600 has already been successfully launched in the USA. Introduced in 2019, it has since been evaluated by Claas in Europe, where testing and performance comparisons have revealed the new model provides what Claas describes as 'unrivalled efficiency and harvesting performance in this sector of the market'.

Claas has also extended its range of hillside slope-compensating combines. The Montana chassis is now an option on the straw walker Lexion 5500 and

Below: The Lexion now benefits from the new cab introduced on the Trion last year, with narrow A-pillars, more room, better visibility and optional swivelling seat



Hybrid 7700 models. The new Montana models join the six existing Trion Montana models, extending the hillside range from 258hp (five-walker) to 549hp (hybrid).

More power

Further changes to the Lexion line-up include an increase in power for the existing 8700 and 8800 models, with new ratings of 626hp and 700hp respectively. The additional power in the 8800 is provided by introducing the same MAN 16.2-litre D42 engine employed in the range-topping 8900.

To improve harvesting output, from 2023 the Claas Lexion 8700 will benefit from the same threshing system and technology used in the 8800 and 8900. To further optimise crop flow, Claas has also announced that all Lexion 7000 and 8000 models will now feature a new segmented feed drum between the threshing unit and the rotors.

This has apparently been introduced to improve crop distribution and flow to the rotors, particularly in difficult crops and extreme operating conditions. Another noted improvement is the debut of a slow retraction feature on the Lexion reversers. Once a clump or restriction is cleared, at the push of a button the reversing motor itself is reversed so the crop can be fed slowly back into the rotors to avoid peak loads.

Additional updates include an increase in grain tank capacity for some Lexion models. Claas has also announced the introduction of an optional pivoting spout on Lexion combines with 330mm and 420mm unloading augers.

Quadrant evolution

The headline news for Claas' big baler is the introduction of hydraulic drive for the pick-up reel and power feeding system (PFS) on the 5200 and 5300 models. This increases transmittable torque available to 1000Nm.

The speed of the five-row pick-up, which is controlled on both sides of the reel, remains a constant 135rpm. The speed of the PFS feed roller can be adjusted from 200 up to 250rpm depending on the operating

conditions. A bonus of the hydraulic drive is that maximum torque is available for reversing both the pick-up and the power feeder, operating at a reduced speed.

The latest Quadrant 5300 FC Evolution baler is seen here equipped with a MÜthing front-mounted straw chopper



Right and both right insets: Designed for use where baled straw is to be repurposed as poultry litter or straw-based livery bedding for horses, the 88-blade chopper significantly reduces the straw length in the bale (see inset images)

Below: Celebrating 25 years of Claas Xerion production, this Xerion 5000 was seen powering the latest Quadrant 5300 FC Evolution baler

“Hydraulic drive for the pick-up reel increases the transmittable torque available”



Another design improvement is the addition of a larger flywheel. By increasing the mass of the flywheel by 21 and 28 per cent respectively on the 5200 and 5300 models, the inertia of the flywheel has been increased by 44 and 46 per cent on both models.

The benefit of the heavier flywheel, according to Claas, is smoother operation when baling inconsistent or uneven swaths. The additional inertia created also helps reduce peak loads, which in turn protects the driveline of the baler and the tractor. Additional overload protection can be provided by an optional slip-clutch in place of the standard shear-bolt system.

Straw chopper

A new feature, which will not be so popular in the UK, is the availability of a factory-fitted MÜthing front-mounted straw chopper. The belt-driven rotor, which is supported by two-row solid spherical roller bearings, features 88 oscillating knives.

When the chopper is in use the crop is fed directly to ▶





Claas Variant 500 balers are now available with Smart Density pressure control system, which allows the two tensioning arms to be controlled independently to produce soft-core variable density bales

► the baler cutting rotor via the roller crop press of the pick-up. The crop can be centred in the direction of the cutting rotor using adjustable guide plates. Pendulum flaps at the front offer protection against stone chips.

Designed for use where the straw being baled is to be repurposed as poultry litter, or products such as straw-based livery bedding for horses, the chopper reduces the straw length significantly, enabling the baler to produce densely packed bales that can easily be broken down. When it's not in use the chopper can be removed in around 20 minutes.

A final new feature on the Quadrant is the addition of hydraulically folding pick-up reel guide wheels. The new wheels swing out automatically when the pick-up is lowered and swing in automatically when the pick-up is raised. This will certainly please Quadrant operators, who no longer need to set the wheels up manually.

Variant 500

This popular variable chamber round baler line-up now comprises six models offering bale sizes extending from 0.9m up to 1.6m or 1.8m. There are two RF-spec models, specifically the 560 and 580, which are available with the spiral Roto-Feed rotor. In RC specification, buyers can opt for the 560, 565, 580 and 585, which come with the Roto-Cut four-star cutting rotor.

Below: Updates to the Claas Torion range include the debut of the new medium series 1611 and 1611P, with more engine and hydraulic power, HD axles, reinforced lift arms and a more powerful crowd ram

The 565RC and 585RC now feature a 17-knife cutting mechanism with reinforced drive chains for a theoretical 60mm chop-length.

The biggest news for Variant 500s in 2023 is the introduction of the Claas Smart Density pressure control system. This innovative development introduces a new hydraulic block, which allows the two tensioning arms to be controlled independently. As a result, the baler can optimise the baling

process to suit the type of crop being baled. Using newly developed control software and the updated Cemis 700 ISOBus control terminal, at the press of an icon the baler will automatically set itself up for straw, silage or hay.

Soft Core

A key benefit of Smart Density is the Soft Core feature, which will be of particular benefit for hay producers. With smart density, the baler can now

“The Torion 1611P is aimed at the silage clamp and straw handling market”



produce bales that have a soft low-density core, with tightly packed high-density outer layers to protect the bale from the weather. The size and pressure of the soft core can be adjusted to suit the crop and operating conditions so that perfectly formed bales are produced every time.

In other news, Variant 500 balers now utilise colour-coded plug-in Kennfix couplers, with the addition of new in-line filters to remove contaminants from the hydraulic oil. They also get an improved lubrication system, which features a larger seven-litre oil tank, a mechanical-drive oil pump and improved chain brush location. New central greasing banks have also been included.

Up front, the design of the drawbar has been revised so the baler can more easily be adapted to suit different makes and sizes of tractor and allow the baler to be aligned horizontally for all wheel sizes. The adjustment of the pick-up wheels has also been improved so it's easier to adjust them to suit the operating conditions. You can also specify a Variant 500 with air brakes.

In the netting department, the position of the net roll has been lowered by 25cm in a new open net tray. A new net brake, an improved feed plate design and a new knife release combine to produce consistent net tension and trouble-free bale completion prior to ejection. Standard equipment now includes the ability to handle 1.3m net wrap to cover/bind the edges of the bale.

Updated loaders

Updates to the Claas Torion range of wheeled loaders include the debut of the new medium series 1611 and 1611P. They replace the short-lived 1511 and 1511P, with more engine and hydraulic power, HD axles, reinforced lift arms and a more powerful crowd ram. Powered by a six-cylinder DPS engine, the Torion 1611 gains 23hp and is now rated at 207hp. The 1611P gains 45hp to produce an output of 252hp. The Torion VariPower transmission system has also been upgraded, with larger pumps and improved hydrostatic drive.

Claas makes it very clear that the Torion 1611P (P is for Power) is aimed at the silage clamp and straw handling market. Marginally lighter with less counterbalancing weight, it offers slightly less hydraulic output and lifting performance than the Torion 1611, but considerably more tractive force and climbing ability, plus greater tear-out capacity.

In the telehandler line-up the Claas Scorpion 732, 736, 741 and 746 models will get a more powerful Liebherr-optimised 3.6-litre Deutz engine, which adds 50Nm of torque and 6hp to each model respectively. The 732, 736 and 741 all benefit from the Claas Jaguar-derived VariPower 2 hydrostatic transmission.

Also new are a revised cab with improved air conditioning, regenerative hydraulics, improved braking performance and automatic



Above: As well as Lexions and Jaguars, Claas tractor ranges are now available with the new Cemis 1200

boom retraction on the 746 and larger 946 models.

Cemis 1200 technology

Following its introduction on the Trion combine harvester range last year, the new Claas Cemis 1200 is now also available on Lexion combines, Jaguar self-propelled forage harvesters and Claas tractor ranges. In addition to providing automated steering, Claas claims the Cemis 1200 will handle online documentation, ISObus and TASK controller applications, section control and variable quantity control.

Developed by Claas Electronic Systems, the new Cemis 1200 replaces the previous S10 universal terminal. The receiver and control technology used in the Cemis 1200 have been developed through a strategic partnership with Trimble. It utilises a Sat 900 multi-GNSS receiver with integrated support centres for signal correction.

The system features a 12in high-brightness display, with multi-touch and manual day/night view switching. The working areas and views for automated steering, site-specific quantity control and documentation can be freely configured, while Quick Access enables direct access to the

important functional features and menus that operators are likely to access most frequently.

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Below: Scorpion 732, 736, 741 and 746 models will get a more powerful Liebherr-optimised 3.6-litre Deutz engine, a revised cab with improved air conditioning and regenerative hydraulics



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Made for walking

Large straw walker combines can rival some of the smaller hybrids for output without compromising straw quality. Here are some of the latest models to consider

WORDS **KEN TOPHAM** IMAGES **MANUFACTURERS**

What a harvest it's been. But now it's time to look towards next season before the rose tint of this year's ease of cutting cereals has worn off. As many farms increasingly appreciate the value of straw, straw walker machines have seen something of a resurgence, with farmers, contractors and manufacturers. The exception is Case IH, which doesn't make a conventional combine harvester. Manufacturers have invested heavily in straw walker combine design over recent years, and new models have appeared from most stables of late. The sector is certainly alive and well.



Above: Claas first introduced revamped versions of its five- and six-walker combines in 2020

Below left: The 5000 and 6000 Lexions replaced the Lexion 600 series with bigger engines, improved threshing and higher output

The straw walker concept is as old as mechanised separation. Look inside a Fisher Humphries thresher at a vintage show and it's evident the technology to separate the crop hasn't dramatically changed, but size, monitoring and efficiency have seen a revival for straw walker machines. User demands will dictate which type of combine they will need, but geography will also play a part, as will straw value and the intended use of the product.

Those in parts of the country where straw is used with livestock will most likely steer towards the straw walker. In loose housing, straw that's been through a rotary combine will break down more quickly, increasing costs. And if the weather is against harvest, being able to handle wet straw and turn it is another factor. A farmer in the south-east might not value that like someone from north Wales, for example. In this round-up we've picked out the largest straw walker machines from each stable.

Size, monitoring and efficiency have seen a revival for straw walker machines

Claas

The Lexion 6900 is the largest straw

walker machine manufactured by Claas. It has just received an updated cabin, which spans the whole Lexion range, including a

→ swivelling seat and improved
→ storage among the
improvements.

The 6900 has had the Cemos Auto Header system added for the 2023 machines, a system that allows machines using Vario headers to automate the settings while harvesting. The roof-mounted field scanner assesses the crop and adjusts the Vario depth and reel height and speed without any input from the operator. The Claas Terra Trac is a common option these days, making transport width respectable and giving a larger footprint than even a 1050mm tyre.

The 6000 series combine models share the same dimensions in the threshing area, and the four drum APS Synflow walker system sees the crop travel through four different drums and three concaves. The last drum is mounted over the transition between the drums and straw walkers, just above the rake that carries the crop to the walkers. The last drum is mounted over the transition between the drums and straw walkers, just above the rake that carries the crop to the walkers.

In terms of separation area, the 6900 has a 1700 x 755mm main drum, and a 1.55m² concave. The secondary concave is 1.6m². The six straw walkers are 3800mm long, providing 7.62m² of area. The sieves have an area of 6.20m² and an eight-way turbine fan system.

2023 models will be fitted with the MAN D26 12.4-litre, Stage V motor at 507hp with Dynamic Power as standard. The grain tank is 12,500 or 13,500 litres depending on model, with a pivoting spout on the end of the unloading auger.

New Holland

The CX 8.90 is New Holland's offering in this sector. It's the flagship combine in their straw walker line-up and can

The flagship 6900 provides 507hp from its six-cylinder MAN engine



The 6900 offers a 13,500-litre grain tank with 180 litres-per-second unloading speed



be equipped with their IntelliCruise II system, which automates cutting to three parameters: maximum output for covering ground, fixed output, or minimum losses. The modes control the cutting and header speeds automatically to operator preference.

Below: Header options on the CX8.90 go up to a working width of 35ft



SmartTrax are optional on the CX and come as a standard track, or with Terraglide suspension. There is also a heavy-duty version for high abrasion land.

The CX features a four-drum system, with a 750mm main drum and two subsequent drums for primary separation. The fourth drum powers the straw on to the walkers, which have Opti-Speed variable speed from 170-240rpm to maximise throughput when ascending and descending hills. The Opti-Fan works in the same manner, adjusting to terrain automatically.

The CX has an 8.7-litre FPT Cursor 9 Stage V motor rated to 420hp. The cab remains unchanged, but provides a pleasant and spacious environment, with up to 27 LED lights available. Separation figures are 1.18m² first concave, 0.475m² second and 0.93m² for the third drum, giving 2.54m² of powered separation area. The six straw walkers have 5.93m² of area and the sieves 6.5m².

The grain tank holds 12,500 litres, with 125 litres-per-second unloading

The latest CX8.90 has received some tweaks to its four-drum threshing system



Below: A multi-drum threshing system sees crops travel above the rear beater for a consistent crop flow

speed. The auger has an optional pivot spout. Though Varifeed is most common in the UK, New Holland does offer two draper headers, one of which is a flex version for those in challenging terrain.

John Deere

The straw walker T670 is fitted with the familiar harvester cab, which is quiet and spacious. As with most combines, there is an optional automation system called Interactive Combine Adjust (ICA). It gives the operator several choices when cutting: preferences are clean grain sample, reducing returns or straw condition, and the system will adjust appropriately. Autotrac is also part of the connection system. This is on top of the standard ACA adjustment system, which stores and saves harvesting settings.

With My John Deere and a fully connected combine, dealers can dial in and help with settings if the driver is unable to get the results they want. The T670 features a four-drum primary separation system. The crop travels under the main drum, over the second drum and back under the third, and the last drum sends the crop on to the walkers.

Using the 9.0-litre PowerTech PSS engine, the T670 produces 455hp and conforms to Stage V emissions.

Tracks are an option, and the latest iteration gives a bigger footprint and improved suspension from the five contact point system.

Tracks are a common option, making transport width respectable and giving a larger footprint



Right: John Deere's Premium cab is quiet, spacious and has the option of leather



can be unloaded at 125 litres per second. The header has an adjustable fore-and-aft knife arrangement to optimise cutting performance, and several headers are available with draper style units.

Massey Ferguson

The 7370 is MF's flagship straw walker machine. Although a slightly smaller machine in horsepower, in terms of separation the gap is marginal. The Skyline cab features some familiar elements and the armrest features the screen and some switchgear from the Fendt branch of the AGCO family. Power comes from an 8.4-litre Stage V AGCO power motor producing 360hp.

The 7370 can also come in Paralevel spec, where the axle compensates for up to a 20 per cent incline. While other brands do offer this option it's usually on smaller machines. A track



The active separation area is 4.0m² achieved via the up-and-over crop flow system, and six seven-step straw walkers give 5.8m² of secondary separation. The 11,000-litre grain tank

The 7370 is available as a ParaLevel version to tackle slopes up to 20 per cent incline



FOCUSON...

STRAW WALKER COMBINES

→ option for wet conditions is available, but not in a rubber band type. Automation comes in the form of preset harvesting modes, where up to ten settings or presets can be stored. Auto steering is also available with 5cm accuracy, or RTK can be utilised if available.

Separation is a three-drum system, but where the MF differs is that the rear-most concave can swing up out of work for crops like OSR that need little threshing, improving crop flow. The primary separation area is 2.06m², with a straw walker area of 6.81m² from the six four-step walkers. Sieve area is 5.58m². The grain tank can hold 9000 litres, and the unloading rate is 105 litres per second. There are two options for headers: the fixed FreeFlow, which can have an optional OSR/high volume crop auger; and the PowerFlow option, which features belts working in the same orientation as the auger to increase flexibility in different crops.

Case IH

Although Case IH only offers rotary combines, the company's harvest specialist suggests that the machine that best compares to the other machines in this round-up is the Axial-Flow 7250, which is comparable in terms of horsepower.

In the cab there are a few crossovers with the yellow CNH combine, including the screen and storage, but the frame is from Case. The 7250 has



Above inset: The grain tank is 9000 litres on the MF 7370, or 8600 with ParaLevel option

Below: Case IH offers its Comfort cab as standard, but a Luxury option is available



MF's Skyline cab gives a good view over the header and auger, with a rear camera displayed in the terminal

a four-option automation system and the operator can choose from the

'Strategies' of grain quality, minimal losses, set throughput or max output. AFS precision farming tools are optional, and yield mapping, moisture monitor and guidance are available to be added to the Case, which

With a fully connected combine dealers can dial in and help with settings

gives it a full suite of sensors to monitor losses and performance, as well as grain quality. The 7250 can be equipped with tracks; rubber

damping is standard suspension and hydraulic damping a further option.

The Case uses the 11-litre

FPT motor rated at 498hp, compliant to Stage V emissions. Separation stats are going to look different to the other

machines, with the two rotors

762 x 2638mm and with an area of 2.98m². The sieve area is 6.5m² and grain tank capacity is 11,100 litres with an unloading rate of 113 litres per second. There is a pivoting spout on the end of the auger.

Three cereal headers are available for the Axial-Flow with a fixed, flex and draper offering. The most common UK spec is the fixed grain header. With fore and aft knife adjustment for different crops and cutting conditions, it will offer the most cost effective solution for UK harvesting conditions.

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The Axial-Flow 250 range includes the 7250, 8250 and 9250, offering power from 498 to 634hp

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FORM AND FUNCTION

MAIN IMAGES
ARGO TRACTORS

FMJ takes a glimpse inside the design centre of Argo Tractors in Italy where the styling of the latest McCormick tractors was conceived



"For McCormick my first job was the restyling of the XTX model"

Above: As well as designing the X8, Fabio Leonardi implemented the same styling on the compact ranges

Motor Valley in Italy is synonymous with the excellence of automotive industrial production in a corner of Emilia-Romagna. It's where some of the most important and iconic companies in the automotive sector are based. But alongside some of the famous car manufacturers is Argo Tractors, manufacturer of McCormick and Landini tractors, which celebrates its affiliation to Motor Valley, demonstrating its ability to combine technological power and the pursuit of perfection in terms of the style in its tractors.

McCormick, one of the group's brands based in the province of Reggio Emilia, Italy, has recently completed a redesign of its entire range, which has involved a new expressive and recognisable family feeling. It's the culmination of a journey that began a few years ago, starting with the X8 VT-Drive, and which, step by step, has extended to the entire range.

Head of design

One of the architects of this process is Fabio Leonardi, head of Argo Tractors' Style and Design Centre.

"I got into the world of Argo Tractors because of my passion for engines for vehicles, especially tractors. There's definitely a creative attitude behind it, a creative foundation, which then developed with studies in industrial design. Specifically, for McCormick, my first job was the restyling of the XTX model, followed by the other

Right: Modern design software is used to sketch out initial designs for McCormick tractors

Left: Fabio Leonardi is head of Argo Tractors' Style and Design Centre in Italy

models. You could say that's where my adventure as a designer began," Leonardi says.

"Working for a brand like McCormick is certainly very satisfying. It is an international brand, internationally renowned, so you can't disappoint or get it wrong. And the design is often the first thing that people see and it is judged and appreciated. Indeed, for McCormick, the design must convey the brand's values and mission, so the high power, the technological aspect, the fact that it's a quality product, comfort and safety.

"McCormick's interior layout is always built around a person and the technology that governs the tractor's power. Everything must revolve smoothly round the user. Great attention must therefore be paid to ergonomics. Having a clear layout of the commands and their positions is critical. Attention must also be paid to materials and noise reduction, and therefore comfort. Unlike a car, there are several functional islands in a tractor: the dashboard, the left panel, the right panel, under the roof, the armrest. Everything has to work well and harmoniously.

Meeting customer expectations

"In McCormick's case, the interior must meet the customer's expectations and the customers are very demanding," Leonardi continues. "It must be a high-tech product but also attentive to comfort and quality. The form and colours must therefore create a classy environment, a superior environment with attention to detail. When designing a tractor, functionality and practicality must be the main drivers. Style must never become an unnecessary complication.

The most challenging McCormick project was definitely the new X8 VT-Drive, a top-of-the-line product both in size and specifications. The expectations for a high-power product for a brand like McCormick are definitely very high. In contrast, the most fun project was the development of the brand's new style, first on the high-end tractors and then adapted to the most compact tractors, the mid-range and speciality models. A challenge, but also very satisfying to see the redesigned range at EIMA 2021 with an expressive, recognisable family look."

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Right: Scale models show the transition of the designs from sketches to physical design

Far right: The finished design is shown on the bonnet of this McCormick tractor



Icons of Italy's Motor Valley

Home to some of the most famous car and motorcycle manufacturers in the world, Emilia Romagna is also the location for some iconic farm machinery brands.

Ferrari



Based in Maranello, sports car manufacturer Ferrari was founded by Enzo Ferrari in 1939. The first Ferrari-badged car came in 1947. Today it has almost 5000 employees and builds more than 10,000 cars a year.

Ducati



Bologna-based Ducati started building radios in 1926 but built its first complete motorcycle in 1950. Today it is best known for its high-performance motorbikes. Under Volkswagen ownership since 2012, today it sells around 60,000 bikes a year.

Lamborghini



After success building tractors, Ferruccio Lamborghini bought a Ferrari 250GT, but after falling out with Enzo Ferrari over a faulty clutch Lamborghini decided to build his own luxury cars. The tractor division was sold to Same in 1973.

McCormick



When Case IH merged with New Holland the initial McCormick assets bought by Argo in 2000 included the Doncaster, UK factory, but this closed in 2006 and production moved to the main Landini tractor factory in Fabbri, Italy.

Vicon



Kverneland took full control of Gallignani's baler factory at Ravenna in 2012 to return to baler manufacturing after selling its original Vicon baler range and factory to Kuhn in 2008. It has since seen significant investment and builds 12 balers each day.



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MACHINE
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Multi-task for weed control

Applying Avadex as you drill is still key to maximising its effectiveness when keeping blackgrass under control, says one Cambridgeshire farmer

IMAGES TECHNEAT ENGINEERING



Above: Techneat Engineering developed a new bracket to mount the Avacast GR 400 to David Knott's 12m Horsch Sprinter drill

Left: The Avacast GR 400 comes with its own cab-mounted control box and a manually operated on-off switch for headland control

Targeted use of Avadex (tri-alle) as part of a four-stage blackgrass management process involving cultural control tools, sterile seed beds, improved cultivation techniques and stacking flufenacet-based selective herbicides have all proved to be successful components of a containment strategy implemented by general manager David Knott of Trumpington Farms, based in the south-west corner of Cambridge.

The 3500ha farming business, where crops are predominantly grown on heavy clay with challenging drainage, had seen its blackgrass issues exacerbated following recent warm winters, giving David and his

team a timely opportunity to reassess their control strategy.

"Although we have worked extremely hard to reduce our overall blackgrass burden to a manageable level in most fields, it's unlikely we will eradicate it completely," David explains. "The whole issue now is one of containment and targeted control, given that we have not had a grassweed herbicide with a new mode of action for decades now. A lack of hard winter frosts and snow has not helped either, with nothing to kill off the autumn blackgrass or delay it from emerging again in the spring.

"Blackgrass has been, and still is, a massive contributing factor to yield loss but, while recent industry



Profile

Trumpington Farms

Machine Techneat Avacast GR 400

Purchased September 2020

Used for Two years

Operator David Knott

Location Cambridge

Left: By investing in an Avacast GR 400 applicator, David Knott can ensure application is carried out in the correct window



Having the applicator mounted on the side, rather than rear, makes it easier to refill

“Our new blackgrass control strategy is now essentially a four-stage process”

than rear mount, for easier hopper accessibility when refilling meant we needed to raise the height of the Avacast GR 400 for additional ground clearance. Manufacturer Techneat Engineering was excellent and hands-on in designing a new bracket, enabling us to position the new machine exactly where we wanted it.

“Although the applicator is specifically designed for applying Avadex granules, it can also be used to apply slug pellets when we drill oilseed rape. The machine is quick to set up, easy to calibrate and uses a powerful hydraulic fan to deliver the Avadex to spreader plates positioned every 500mm along the full width of the drill to provide double overlap and ensure even distribution.”

Automated system

“The Avacast GR 400 comes with its own cab-mounted control box and a manually operated on-off switch for headland control, but we’ve opted to link both these into our Trimble guidance system, so it is now fully automated. This then allows the operator to concentrate purely on the drilling operation.

“When setting up the Avacast, an important tip is to ensure its spreader plates are positioned well behind any soil disturbance during the drilling process, so that no Avadex to seed contact occurs.

“Our new blackgrass control strategy is now essentially a four-stage process. We use medium or light-tine cultivation immediately post-harvest, then spray off any volunteers and remaining blackgrass with glyphosate to create a stale seedbed pre-drilling. As we drill, we simultaneously apply both diammonium phosphate placed underneath the seed and Avadex over the soil surface of the newly drilled seed to create a protective layer, preventing any dormant blackgrass seed near the surface from germinating. We then apply two flufenacet-based herbicides for pre- and post-emergence control of any later emerging weeds that get past the Avadex barrier,” he concludes.

EMJ

Tech specs

Techneat Engineering
Avacast GR 400
Hopper 400 litres
Spreader Plate spacing 500mm
Fan 9 or 18-blade hydraulic

Right inset: Spreader plates are positioned every 500mm along the full width of the drill, providing double overlap and accurate placement of the Avadex granules

Below: The design of the new bracket gave additional ground clearance and enabled the applicator to be positioned exactly where David wanted it

► attention has moved on to trendier topics such as sustainability, bio-diversity and carbon trading, the blackgrass battle seems to have become a forgotten war. And it’s a losing one, since the 2009 ban on isoproturon and subsequent resistance issues with ALS inhibitor herbicides. It’s disappointing that very few genuinely new solutions have come forward since,” David continues.

A key move

“Having already widened our rotation to one in four for oilseed rape and implemented some improved cultivation techniques to limit the disturbance of any dormant

blackgrass seed just below the soil surface, we made a key move to maximise the efficacy of the Avadex that we use within our control strategy. We invested in our own applicator in order to ensure it was applied as we drilled, well within the key 48-hour post-drilling window.

“Like many large farming operations, we had historically relied on contractors to apply Avadex granules post-drilling. However, working on 40m tramlines, we’d often found that our contractor, who used an 18m applicator, always left

intermediate wheelings in the newly drilled crops, which became even more problematic if the work had been done in wet heavy soil conditions. The other

big issue when using contractors was always delays, either due to poor weather or busy diaries.

“In September 2020, following some market research on the applicators out there, we invested in an Avacast GR 400, which we mounted on our 12m Horsch Sprinter drill. Opting to side mount, rather





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MACHINE
CLAAS DISCO 1100 C

Business Claas

Following the upgrade to a bigger tractor, Grosvenor Farms chose a top-spec Claas Disco mower set-up to boost output. *FMJ* joined the team to see what difference it's made

WORDS AND IMAGES **KEN TOPHAM**

In 2021 Grosvenor Farms in Cheshire increased their mowing capacity with the addition of a set of Class Disco 1100 C Business triple mowers. After rationalising some of their equipment and adding a John Deere 7310R to their tractor line-up, the front and rear mowing system that had been in place for a number of years came up for review.

Grosvenor Farms milk in the region of 2500 cows and almost all of their fodder is harvested in-house. Grass silage and maize make up the bulk of the ration, and a variety of cereals are ensiled for the varied diet of the herd. That many cows produce a sizeable amount of manure, which in part was the rationale for the 7310R that is also used with a 24m Vogelsang dribble bar.

For a number of years the farm had used a couple of front and trailed rear mower set-ups, which suited the 150-180hp tractors that were commonplace in the fleet. Like many farms, the typical tractor size has increased and the difference between what was considered an arable tractor and an all-rounder for the dairy side of the business has closed.

Part of the plan for adding a larger wheeled tractor to the fleet was to increase mowing capacity. By July last year the new Claas mowers had already cut 2300 acres since delivery that spring. With a 30-day grass harvest cycle, the mowers are never standing for long in the season.

Daily driver

Operator Dan James has been using the Claas Disco 1100 C Business mowers since they arrived. The front is a 3.0m 3200 FC Move, combined



Below: In transport the 1100 will fold to well under 4m in height, but the three-point hitch has to be lowered

Above left: The end guards fold automatically when the mowers transition to transport position

Above: Even the inner guards are automatic when folding, which prevents them hitting the floor



with the 10.7m rear 1100 Business unit. The latter is a top-spec mower that sits above the Trend and Contour models in terms of specification and is also available in a 9.1m configuration.

The mowers are ISObus connected and Dan has the mid-mount lever set up so high frequency mowing functions can be carried out without moving from controls - everything

works through the tractor terminal. "We had a demo set, which worked well but had a separate box, which was not as good as running through the tractor," says Dan, adding that the configuration took a bit of getting used to but he's now very happy with it.

The rear mower consists of two 3.8m units on telescopic arms, which can be adjusted on the fly to reduce

Profile

Grosvenor Farms

Machine 2021 Claas Disco 1100C Business

Purchased Spring 2021

Used for Two seasons

Operator Dan James

Location Cheshire

Far right: Old school and new model working side by side, the front and rear set-up still adds capacity when the pressure is on

Right: Dan James is the Disco's regular operator and has really got to grips with how it works





"A separate box was not as good as running through the tractor"

uncut strips on curved runs. The 7310R runs SF1 through Starfire, which provides good accuracy for mowing. Dan has set for a comfortable overlap, with the benefit of being able to pull the rear mowers in for curves and headlands. He will often open up the fields with the mowers on a narrow width and the second mowing outfit will come and work on the straight runs – a John

Deere 6155R with a Class 3200FC front and John Deere 1365 rear set-up. This offers flexibility and capacity when the pressure is on.

Folding up for the road is quick and everything happens from the seat. The end guards are hydraulic and automatically fold, so, like on many mowers, they're not left up. The telescopic arms allow the mowers to drop down to a transport

Right inset: The Claas bed features a replaceable insert. The Hardox plate works like a shear bar and prevents damage to the bed

Below: Claas Business models are ISObus controlled. Hydraulic float is adjusted to the right pressure automatically

height of less than 4m, but they do carry quite low so care on rough tracks needs to be taken. While it comes in under 4m for transport, width when folded is sub-3m.

Output increase

With an average of 320 hectares per cut, the farm has seen a 25 per cent increase in mowing output with the triples over a front and rear system. They are able to cover ground easily, with crops from 4-6t to the acre, so it's not a high power demand job. Instead, the aim is for high quality grass silage, which the team tries to harvest as quickly as possible with six to 12 hours the target from mowing to clamp up and the aim of 35 per cent dry matter.

Once mown, the crop is tilled out (except in very dry conditions), and the mower's steel tine conditioners are run wide open to reduce bruising on the leafy crop while still presenting a good swath for the Claas Volto tedder that is usually close behind.

Operationally, Dan has found the full set of Claas mowers easy to use and they display everything he needs to know through his tractor screen. Overlap is set here with infinite



The whole team are often hot on the mower operator's tail. A Jaguar 880 completes the Claas grass line up at the farm



Tech specs

Claas Disco 1100C Business

Used with Claas Disco 3200FC (3m, 7-disc)

Working width 9.4m-10.7m

Configuration

2 x 3.8m mowers, 9 discs per bed, 2 knives per disc

Conditioner speed 910rpm

Transport width 2.95m

Transport height 3.79m

Weight 3.52t

Tractor requirement Cat III, 1000 PTO

► adjustment within the range. Ground pressure is also set through ISObus and is self-monitoring, so if the ground is soft the mowers will adjust to compensate, reducing smearing when the sward is tender early and late in the season. There are speed sensors on the gearboxes to indicate individual mower condition.

One thing that Dan points out is that he has to have the mower page displayed on his screen, otherwise the controls don't work. "If you answer the phone through the tractor system or navigate to another page and forget to go back to the mower page the controls lock out, which is annoying," he says.

Frugal on fuel

"Otherwise the mowers are easy to use," he continues. "The front follows



Making short work of a 96-acre field where the clover had established well



Top left: A useful magnetic pipe dock keeps the quick releases tidy when the unit is unhitched

Top right: The rear mowers have a pipe and cable management system to reduce the chances of snagging

Left: The mowers are easy to see from the 7310R's cab, it being useful on the back swath to have a view of the machine width



contours very well, the rears are a little less responsive in extreme conditions. The farm has some old rig and furrow lays but most machines struggle there. I can cut 250 acres in a 10-hour day comfortably," Dan adds, saying that even on a long day of 13-14 hours the 7310R will use three quarters of a tank of diesel, but even with the bigger tractor and more output he has never had to stop for fuel.

The blades don't get too much punishment from the crop on a 30-day rotation, but inevitably there will be the odd stone in nearly 800 acres. Dan says the quick-release blades are easy to change, the discs are protected by the Claas SAFETYLINK system in the event

of a large object in the crop, and the disc drive stub shaft is able to shear to protect the drive train.

The 1100 C Business models feature hydraulic break-back should there be something solid in the crop, but, unlike a contracting business, Grosvenor Farms are always mowing their own land so are unlikely to ever test that feature.

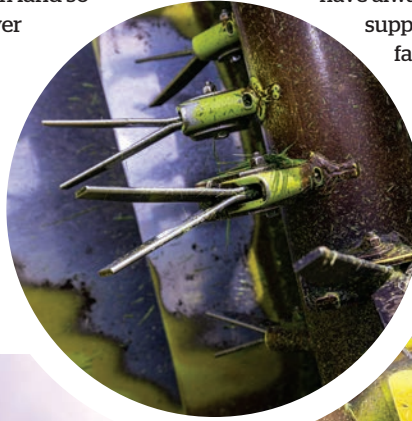
Their team of conscientious operators know the fields well.

The Disco mowers were supplied by dealer Morris

Corfield, and just one oil seal needed to be replaced in the first year of service. To date, the mowers have satisfied the objective of increasing output and efficiency while utilising a larger tractor. The farm runs a full line of Claas harvest equipment and as the dealer is less than 10 miles away they

have always received good support, aided by the farm often hosting pre-production Claas machines to test in UK conditions. **FMJ**

Below and left inset: The conditioners are a steel tine unit and the farm runs the hoods wide open so as not to bruise the leaf



"I can cut 250 acres in a 10-hour day comfortably"



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"I'm genuinely delighted we invested a little more money into this low-hours example"



MACHINE
FENDT 312 VARIO

Small but mighty

Last year, C&SD Leckenby bought a low-hours 2019 Fendt 312 Vario to join their Fendt fleet, and it has since become one of their favourite tractors. *FMJ* went to find out why

WORDS AND IMAGES DAVID LALEY



Above: Despite only being fitted with the 40kph version of Fendt's Vario transmission, Chris says it's still a great tractor to drive on the road

Left: The 312 Vario is fitted with a 210-litre diesel tank and a 23-litre AdBlue tank

The Leckenby family, based near Helmsley in North Yorkshire, have been running Fendt tractors for just over a decade. They currently run a trio of 700 Varios to complete the vast majority of work on their 415-acre mixed farm and within their contracting business. However, a much smaller 2019 Fendt 312 Vario has become the major talking point of their fleet since it arrived in March last year.

Trading as C&SD Leckenby, the contracting enterprise is run by Mike Leckenby with assistance from his parents Chris and Sandra, plus one full-time member of staff and a dedicated team of seasonal operators at peak times. They specialise in grassland work, round and square

baling, hedge-cutting, ploughing, drilling, sugar and fodder beet establishment through to harvesting.

"The 700 Vario tractors are a perfect fit for our farming and contracting operations," says Mike. "They're loaded with well thought-out comforts and provide us with over 200hp in a compact package, making them suited to both arable and grassland work. However, I've always believed in having at least one smaller 120-140hp tractor in our fleet to carry out lighter, less strenuous tasks such as rolling, bale wrapping, grass tedding and raking.

"Tractors of that size and power are often much more suited to accessing smaller farms on the edge of the North Yorkshire Moors where field



Profile

C&SD Leckenby

Machine 2019 Fendt 312 Vario
Purchased 2021
Used for One year
Operator Chris Leckenby
Location Helmsley, North Yorkshire

Left: Operator Chris Leckenby has been impressed with the specification and user friendliness of his 312 Vario

Tech specs

2019 Fendt 312 Vario

Engine AGCO Power, 4.4-litre, four-cylinder turbocharged

Rated engine speed 2100rpm

Max hp 129hp @ 1750rpm

Max torque 559Nm @ 1550rpm

Diesel tank 210 litres

Transmission Vario, 40kph @ 1700rpm

Hydraulic pump 110L/min

Spool valves 4 x manual

Front linkage 3.1t

Rear linkage 5.96t

Wheelbase 2.42m

Front tyres

BKT Agri-Max 480/70 R24

Rear tyres

BKT Agri-Max 600/65 R38

Right: Thanks to its compact dimensions and 2.42m wheelbase, the 312 is highly manoeuvrable and ideally suited to grass raking on smaller farms



Left: Spacious VisioPlus cab is equipped with 6.2m² of glazing. Mike and Chris have added cab suspension

Below inset: The Vario Joystick operates the Vario transmission and includes cruise control and engine speed memory buttons





► sizes are predominantly less than 10 acres. Having a smaller tractor allows us to commit our larger Fendt tractors to a wider variety of jobs further afield, and the 2019 Fendt 312 Vario we now run has also enabled us to expand some of the other services we offer.

"While I originally intended on looking for an older 312 Vario than the one we ended up purchasing, I'm now genuinely delighted we invested a little more money into the low-hours example we currently run," Chris claims.

New favourite

Mike and Chris bought the immaculate 312 Vario in April last year to take over lighter duties from a 1997 Fendt Favorit 515C that has now racked up more than 16,000 hours.

"Back in 2013 we had a Case IH MXM140 on the farm that was ready for replacement and I quite fancied swapping it for a similar size modern-classic Fendt," explains Mike.

"I discovered our local Fendt dealer Brockhills, who supply all our Fendt tractors, were rebuilding a 150hp Favorit 515C. It had done 11,500 hours and had suffered a broken gearbox.

"The previous owner was lent a Fendt 820 Vario, and while the repair work was carried out he decided to purchase the 820. Brockhills gave the 515C a comprehensive engine and gearbox rebuild, and also repainted the tractor's chassis grey before offering it for sale. While my dad was initially sceptical, the 515C had an exceptional specification for its age.

"It has a fantastic power-to-weight ratio and drives like a car thanks to its suspension system and Turboshift 50kph gearbox, and continues to cart corn on our farm to this day. However, because we all loved using the 515C, it began to play a much larger role in our contracting business than we originally envisaged.

"We were using it regularly on the farm, while it also ended being used for drilling beet and would then

spend all summer tedding and raking grass and complete all of our customers' bale wrapping. While the 515C was ideally suited to these tasks and enabled us to ►

Above: A 5.96t rear linkage provides ample capacity for the implements Mike and Chris use with the tractor

Below: VisioPlus cab comes with suspended operator seat and a decent size passenger seat, with spool and loader controls to the right of the seat

"The 312 Vario has become one of our favourite tractors"



Above: The Variocentre armrest includes this panel featuring two key pads. The one on the left is used for drive and hydraulic functions, while the second controls the lights, heating and air-conditioning



Right: While there isn't a performance terminal or display screen, a digital dash gives some basic operational information



Right: Chris Leckenby spends much of the summer using the 312 Vario with implements such as this Claas Liner 2700 twin-rotor rake



► keep the 700s running flat out on our balers all summer, we soon ended up putting a lot more hours on the tractor than we initially planned and I was concerned we were relying on it too much at peak times.

"That's when I decided to look for a more modern 312 fitted with the single-speed Vario to take over the 515C's duties in our contracting business. It didn't need to be brand new, nor did we require a high-specification tractor. My original plan was to source one that was around eight to ten years old with around 6000 hours on the clock.

"However, finding an example from that era with those hours proved to be an impossible task. Peter Swales from Brockhills then offered us a much newer 312 Vario from 2019 equipped with a Fendt Cargo loader that had only clocked 127 hours in two years. Initially I thought it was too new, and would be too expensive to justify for the role we had planned for it, however Brockhills put together a fantastic deal on the tractor we couldn't refuse.

"Just like the 515C, the 312 Vario has become one of our favourite tractors in our fleet, even though it's predominantly operated by my Dad. We originally thought we'd use the tractor for around 300 to 400 hours

work per year, however since we bought it we've already added 1000 hours to its total because of its versatility."

Surprising spec

The three-year-old 312 Vario originates from the 300 Vario range first launched in 2015 to replace the previous generation of 300 models. The 310, 311, 312 and range-topping 138hp 313 Vario were more than just a revamp, significantly different to their predecessors, and won a prestigious 'Machine of the Year' award in 2015.

The VisioPlus cab, Variocentre and styling mimic the 700 Vario range and two levels of specification were offered: the basic Power package and top-end Profi package. More recently Fendt has added a new flagship to the range, the 152hp 314, and introduced Profi+ models, which feature the Fendt Connect telemetry module, FendTONE work station and Fendt Guide tracking.

Mike and Chris's 312 Vario is a basic Power specification tractor, although it does come with certain features not common to most tractors of this size and power.

"It's fitted with manual spools and the entry-level 40kph Vario transmission, and has no display screen, but unusually it's fitted with

"We expect to keep the 312 much longer than our larger Fendt tractors"

air brakes, making it perfect for corn carting with our 14t Bailey trailer," says Mike.

Pulling power

The 312 Vario is powered by a 129hp 4.4-litre, four-cylinder, turbocharged AGCO Power engine that features common rail injection and SCR exhaust technology to meet Tier IV emissions regulations. The AGCO engine is rated at 2100rpm and delivers its maximum power at just 1750rpm. "It's a brilliant engine that never gives in and, as we've discovered, is capable of delivering the power needed to pull some of our larger implements including a 4m combi-drill and culti-press," Mike continues.

Drive is through the 40kph Vario transmission, heavy-duty axles and wheels fitted with four-wheel braking, plus locking differentials front and rear. The front axle is attached to the 312's cast frame for greater axle loading than on earlier models. The front axle is also equipped with a self-levelling suspension system featuring a longitudinal arm that's supposed to improve the transmission's pulling power by up to seven per cent.

"It's an incredibly comfortable tractor for both land and haulage

Below: This immaculate 2019 Fendt 312 Vario handles the majority of tedding, raking and bale wrapping for C&SD Leckenby





work," says Chris, Mike's father. "Since we bought it, we've added cab suspension to improve the ride further, and swapped the original 540 rear tyres for a set of chunkier BKT Agri-Max 600/65 R38s matched to a set of 480/70 R24 tyres on the front. They deliver plenty of traction, excellent flotation and are kind to grassland too."

Above: The 312 Vario is equipped with SCR exhaust technology to meet Tier IV emissions regulations

Above: The external hydraulic and PTO controls are situated in both rear mudguards and are smooth and easy to use

Left: Mike and Chris's Fendt 312 Vario is also fitted with a Fendt Cargo front loader, useful for clearing bales at peak times

Left inset: This 3.1t front linkage is one of several upgrades Mike has added to the 312 Vario



Useful upgrades

Mike and Chris have also equipped their 312 with a 3.1t-capacity front linkage and a bespoke front box featuring a full set of lights, a bale nudging bar and holders for three rolls of wrap. Their 312 is fitted with a 5.96t category III rear linkage with four manual spool valves.

The tractor's load-sensing hydraulic system features a high-capacity pump capable of delivering 110 litres of oil per minute.

"It's a very simple and rugged hydraulic system that's easy to operate and can cope with some of our heavier implements despite the compact 2.42m wheelbase," says Chris, although it's the VisioPlus cab and Variocentre that have impressed him the most. "While it's quite basic compared to the 700 tractors we operate, it's much roomier and loaded with far more creature comforts compared to the 515C," he adds.

The manual spool and loader controls are situated neatly to the right of the operator, while the Variocentre armrest falls easily to hand. It features the Vario joystick used to control all of the driving functions. The joystick is also equipped with cruise control and engine speed memory buttons, as well as automated switches for the PTO and rear linkage.

Behind the Vario joystick is the power lift control module, which includes a quick-lift switch, depth control dial and PTO actuation. The remaining panel comprises two keypads, one to activate the differential lock, front suspension, four-wheel drive and additional PTO and hydraulic functions, while the second is used to control the lighting, heating and air-conditioning systems.

"So far our 312 has proved to be a huge asset to our contracting business despite its diminutive stature," says Mike. "Given its low hours and impressive reliability record, we expect to keep the 312 much longer than our larger Fendt tractors too." **FMJ**



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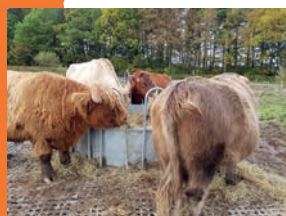
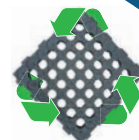


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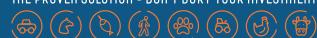


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▶ **Mark Roberts**

The importance of protecting your livelihood



Of the 25 people killed on farms last year, 22 of them were farmers or farm employees, making it important farmers financially protect their families should the worst happen

This is not an easy piece to write but it needs writing, even if it only makes you stop and think for a moment. This is a call for action, to do today what you're putting off until tomorrow.

My job is to advise, meeting people from all walks of life and discussing their needs. Which brings me to the point of this story. As an NFU Mutual agent, I have friends that have become customers and customers that have become friends.

One of my first successes was to challenge a customer that insuring themselves might be just as much of a priority as insuring their herd. "If you lose a cow, your business continues, but without personal protection, if something happens to you, the business and your income stops," I said.

We set up group personal accident insurance and agreed for our financial adviser to meet with him to discuss life insurance and critical illness cover. In 2017 the customer called to say that he would be off work for a while as he had been diagnosed with cancer. NFU Mutual paid out a Group Personal Accident claim and the cancer went into remission. High fives all round!

I wish that were the end of the story, a happy ending. Unfortunately it was not to be. Six weeks ago I had a call from the customer asking if I could call in to discuss some outstanding claims.

The claims were for a tractor, some storm damage and, the real reason for visiting, the cancer had reappeared. I set up a critical illness claim for him as the treatment began and left him with the paperwork.

Mark Roberts is an NFU Mutual agent from Wrexham, which offers a wide range of products, including general insurance, life, pensions and investments.

We spoke a couple of times in the following weeks, all claims finalised. A gentle nag to complete the critical illness claim form. "Should I come and fill them in with you?" I asked. "No, but call in if you're passing, and don't forget to bring a cappuccino. Pretty bored here," came the reply.

I picked up a couple of coffees one morning and called to see him - he was looking well and the doctors seemed positive. We completed the claims forms together, I checked the medical terms we had written down with the nurse that was helping with his new medication, a quick squeeze on the shoulder, a promise to call again soon, a check that their partner had my number and off I went.

Claim forms submitted to our critical illness team, subject heading URGENT. I received a WhatsApp message that evening. "Payment

received, cheers mate!"

No contact Wednesday. I sent a quick message to him on Thursday. "How are you doing today?" Just the one tick - delivered, not read.

Friday morning, the call I wasn't expecting, not yet. He passed away in the early hours. I felt empty. Just 46 years old with two young children, a partner and now a farm without its custodian.

Did I do anything to help; did I make a difference? I hope I did. I know I tried my best. I challenged their thinking and they took out cover. At least his family have some time provided by that payment to consider their options without more financial pressure.

And my message? Don't put off until tomorrow what you could and should do today. Make sure that you have thought about protection. Speak to someone, get some advice. **FNU**

Below: It's crucial that self-employed farmers and contractors consider ways to protect their livelihood and provide a safety net for their families

“Don't put off until tomorrow what you could and should do today”



Shining a light

One of the most popular upgrades to farm machinery is the fitment of LED lights, and UTV Products is one of the leading suppliers into the agricultural market. *FMJ* took a closer look at some of the company's most popular product lines

WORDS **KEN TOPHAM** IMAGES **KEN TOPHAM/UTV PRODUCTS**

This picture and below right inset: This very well-lit 70th anniversary Valtra T235 is equipped with three UTV367 lights per corner



LED technology has come a long way since it was used for indicator lights in the dash of a vehicle. In the last five to six years the light emitting diode has become the desired light source on most machines across the industry. LED lights have become more affordable and reliable, being less vulnerable than an incandescent bulb to shock and vibration, and featuring less power draw and a lower working temperature.

UTV Products was founded in 2013, bringing high performance LED tech to the replacement parts sector. Managing director Ben Bonell has a background in aviation electronics so he has high standards when it comes to quality and reliability. The rest of the small team comprises Jack Campbell, who looks after the island of Ireland for sales and technical support, and Imogen Priestley-Bird, the sales and marketing manager for the UK and Ireland.

The company's UK base is in Nantwich, Cheshire, plus a distribution centre in Hounslow, while UTV Products Ireland is based and distributed from Dublin for Ireland





and Europe. Rather than a one-size-fits-all solution, UTV Products makes units that can be swapped with original equipment. In the world we now occupy, with error codes and CANbus-operated machinery lighting circuits, fitting some work lights isn't as straightforward as it was in analogue times.

The business has put serious effort into making fitment of its lights as painless as possible; another factor they've had to consider is interference. There's so much tech on modern tractors that adding 'cheap' lights can cause various issues with GPS, radio and CB Radios. As a result, UTV Products' lights all come as standard with circuitry built in to stop this.

Above and above right inset: This John Deere 6215R has been fitted with UTV359 LED work lights, both in the roof and above the bonnet

Below: A New Holland tractor showing off the range of its new UTV Products LED lighting equipment

lights that directly replace original equipment on classics and machines that are a few years old, prior to the LED boom. One product that may appeal is the combination headlight, a road-legal unit that can be mounted at the belt level on the cab if a loader or front linkage has been retrofitted, obscuring the standard headlights.

With some crossover from tractor to harvest machines from manufacturers like Claas and John Deere, the standalone work lights will fit straight on. The UTV Products team have also made some specific LEDs to fit on combines and forage harvesters, and the flush-mount cab lights can now be replaced with high output LED units to make late nights a little easier and safer.

UTV Products has made strides in producing affordable high-performance LED lighting equipment that is easy to fit, and that's the key in the increasingly complex machinery systems we have to work with these days. **FMJ**

New products

Ben and Jack are the brains behind bringing new products to market, designing, prototyping and testing in the UK and Ireland before releasing to the world. The aim is to offer OEM appearance equipment, which outperforms factory-fit solutions in terms of lumen output. The price tag is also more favourable than OEM: a John Deere R-series work light comes in at £75 plus VAT and a full set including high/low beam headlights at £1618 plus VAT. They provide more than twice the output of John Deere's equivalent lights. A set of eight lights to suit a Fendt starts from £499, so it makes for a tempting proposition on an existing tractor, or when buying a new tractor.

It's not as easy as just making a light and selling it, however. Some of the products are road lights, so making sure they comply legally means they have to be tested and certified to ensure the end user isn't breaking the law. Headlights or driving lights have been a priority recently and one of the latest launches has involved the R- and M-series John Deere replacement headlights. The high and low beam units will drop straight into the existing location and will plug and play without trouble.

Not to leave out the owners of more mature equipment, UTV Products also offers replacement road and work



Above: An Irish Fendt 516 sporting some belt-level UTV322 work lights to fill in gaps in the lighting pattern

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10 QUESTIONS WITH...



Pawel Paczuski and Michał Stachlewski (right) of Polish machinery dealer Kisiel

Michał Stachlewski, sales director of Case IH and Joskin dealer Kisiel in Poland explains how the conflict in Ukraine is affecting his dealership, farming and the community

IMAGES JOSKIN

FMJ: What is your main business?

Michał Stachlewski: Kisiel is the official dealer for the Case IH and Steyr tractor brands for the east and south-east of Poland. We have been active in the sales of agricultural machines since 1992. We also sell Joskin machinery, plus other brands.

FMJ: How close are you to the Ukrainian border?

MS: Since we are operating in the Lublin and Subcarpathian provinces, we are neighbours all along the Polish-Ukrainian border. The nearest positions are located between 80 and 100km from our branches.

FMJ: Does the war have an impact on your company?

MS: Like everybody in Poland, we feel the impacts of the war. The financial effects linked to

Below: The dealers supply Joskin, Pottinger and Vaderstad equipment in addition to Eastern European brands



Kisiel has been a Case IH dealer in the south-east of Poland since 2008

energy costs, the increasing prices of products or costs of loans, but above all, there is a general awareness that we can help our neighbours.

FMJ: How have machinery sales been affected?

MS: This situation has a huge impact on farmers' attitude regarding investments. Do they buy or do they save money and get ready for the worst? In view of such aggressive acts, it is naive not to see the risks threatening the whole of Europe. We cannot tell ourselves "this is not my business, it is not my problem".

FMJ: How have customers' buying habits changed?

MS: Customers not only analyse the price, but also a manufacturer's policies. Do they support freedom, or do they only want to make money, therefore not considering life as a supreme value?

FMJ: How have you been helping Ukrainian citizens?

MS: In addition to symbolic support actions like hoisting the Ukrainian flag on our branches, our employees are providing housing to Ukrainian families. We believe that at the end of this period those families will go back to their homeland and rebuild it.

"We cannot tell ourselves 'this is not my business, it is not my problem'"

FMJ: What security measures have impacted your daily work?

MS: Each region started to secure its borders, which means more troops and anti-aircraft installations, anti-missile facilities and a defence of unprecedented power. Younger men and women have also been called up to receive military training.

FMJ: How has the supply of new machinery been affected?

MS: Joskin is a key brand among our five suppliers and we have put everything in place to maximise sales, while respecting the principles of economy and good customer service. We try to manage the orders well to ensure continuity and short delivery times. As a result, we receive strong support from the production, after-sales, logistics and administration departments.

FMJ: Considering the effects of the war, how do you see the future?

MS: The current situation is a bigger threat than the price increases that could come and go depending on the market needs. It is better to have higher prices and higher salaries than having a war that will destroy everything. Freedom is a supreme value for any human being.

FMJ: How has Poland changed following the Russian expansion?

MS: The whole landscape has changed. We hear Ukrainian in the media and information is given in both languages. In the streets, we see a lot of cars with Ukrainian plates. *FMJ*



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LOWRANGE

The latest pick-up, commercial 4x4 and utility vehicle launches & updates

Land Rover pursues electrification

A new facility has been opened to test the next generation of Land Rover vehicles for electrical and radio interference. The Electromagnetic Compatibility (EMC) laboratory at Gaydon in the UK will ensure future vehicles meet current and future legislation and quality standards for connectivity and electronics.

A critical aspect of vehicle performance, EMC is the ability of electrical equipment and systems to function correctly in their electromagnetic environment. It works by limiting the unintentional generation, propagation and reception of electromagnetic energy to reduce the risk of unwanted effects such as electromagnetic interference.

Jaguar Land Rover's new vehicle laboratory features two anechoic chambers: an electrically 'quiet' rolling road that enables engineers to test vehicles at speed, as well as equipment to assess the performance of individual components, such as batteries or electric motors.

Jaguar Land Rover has accelerated the roll-out of electrification through its Reimagine strategy, which will likely see future Land Rover commercial vehicles with electric powertrains.



ELECTRIC MAXUS PICK-UP ON SALE IN UK

The first electric pick-up truck to go on sale in the UK is the Maxus T90EV. Prices start from just under £50,000, which gets you an 88.5kWh battery and a 200bhp electric motor. An 80kW charging speed will go from 20 to 80 per cent in around 45 minutes.

Maxus, which is owned by Chinese company SAIC Motor, claims the T90EV can achieve a combined range figure of up to 220 miles, with a payload of 1000kg and 1500kg towing capacity.

The T90EV measures 5.37m long, 1.90m wide and 1.81m tall, and has a wading depth of 550mm. Alloy wheels, a reversing camera and rain-sensing windscreen wipers are standard, while other equipment includes LED daytime running lights. Options include an electric towbar, all-terrain tyres and a front winch.



DACIA REFRESHES DUSTER COMMERCIAL

The Duster Commercial has been updated with a new trim level and exterior styling changes. On the front grille is the brand's new link badge, with a new design to the lights and bumpers. Engine and transmission options remain the same, as does the cargo-carrying capacity of 503kg maximum payload.

Inside are updated seats and a new 8in infotainment system with Apple CarPlay and Android Auto. Darker rear privacy glass and a full-length load cover will protect items left in the vehicle. Two models are available: Essential and Expression, with prices starting from £13,995 and £18,145 respectively (excluding VAT).



RANGER UPDATES FOR 2023

The 2023 Polaris Ranger line-up features a number of upgrades and new colours. The XP 1000 is available in a new Azure Crystal colour option for 2023 alongside a new ergonomic handbrake handle and Pro Armor X-Terrain 27in tyres.

The Ranger 1000 is available in White Lightning for 2023, while the Diesel Deluxe is available in Super Graphite. The entire full-size line-up now gets new side view mirrors too.

The mid-size SP 570 in Sage Green and Hunter Edition both receive new mudguards, underseat storage, and a three-position pulse bus bar for connecting electrical accessories.



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Under cover

Fitting a canopy or tonneau cover to a pick-up can transform the vehicle's versatility, giving safe, secure and weather-resistant protection for cargo, as these options demonstrate

WORDS AND IMAGES **PETER SKILTON**

After decades of fitting crude aluminium and galvanised steel canopies, pick-up owners now have a wide choice of more premium hardtop options, which are not only lighter, but also more secure, more resistant to weather and offering better access into the pick-up bed.

Options from a wide range of manufacturers include side access doors, LED lighting, central locking, while most offer colour coding to match the pick-up. Quick and easy installation makes it easy to remove the canopy when larger loads need to be transported.

On display at this year's Commercial Vehicle Show in Birmingham was a selection of what is available.

ARB Ascent

Now under the ownership of ARB, Truckman continues to offer its range of canopies, bed liners and pick-up accessories alongside those of its parent company. The most recent addition to the extensive range of hardtops is the ARB Ascent. It features fully integrated central locking on all three doors and electric push-button window switches. Two lift-up 5mm-thick tempered and tinted side windows can be adjusted into pop-out style for ventilation.

Heavy-duty 9mm plastic construction is designed for temperatures ranging from minus 20C to plus 90C. It is designed to carry a moving weight of 100kg and 350kg and 400kg static, making it ideal for fitting

roof tents or recovery equipment. It attaches to the pick-up with a full-length mounting system and includes integrated wiring to power its rear LED brake light and LED interior light.

The Ascent is available for the double cab Ford Ranger Mk5-7, Isuzu D-Max Mk6, Toyota Hilux Mk8-9 and VW Amarok Mk1-2. Retail price is £3360 including VAT.

Pickup Systems PolyPods

The PolyPods are made from 9mm plastic and are said to be easy to fit using existing lashing points, with lightweight, drop-in units that are a cost-effective alternative to full body conversions, which the company also offers (inset). They are available for Toyota Hilux, Isuzu D-Max and Ford Ranger.

While the loadbed is retained, the PolyPod sees the tailgate removed in favour of a full-height rear hatch to make access easier. Colour coding is available to suit the host vehicle and roof capacity is 100kg. Options include false floors, shelving, separate side lockers, internal drawers and central locking.



Pro//Top Gullwing

The cab-height Gullwing canopy offers dual-sided access to a pick-up's bed, plus the option of a high-security solid rear door or a tinted glass option. They use stainless steel locks, strikers and hinges to resist corrosion and come with a three-year warranty. Colour coding is available to match different vehicles, while the inside is white to make it easier to see into. Twin horizontal supports on the roof can carry 100kg.

Priced around £3300, the Gullwing is available for Toyota, Ford, Nissan, Isuzu, Mitsubishi, Volkswagen and Mercedes-Benz pick-ups.

Gearmate tonneau cover

As an alternative to the high-profile canopy, a tonneau cover such as the Geardeck offers weather-resistant security but without losing the pick-up look. This cover has a 250kg on-top load capacity, a built-in drainage system, a strong but lightweight aluminium construction and durable Line-X finish.

Retail price is £2099 including VAT.

EMJ





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USED Twose Bale Handler, over the top type, will pick up wrapped square and round bales, adjustable arm, very tidy condition, genuine reason for sale. Euro 8 brackets & hoses.....**JUST IN**



USED Strickland Bucket, Heavy Duty, 2.24m (7ft4) wide, approx 1m3 capacity, very strong & well made bucket, perfect for stone, rubble etc. Holes for digging teeth. JCB Q-fit brackets. DUE IN**£POA**



USED Pottinger Novacat 305H Mower, 2013, 3m working width, 7 disc bed, swath boards, hydraulic fold (to side or rear), very good working order, in immaculate condition. A real credit to previous owner**£4,999**



USED Lely 280 MC Mower Conditioner, 2011, 2.8m working width, 7 disc bed, plastic conditioner tines, hydraulic fold, good working order, good condition.....**£3,795**



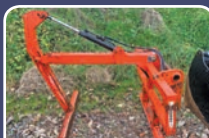
USED Kverneland Silawrap Round Bale Wrapper, remote control version, 750mm wrap, 3 point linkage mounted, for static remote wrapping of bales, good working order, good condition**£2,295**



USED Hawk Fork, high capacity grass fork, approx 7ft wide, Harbox tines, hydraulic pushoff, hydraulic hoses & Euro 8 brackets **£2,050**



USED Manitou (Whites Handling) Telehandler Grab, 2013, 7ft 6in wide, good Kverneland tines, twin ram, hydraulic hoses, good tidy grab. Manitou brackets.....**£2,000**



USED Browns Bale Handler, over the top type, for round or square bales, good working order, hydraulic hoses, good condition. Manitou brackets**£995**



USED JCB Attachments Bucket, 2011, 1.8m (6ft) wide, 0.80m3 capacity, hardly used, very good front edge, good strong bucket. Pin & Cone brackets.....**£995**



USED McHale 691 Bale Handler, for round bales, removable tubes with spikes, good working order, hydraulic hoses, good condition. Merlo brackets**£795**



USED Tanco Bale Handler, over the top design, for round or square bales, good working order, tidy condition. Off farm, just in. Hydraulic hoses and MX brackets**£795**



USED PZ Haybob 300, 3m working width, spreads & swaths, good wide tyres, good gates, tines all there, good frame, good condition. Choice.**from £695**



USED Misc Bale Spike, triple tines, good frame, JCB Tool Carrier brackets.**£595**

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Firm Favorit

Fendt's Favorit name built a reputation for reliability, with the 500C series a key classic range prior to the introduction of the Vario models. As a result, their popularity on the used market shows no signs of diminishing

WORDS HOWARD SHERREN IMAGES FENDT/HOWARD SHERREN



The Fendt brand has always been perceived as the Rolls Royce of the tractor world thanks to its build quality, reliability and price tag, which now extends to strong resale values. Many buyers will be familiar with the company's modern Vario tractors, however prior to this Fendt had a range of tractors mated to a four-speed powershift transmission.

Below: The two four-cylinder 500C tractors include the 509C and 510C, at home on both arable and livestock farms

First launched in the UK at the Smithfield Show in 1993, the Favorit 500Cs included many of the tried-and-tested features of the ageing 600 series but with a vastly improved cab, new TurboShift gearbox and modern styling. The original line-up consisted of two four-cylinder and three six-cylinder models. The 95hp 509C and 105hp 510C were smaller and more compact machines compared to the 115hp 511C, 125hp

512C and 140hp 514C. In 1995 the larger 150hp 515C became the flagship model and offered an excellent power-to-weight ratio.

The Favorit 500 was the first Fendt to offer a 50kph top speed and front suspension, combined with a four-speed powershift that was exactly what users were looking for, even if the price tag put off a lot of buyers. In January 1996 the tractors received a series of updates, which

"The Favorit 500 was the first Fendt to offer a 50kph top speed"



► included a new side-mounted exhaust pipe, air-intake moved to the other side of the cab and fuel filler moved to ground level thanks to a side-mounted tank. The rear fenders were widened and, in the cab, a new storage shelf was positioned to the right of the driver.

Production of the 500C lasted until 1999/2000 when the first of the 700 Vario range was launched. The mechanical transmission became a thing of the past, much to the dismay of many owners, which helps to show why these tractors are so popular on today's second-hand and classic market.

On paper the 500C is a very dependable second-hand purchase, although finding one for sale is arguably the big issue. Export has sadly taken many of these tractors away from the market. It is recommended to buy tractors that look clean and well cared for and with a service history, as hours are less important on tractors as reliable as these.

Four-cylinder MWM

Powering the smaller of the Favorit tractors is an MWM TD226.B4 engine. This four-cylinder, turbocharged unit is fitted to both the 95hp 509C and 105hp 510C, gaining two extra cylinders for the larger models. The 105mm bore and 120mm long stroke isn't unusual for tractors of this size, but rated speed of 2300rpm and 1500rpm for maximum torque are a little higher than some rivals.

The four-cylinder is a pokey little machine providing 381Nm of torque in the 509C and 417Nm in the 510C. As found in the past, MWM engines use frugal amounts of fuel, however when the engines are pushed to the maximum this increases considerably. Unfortunately, this led to complaints about the fuel tanks, which at 135 litres on the smaller models is not enough capacity for a hard day's graft and will need refilling. Accessing the oil filter for servicing is also criticised for its awkwardness thanks to an unusual location horizontally behind numerous hydraulic pipes.

When it comes to checking over the engines there are relatively few issues. Some models suffered from head gasket woes, as well as the wet liner O-rings, which could sometimes fail at just 2000 hours. The majority of tractors are unlikely to have a problem, and those that did suffer are likely to have already been repaired, but do check the head for signs of work and any damp patches. The exhaust brake linkage has also been known to seize and stop the tractor from starting, but this isn't a major problem as it can be fixed easily if it occurs.

"Lift capacity is very good for a four-cylinder tractor at 5508kg"



Fendt Favorit 510C

Engine MWM TD226.B4 4-cyl turbocharged

Power 100hp

Transmission 44F x 44R TurboShift, 4-speed powershift

Top speed 40/50kph

Hydraulics 102L/min

Linkage capacity 5508kg

PTO speed 540/540E/1000

Fuel tank capacity 135 litres

Length 4.18m

Width 2.38m

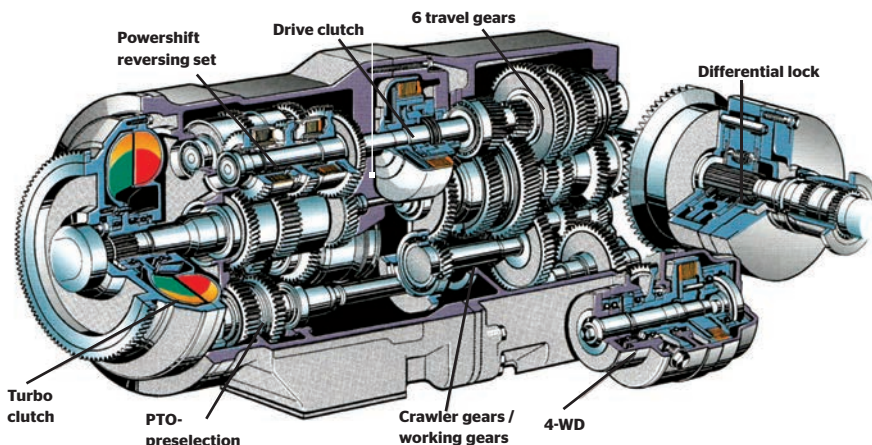
Weight 4970kg



THINGS TO LOOK OUT FOR...

A cross-section of the TurboClutch and popular TurboShift transmission, the last mechanical versions to be produced by Fendt before the Vario tractors. It is extremely reliable but ensure powershift clutches and synchro units work.

Linkage control buttons are ideally located on the fender. Check the wider fender extensions aren't damaged as replacements will be impossible to buy.



Now deemed a classic, used tractors don't hang around for long so it's best to make a quick decision



FENDT 500C HISTORY

1993 | 600 range replaced by 500 series of five models: two four-cylinder and three six-cylinder from 95 to 140hp.

1995 | New 150hp flagship model takes range to six. Favorit 515C was one of the best sellers in the range towards the end of production.

1996 | Range updates included side exhaust, air tank moved and fuel filler moved to ground level.

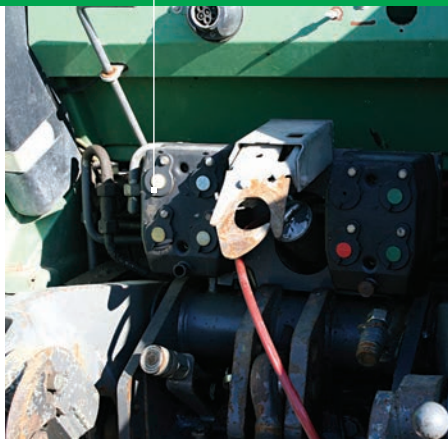
1999 | 716 Vario was first to be launched, followed by the 400 series Vario, plus the 125hp 712 and 140hp 714 Vario models. All feature variable transmission rather than mechanical TurboShift.

TurboClutch transmission

The Favorit 500C isn't fitted with the now standard Vario transmission and came with the renowned TurboClutch teamed to the TurboShift transmission. This clutch works by two oil-immersed impellers transferring drive through oil, which eliminates clutch wear and provides a smoother uptake of drive. The TurboShift gearbox provides 44 forward and 44 reverse gears through a single lever and a toggle switch. The single lever provides six gears with a four-speed powershift operated by a thumb switch and a range change by a collar underneath.

Direction changes are chosen by a toggle switch on the steering column and selected by slowing the tractor and using the clutch. The switch

Two spools were standard but up to four could be specified. Expect oil collection covers to be missing or damaged. The top link holder can take a beating too thanks to an awkward location and design.



Generally well protected from damage, steps are excellent and their design means they are unlikely to get clogged. The design continued into the following 700 Vario tractors.



The original Fendt seat is superb and is both comfortable and long lasting, however expect many tractors to be close to needing a replacement. Assess the cladding round the fenders for any tears and damage too.



THINGS TO LOOK OUT FOR...



The Bosch-based EPC-C linkage control is far simpler than the later 700 Vario tractors. Extremely reliable, any errors will be indicated on lights on the pillar. The hand throttle looks very basic but is effective.



The steering column gives both tilt and tele adjustment using the lever on the left-hand side. Investigate any play and ensure it stays in position. Check the wiper/indicator stalk as it also can become troublesome in higher hours.



Crossgate spool levers are tucked beside the seat. It's a dated design with no electric spools. Check the cables aren't seized and the flow control works. If you have access to a flow meter, checking spool flow is a welcome reassurance.

▶ sadly doesn't feature a neutral position, which can become an issue if other tractors in the fleet have one. A top speed of 40kph is available on tractors specified with a non-suspended front axle, so for 50kph you'll ideally need a model with front suspension, air brakes and exhaust brake fitted. However, the gearbox is identical and swapping a transmission control chip is all that is required to make it go quicker, but this isn't recommended due to the safety issues.

Electronic PowerLift control

When it comes to the rear linkage, it doesn't look as robust as it could have been for a tractor of this size. Link arms aren't that thick and lift rods are fairly narrow. However, on the plus side, it can take a beating and the stabiliser bars are over-engineered and very unlikely to fail. Lift capacity is very good for a four-cylinder tractor at 5508kg.

An interesting feature is that by switching over the power lift control valve the linkage can be used to exert downforce pressure, ideal for lifting the tractor off the ground for changing wheels.

A 4000kg front linkage was often fitted from the factory, and the side rails also double up as loader brackets - well worth looking out for. As always, check for any play in the pin joints and pivots and that the rear push-buttons on the mudguards work.

Early tractors are fitted with

FENDT 500C - TYPICAL USED PRICE GUIDE

Year	Model	Hours	Specification	Price
1994	510C	15,000	No front linkage, tyres worn	£18,000
1994	510C	8700	Front links, 40k	£22,000
1995	509C	11,500	Front links & PTO	£24,500
1996	510C	6000	Front weights, 50% tyres, ex-veg farm	£29,500
1997	510C	9500	Front links, new tyres, excellent	£27,500



Above: The smaller 500C tractors are both manoeuvrable and capable of most farming operations

"The excellent build quality in the cab will really show on high-hour machines"



Dashboards are fully LCD, a bit unusual for a 1990s tractor, and gives read-outs for temperature, oil pressure and battery voltage, plus digital read-outs of engine rpm, PTO and speed. Check the keypad below works.



One desirable point to the Favorit is the TurboShift transmission, offering speeds up to 50kph. With four powershift steps and a fluid TurboClutch, it was the last standard transmission before the Vario. Check all controls work correctly.



Lift capacity is very good at just under 7t. Stabilisers are often seized and may need gas to free them. Also check the pick-up hitch cable is intact as they can be surprisingly expensive to replace if needed.

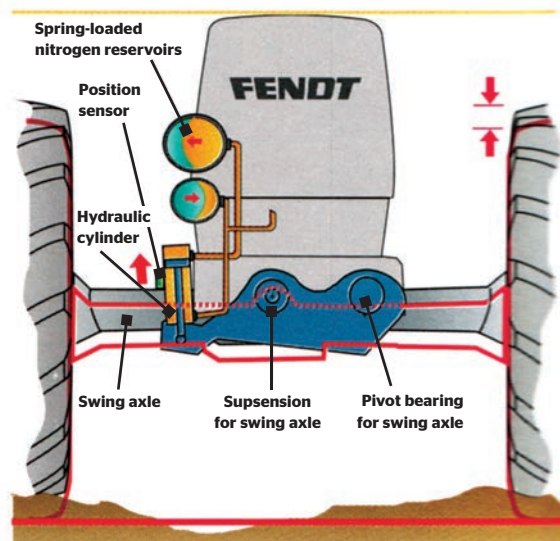
electronic powerlift control - D (EPC-D) that had been fitted for more than 14 years prior to the introduction of the 500Cs. It incorporates linkage control with a self-diagnostic system, electronic shock load stabiliser and wheel-slip control. Later models have EPC-C, which is an updated system with CANbus capabilities but still very easy to use in comparison to the later 700 Vario tractors.

Separate oils

At the heart of the hydraulic system is an axial piston pump that operates at a minimum of 20bar to save energy, only producing the precise amount of oil actually required for the steering, linkage and up to four remote spool valves. A maximum flow of 102 litres at 200bar is excellent compared to the competition.

Each spool can be adjusted from 16 to 80 litres per minute and an additional gear pump ensures there is enough oil to the steering. Also, because the hydraulic and transmission oils are all separate, there is no contamination of the gearbox oil from the spools valves - another reason why many buyers opted for a Fendt tractor and often why they are found to be so reliable in the long run. Spool control is via a joystick, which means four spools can be operated by just two joysticks.

Early tractors require a spanner to remove the dipstick for checking the hydraulic oil level, and filling it through this is also awkward. Four PTO speeds are available: 540 and



1000 with economy modes, 750 and 1400, which make the tractor versatile, especially for livestock work.

The 500C's brakes are the hydraulic, wet disc variety, while a shaft-mounted twin calliper disc brake acts on the front wheels. The front brake works even when four-wheel drive isn't engaged for additional safety. When the tractor is fitted with the 50kph gearbox an exhaust brake and air system are installed, which includes a 15-litre reservoir.

The front suspension on the Favorit is one of the first systems offered on the market and is praised by many users. Standard on 50kph models, it is an option worth looking for on 40kph versions too. The system works on a

pivot, with a double-acting cylinder at one side of the axle. The cylinder is connected to spring-loaded nitrogen dampers. It's both simple and effective.

Enhanced cab

A new cab improved on the design of the ageing 600 platform. The three steps are all very well positioned, combined with the wide doorway that provides excellent access to the high-spec cab. An air seat is standard and most have stood up to the demands of farm life. The general excellent build quality in the cab will really show on high-hours machines.

Once seated, some drivers may find the position cramped. Admittedly, there isn't much space for additional baggage. The linkage controls surprisingly fall to hand up on the side console, while spool joysticks are hidden down to the right side of the seat. Despite this they aren't too difficult to operate.

The dashboard's completely digital design is excellent and used right up until the latest models. Visibility is very good thanks to full-glass doors, curved rear side windows and narrow pillars. The bonnet-mounted exhaust was moved to the cab pillar in early 1996, so look out for these later models if possible. The one-piece bonnet pivots forward to reveal the engine, but it can be awkward to shut for shorter operators. Paintwork remains excellent and should still be in good order on the machines with the highest of hours.

Above: Many users praise the Fendt front suspension thanks to its simplicity, effectiveness and reliability

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One of the three Claas combine harvesters run by Hertfordshire-based AT Bone

Boost performance before next harvest

Putting a monetary value on losses from a combine has never been an exact science, but a novel combine attachment from Bushel Plus is offering farmers an accurate cash figure that can influence decisions

WORDS AND IMAGES EDD MOWBRAY

A magnetic Bushel Plus drop pan tray is providing James Ashley with a detailed understanding about the real-world losses his trio of Claas combines are delivering across different crops during harvest.

James is operations manager at the finely-tuned farming outfit AT Bone and Sons, based in north Hertfordshire. The business cuts over 2500ha of combinable crops, so getting a handle on exactly what is lost during harvest can add up to a significant saving across the course of a season.

"The rise in input costs has made margins even tighter, so we were keen to understand exactly what we were losing from the combine. We work hard all year and take pride in all our crops, so making sure as much goes in the tank as possible, and not on the ground, was worth exploring further.

"As farmers we put a lot of trust in the

"We put a lot of trust in the machinery manufacturers, possibly too much"

machinery manufacturers, possibly too much, and are led to believe the quoted figures for both output and losses. But how can we be sure that the machines we buy are getting close to these figures - the outputs we are sold will usually be tested in ideal conditions, which aren't realistic," James continues.

It is a concern that Mr Ashley wanted answers to, and after seeing an article in the farming press on the Bushel Plus combine calibration tool three years ago, he thought it could allay some of his concerns.

Bushel Plus

James's main aim was to put a figure on the combine losses and understand what the monitors in the cab are telling him and the other operators. Bushel Plus is imported and distributed in the UK by Castlehaven, based in south Oxfordshire.

The Bushel Plus drop tray was designed by ▶



Left: James Ashley is operations manager at AT Bone

Below: AT Bone has built a dedicated box on the Richard Western chaser bin to prevent the system bouncing around in a pick-up

Bottom: Attaching the Bushel Plus drop tray to the rear axle



Above: Pouring the contents into the separating tower

Left inset: The adjustable air stream blows the chaff out to leave the grains



▶ a Canadian farmer who wanted to understand the exact losses from a combine, no matter the brand of the machine. The system attaches magnetically to the combine - under the straw elevator or rear axle when laying in a swath or placed in the crop underneath the passing header when chopping straw.

High-strength magnets attach the hood covering the drop tray to the axle. There are various sizes of tray dependent on the crop being tested. A unique part of the system is the tray stays covered from debris or seed until it is released by the remote control, which can be operated in a truck or tractor cab well away from the rear of the combine to avoid getting too close to a running harvester.

Once deployed from the straw elevator or axle, the

swath covers the tray providing a snapshot recording at the time of release.

James says that although it may seem like an unnecessary addition to harvest, putting a value on what is being lost can't be underestimated and not only offers peace of mind, but can have a huge bearing on potential changes to combine harvester settings or forward speed.

"In some ways I think these trays should be supplied as standard with the combine. If we are to get the quoted outputs, we need to be sure that the losses are kept to a sensible level. When the tray arrived, I spent a few hours one morning in a wheat crop testing it at different speeds and settings, which provided me with a valuable insight into what the loss monitors are telling us.

THE ORIGINS OF BUSHEL PLUS

While working as an agronomist, Marcel Kringe kept seeing large amounts of wasted grain. Not from poor storage or excess moisture, but from the combine harvesters. Marcel, a German-born farmer, relocated to Canada and introduced the Bushel Plus Harvest Loss System to help farmers assess grain loss more safely and accurately during harvest.

While selling seed and working as an agronomy consultant to farmers, as a hobby Marcel and his team worked on designing a drop tray that would measure waste from a combine. A prototype was given to farmers to try, which was refined and enough produced to meet the demand generated through farmer recommendations. When he went full-time on Bushel Plus, Marcel's goal was to sell 120 pieces of equipment but sales exceeded that goal by many hundreds.

Today, Bushel Plus sells its product on every continent and in more than 28 countries. Partnerships with combine manufacturers have seen the Bushel Plus technology included in R&D efforts to create new combines, including with Case IH, Claas and John Deere.



Above left: The Bushel Plus app gives quick and easy harvest loss calculation based on combine settings, crop and the pan size

Left: The Bushel Plus drop tray can easily be removed once the testing has been completed

"By using Bushel Plus, I now know when my loss monitor in the cab turns orange we'll be losing around one per cent of the crop out of the back. We accept that there will be some losses, but we can now put a figure on what this will add up to across a field and if there are any changes that we need to make."

It is common for farmers to be running their combines at sub-optimal capacity as too much faith is put in the loss monitors. By verifying these with the Bushel Plus drop tray, some operators have been able to increase capacity and reduce losses by knowing exactly where and when they are happening.

Working out the losses

The combine must be working at full capacity and the placement of the tray is key for an accurate recording. Once the tray has been covered, the contents are tipped into a separating tower that comes as part of the kit.

This blows an adjustable air stream to remove the straw and chaff and leave just the grains. These are then weighed on the scales provided and the details are entered into the

"I think these trays should be supplied as standard with the combine"

Smart Drop app to give an accurate reading of losses per hectare and an interpretation of cost based on current commodity prices. It can now separate rotor or walker losses from sieve losses to give an even clearer picture of where losses are occurring.

James Ashley says the initial set-up was simple, and the system gave him the confidence to push the combine a bit quicker if he was up against the weather. The tray can be left on when the combine is in chopping mode but needs to be positioned on the straw elevator or taken off during swathing due to the heavy straw crops in the UK.

"The system and app are very easy to use, and it now takes us around 10 minutes from attaching it to finding out what the losses are. When you

think about the time it takes over the course of the season and what you could potentially save, it really is a no brainer.

"We run two chaser bins with our combines and haul all the grain back to the stores via lorries for safety reasons. The Bushel Plus tray sits in a dedicated box on the side of the bigger chaser bin, so it is always in the field when we need it."



Above: The red drop pan sits inside the magnetic cover, which keeps the pan free of debris and grains until it is released

Below: The combine has stopped after releasing the tray during operation

Right: A set of scales is included in the kit



Above: The magnets hold the device securely on to the combine during operation

Below left inset: The grain captured in the tray is then weighed and the figure inputted into the app

► Essential for oilseed rape

James now tests each crop in the first field each year to check how it is performing, as the parameters such as seed weights and size can change from season to season. One area he says the system is invaluable for is small seed crops, such as oilseed rape.

"Wheat and barley are heavier seeds, so harder to blow straight out and we know roughly where we need to be year on year regarding the combine settings. However, oilseed rape is much lighter and can easily shell out on impact or be blown out the back, so having Bushel Plus to monitor losses and tweak settings has delivered full confidence in our harvesting operation.

"It takes us around 10 minutes to find out what the losses are"



"Without Bushel Plus, losses are just a guessing game.

An added advantage is that the system can be moved to any of our machines, so offers us flexibility should we split the combines up into different crops. It will also easily work on older combines, where there isn't the luxury of sophisticated loss monitors."

To achieve the fine balance of forward speed combined with minimal losses,

James Ashley is convinced that the Bushel Plus system will remain an integral part of the harvesting operation at AT Bone. **FMJ**

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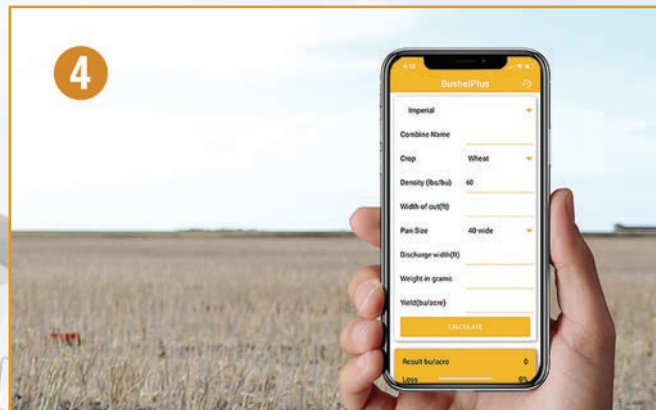
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What are Customers have to say

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James - @jamesrakennedy East Lothian, Scotland



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Farms often buy the highest capacity feeder that will physically fit into and negotiate round buildings, but that leaves little room for error so check regularly for damage

“First stop on any inspection is the oil sight tube on the nearside of the machine”



Need for feed

A diet feeder is one of the most important machines on a busy livestock or dairy unit in winter, often working all day, every day. Spend some time checking it over now to avoid untimely breakdowns when you most need it

WORDS MICK ROBERTS IMAGES KVERNELAND

When it comes to a diet feeder, one of the most important factors is reliability, simply because you cannot afford to risk a breakdown. The Kverneland Siloking vertical auger diet feeder is the UK's market leader. If there's even more motivation to keep one in top working condition it's that well cared for second-hand models command a premium price.

While Siloking makes a wide range of models, including self-propelled as well as trailed twin-auger and single-auger machines, the mixing and feeding systems all contain similar components and vertical augers. Here we take a close look at a popular TrailedLine Classic, which is available in capacities from 5m³ to 22m³.

First stop on any machine inspection is the oil sight tube on the nearside of the machine, which should have oil in the middle. This is the oil reservoir for the main auger drive, with a breather at the top. The four-pinion gearbox is strong and reliable, but requires lubrication, and this sight tube should be checked daily during operation.

There's no hiding if there is a problem with the gearbox - all you need to do is run the machine and listen. It should run very quietly but run it flat out, at its top speed, and listen for any unpleasant noises.

Worth its weight

Next, climb up the side and look inside. Around the inside edge is the 'hay ring', which stops fluffy material flicking out of the top during mixing. Sit on the edge and get

somebody to check that the weigher works - and it shows about the same as your weight. The tub sits on four weigh cells and is completely isolated from the chassis and anything else. It will need calibrating if the weight is wrong.

Check the condition of the augers and the knives, which tend to wear more quickly at the bottom. Many operators swap them with the top ones to even up wear. But worn knives will slow cutting, mixing and incorporation. Changing knives regularly will save time - new ones will cut the mixing time in half, saving power and diesel.

Auger edges should be square. Worn edges have a big influence on the speed and quality of mixing. If they are worn you can repair them with the Silonox, Hardox metal repair kit. It will need to be attached with special Hardox welding wire, otherwise welds will wear before the edge.

Outside, attention should turn to the conveyor, in this case the Twin Lift option, with which nearly 80 per cent of new machines are sold. Feeding from the front, it simplifies unloading and makes the machine very versatile, being able to dispense feed to the left or the right. When it's flat you can move it from side to side, but also raise it 350mm side to side and lift over a 1.2m barrier to feed into troughs. Check for any physical damage and that it turns smoothly as well as slides from side to side. It's worth noting there is a hydraulic motor at each end.

All Siloking Duos (as seen here) run on ADR commercial grade axles with hydraulic brakes and parabolic springs. Check for broken springs and the condition of the tyres. **FMJ**

STEP-BY-STEP FEEDER CHECKS



1 Start your inspection by looking inside the hopper for obvious signs of damage to the walls, condition of the augers and for general wear and tear.



3 Bottom knives wear faster than the top ones. Operators often swap them over to even out wear so they can replace a whole set at the same time.



5 Commercial grade ADR axles, fitted with large drum brakes, cause little concern. They are usually fitted with Goodyear Marathon truck trailer tyres.



7 Older-style weigher head units can be difficult to read from the tractor cab. They can be replaced with the new wireless data system with in-cab terminal.



2 Effective mixing and incorporation relies on good square auger edges with sharp corners. They will wear but can be reinforced with weld-on Hardox edging.



4 New knives are worth the investment. They cut and incorporate the material more effectively, which can result in reducing the mixing times by half.



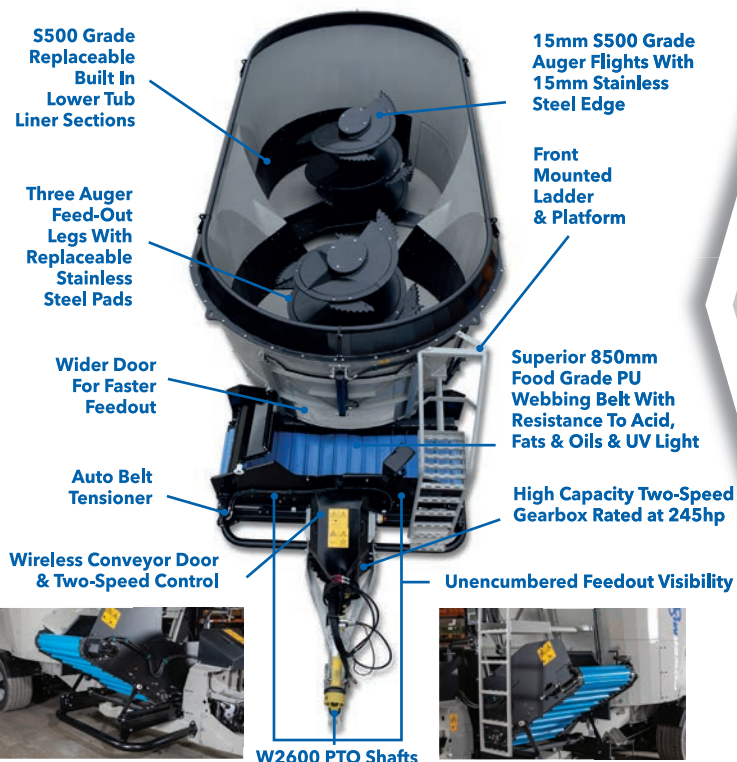
6 If this oil sight tube is clear, question how long it's been empty. Lack of oil will cause gearbox damage, so run the machine - it should operate quietly.



8 All the feeder's elements can be controlled wirelessly by a terminal in the cab. Check all the functions that are fitted actually work.

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The workshop

Strimech Engineering Ltd has developed a new hopper bucket designed for use when refilling bulk seed and fertiliser bags

WORDS AND IMAGES SIMON HENLEY

Strimech co-founder and managing director John Blades is pictured with a pre-production version of the company's patented Hopper Bucket



Above: Hooks on the base of the bucket hold bags in place and allow them to be moved away once filled

Strimech unveils new hopper bucket

Bulk seed and fertiliser bags are made from heavy-duty woven polypropylene. They are robust, durable and frequently re-used, however the problem with refilling them is that it can be awkward and, sometimes, unsafe.

A solution to the problem has been developed by Strimech Engineering Ltd. The new Hopper Bucket was designed at the request of a farmer who wanted a safe and simple way of refilling bulk seed bags.

Developed by modifying a 2.5t Strimech ProAg bucket, the new patented hopper design integrates a discharge chute in the heel of the bucket, which is sealed by a hydraulically operated adjustable door.

The inside of the bucket is modified by welding steel plates to the bucket walls, which direct grain towards the chute opening. The steel plating also serves as a sealed compartment for the hydraulic ram, which uses a telehandler's hydraulic third service to operate the chute door.

Hooked on buckets

Externally, the bucket is fitted with a series of hooks, which are located at the back by the headstock attachment plate

and underneath in the bucket floor. They are used for hanging the bags during the refilling process. These hooks are recessed into the bucket's structure so they cannot be damaged while the bucket is being used for loading.

"When it's not required for filling bags, the bucket can be used conventionally for general handling work," says Strimech's co-founder and managing director John Blades. "You can fill bags of any size whether they are 250kg or 1000kg, or you can simply use the bucket to fill a seed drill hopper directly."

"We are currently working on a smaller version, suitable for smaller telehandlers

and tractor-mounted loaders. Another factor of this design is that it can also be retrofitted if someone wanted to convert a Strimech bucket they already own."

Filling the bucket is as simple as taking a scoop from the grain store. With the bucket full, it is raised to shoulder height, then crowded back so the chute is facing downwards. The seed bag is then carefully hooked underneath and the bag neck extended so it pulls over the chute.

With the seed bag secured, the loader operator opens the chute door and the grain pours in. Once the bag is full the chute can be closed and lifted out of the way while it's still attached to the bucket. **FML**



Above: The price of the bucket depends on its size and type. For a personalised quote, contact a Strimech dealer



Above: The flow of barley from this pre-production bucket yielded approximately 500kg in 30 seconds

Farming's top models

For nearly every working machine there is a model equivalent. Here are the latest scale models that won't look out of place in any miniature fleet



Claas Axion 960 Wiking 1:32

Since Claas launched the Stage V Axion tractor, Wiking has now updated its Stage IIIb model to reflect the changes introduced. The updated model sports the latest decals, redesigned front mudguards, new exhaust, new front indicators and new worklights. Wiking has limited this edition to a 1000-model run supplied in special Claas packaging. **£75.46** • www.claas.co.uk/sales-finance/dealers



Wider guards

Wiking has widened the rear mudguards and provided them with folding warning boards.

There are new warning beacons and a new access ladder. Inside the cab is a new seat for the driver and new CEBIS and S10 terminals.

Fendt Cargo T955 Universal Hobbies 1:32

Universal Hobbies' new largely metal Fendt telehandler has high levels of detailing and many working features, including all-wheel steering, swinging rear axle and front axle levelling ram. It is equipped with a silage grab and bucket attachment and weighs nearly 700 grams.

£126.71 • shop.fendt.com



Boom not bust

The boom lifts smoothly on a single ram and is fully piped with flexible and rigid piping. It raises the attachment high enough to clear most trailers. The grab opens on two piped rams but the swing arm ram does not hold the attachment in position. Air cleaner and exhaust are detailed but there's no access to the engine.



Higher level

The cab lifts smoothly on its linkage and single ram. It is provided with worklights, a beacon and realistic wipers on the front and rear screens. Opening the door gives good access to the cab interior, where foot pedals, steering column and driver's seat are detailed. A joystick and monitor are beside the seat.





John Deere X9 1100

Britains 1:32

Britains' newly tooled plastic and metal European-spec X9 1100 combine is supplied with both the folding 16-row C16F maize header and 50ft HD50R hinged draper grain attachment. This limited edition model also sports 75th anniversary decals. Augers and the reel on the attachments turn as the combine is pushed along.

£109.99 • www.britainsfarmtoys.co.uk

Swinging steps

The cab access steps swing forward, while folding mirrors and good levels of interior detailing are features of the cab, although the door does not open. The two-part unloading auger folds for transport, the right-hand side panel opens and the access steps to the engine are hinged. A drawbar can attach a trailer and the rear wheels steer.



Claas Trion 750TT

Wiking 1:32

Wiking has chosen the flagship twin-rotor Trion 750 with mid-range tracks and 4XL unloading auger for the first edition of its newly tooled combine, which is limited to 1000 models. The plastic and metal model is provided with a four-wheel trailer and the second-widest Convio 1080 header.

£150 • www.claas.co.uk/sales-finance/dealers



Heads up

The header has freely rotating feed augers and reel, which drops on to standard mounting points on the feed elevator. The reel slides forward/aft freely and two rams set its height. Knife and cross conveyor are both detailed. Cab access steps swing forward for transport and the cab is provided with mirrors, lights and warning beacons.

Hinge points

Grain tank covers, the feed auger inside the tank and warning boards are hinged but not the side panels or engine covers. A silver exhaust, access ladder and warning beacon are detailed. The rear wheels steer and there is a drawbar for attaching the trailer.



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Working Classics

Phil Barnes' fleet of classic low-hours John Deeres at work in Pitton, near Salisbury, in July 2022



Green trio

While 1990s and early 2000s John Deere tractors are becoming popular with collectors, they're still capable of a good day's work, as shown by this fleet on the Wiltshire-Hampshire border

WORDS AND IMAGES **JIM GERRARD**

Phil Barnes started his contracting business back in 2010 with one John Deere 6910 and a couple of implements, but over time some of these have been moved on and have led to a trio of three classic John Deeres and a vast range of machinery. The work is very varied for the tractors, which also work alongside a trio of diggers.

For Phil, farming is in the blood as his grandfather was a dairyman on a local estate and his father ran an agricultural and groundworks business (not all that dissimilar to Phil's current business) based at Middle Wallop. The Leyland 472 and Marshall 804 were staple machines of his father's business at the time, but when Phil was four years old, his dad sold up and pursued more digger and plant-related work with his brothers.

Phil left school at 16 and gained farm experience on harvest work before

spending two years at the nearby agricultural college at Sparsholt. After leaving college, he got a job on a local arable and beef farm where he spent six to seven years employed as a tractor and combine driver. It also involved a lot of 'in-house' silage making.

“As time went on, there was enough work for two John Deere 6910s

“This is where I built up much of my knowledge, skills and passion for silage making and found it very enjoyable,” he says. “The tractors I used on the farm played a big part in what I own today. I had a 1998 John Deere 7810 and a 1995 John Deere 8100, and the stock tractor was a 6506 from 1995. I could see how reliable they were and learned a lot about running these tractors in a farming business.”

Self-employed start

As Phil went self-employed, he helped his dad and brother on agricultural groundworks, involving a lot of work with diggers. Phil's dad had still retained one of the Marshall 804s, which was used occasionally within the business for jobs such as bale carting. At this point, Phil purchased some of his own equipment, consisting of a 1999 John Deere 6910, a five-furrow Dowdeswell reversible plough and a Krone Varipack baler. Through the work with his dad, Phil managed to build a steady customer base and eventually gave way to the business that he runs today.

“As time went on, there was enough work for two John Deere 6910s, and dad's New Holland TD5030, which helped every now and then. Then the opportunity came to purchase a John Deere 6400,” says Phil. “I started off with a 3m Claas trailed mower ▶



The 6400 is perfectly suited to the Westmac Welger AP630 baler at work here in July with a Browns bale sledge

Right: The interior of the John Deere 6400 has been well looked after during its working life, although some of the cab's upholstery is beginning to deteriorate

Far right inset: Phil has even retained the 6400's original cassette player

Below right: Phil's 6400 has a good turn of speed due to its A to F-range gearbox and oversized tyres

Tech specs

John Deere 6400

Engine JD CD4045

4.5-litre four-cylinder turbocharged

Max power 106hp @ 2300rpm

Max PTO power 85hp

Fuel tank 165 litres

Transmission John Deere PowrQuad

Hydraulics Closed-centre pressure flow compensated

Rear lift 2683kg

Wheelbase 2.4m

Weight 3970kg



► but its capacity had to be upped as the work increased and mowers attached to the tractor's linkage proved to be much easier to get in and out of awkward spots. Mounted mowers also meant there were no punctures or other related maintenance."

About five years ago, the first 6910 was part-exchanged for the 7710. As Phil puts it, this 6910 dated from 2000 and had clocked up more hours than the other 6910 and so had less sentimental value. "This slightly newer 6910 had had a hard life, but was still a reliable tractor," he says.

Phil Barnes studied at Sparsholt College and spent several years working on a local arable and beef farm before starting his own business



The other 6910, which had been Phil's first tractor when he started the business, was only moved on a few years ago to make way for the JD 7430. This example dated from 1999 and had only accumulated 6000 hours when he bought it. When he had finished with it, the tractor was on 12,000 hours. "It was a very original tractor and needed very little work while I had it," he says.

When asked why John Deere, other than the tractors at the local arable and beef farm, Phil explained: "When I was young, I remember looking out of the window towards a local farm and it was just John Deere 6910s and a John Deere 2266 Hillmaster combine. There is also something about the 6000 and 7000 series John Deeres, especially when they are just as good 10 to 20 years later. If pockets were endless, I wouldn't say no to another brand, but I do have a passion for the older school John Deeres."

Today, the business is based from his father-in-law's farm at West Dean on the Wiltshire/Hampshire border. It generally covers ground between West Dean and Middle Wallop, whether arable, straw, grass, baling, hedge-cutting, river restoration or

other plant associated work. As expected, the farm work generally falls from the spring to the autumn, while the digger work starts from the end of the autumn and into the winter months. In Phil's words: "The diggers pay for the tractors at that time of the year." Much of the digger work is focused around river restoration, which commences at the end of the fishing season and keeps a consistent workflow throughout the year.

Tractor fleet

Pride of Phil's fleet is his 1995 John Deere 6400, which was supplied new by R. Hunt Ltd (now Hunts Forest Group) and only worked on one local farm until Phil purchased it four years ago. At that point it had only clocked 1200 hours and is now up to 2527 hours. The tractor remains incredibly straight and original having never been repainted or modified. The only problem that Phil notes is that the interior of the cab is beginning to fall apart in places but he's not surprised given the age of the machine.

As no front linkage is fitted, one addition Phil has made is the installation of two poles on the front weights to hold two extra rolls of silage wrap when required. An attractive features of this 6400 is its A to F-range gearbox and its slightly oversized front and rear tyres,

which enable the tractor to reach speeds of up to 30mph.

The 6400's main duties in Phil's business are baling with a Westmac Welger AP630 conventional baler, tedding with a JF Stoll GG5 six-rotor tedder or bale wrapping with a high-speed McHale 991 round bale wrapper. Other jobs extend to hedge-cutting in the winter with a McConnell PA93 as well as a spot of timber sawing and log splitting. On occasions it has also been used for some trailer and light haulage work. This tractor has also found use on the plant side of the business for winching work to help with moving trees during woodland or river-based jobs.

In the four years Phil has operated the 6400, it has required virtually no work other than the replacement of a starter relay and the four-wheel-drive relay. On FMJ's visit in July 2022, the 6400 was hard at work on the Welger baler and a Browns Compactor B bale sledge. ▶

“There is something about the 6000 and 7000 series, especially when they are just as good 10 to 20 years later”

Tech specs

John Deere 7710

Engine John Deere 8.1-litre six-cylinder

Max power 155hp

@ 2100rpm

Max PTO power 135hp

Fuel tank 270 litres

Transmission John

Deere PowrQuad

Hydraulics

Closed-centre

pressure flow

compensated

Rear lift 4048kg

Wheelbase 2.79m

Weight 5602kg



Above: Auto-steer makes Phil's 7710 popular among his drivers

Right inset: A StarFire 3000 dome provides the GPS facilities on the 7710



Favourite of the fleet is the John Deere 7710, which is often used for mowing but is seen here operating a Krone Swadro 46 single-rotor rake

Profile

Phil Barnes Farm & Estate Services

CORE FLEET

Tractors

- John Deere 6400
- John Deere 7710
- John Deere 7430

Implements

- Reco Sulky 3m box drill with cultivator underneath
- Five-furrow Dowdeswell DP7E reversible plough and furrow press
- Water pipe mole plough
- Frangard timber winch
- McConnell PA93 flail hedge-trimmer

Trailers

- Six-tonne McCauley dump trailer
- Six-tonne McCauley front-loading low-loader
- 19-tonne McCauley low-loader trailer with bale wedge
- 12-tonne Warwick grain trailer

Grass/hay/straw equipment

- John Deere 331 mower conditioner
- Krone 280CV mower conditioner
- Krone AM 243 S mower
- JF Stoll 665 six-rotor tedder
- Kuhn GF 5001 four-rotor tedder
- Krone Swadro 46 single-rotor rake
- Kuhn GA 7501 Plus twin-rotor rake
- Krone Comprima 155XC round baler
- Westmac Welger AP630 conventional baler
- Browns bale sledge
- McHale 991 high-speed round bale wrapper

Telehandler

- JCB Loadall 525-67 'Farm Special'

Excavators and plant

- JCB JS130 13-tonne excavator
- JCB 8045 ZTS 4.5-tonne mini-excavator
- Komatsu PC15 1.5-tonne mini-digger
- Barford four-tonne straight tip dumper truck

The youngest tractor in Phil's fleet, the 7430, is often used for bale haulage, corn carting and drilling



Like Phil's other tractors, the cab of the 7430 is incredibly well preserved and looked after by its drivers

Tech specs

John Deere 7430

Engine John Deere

6.8-litre six-cylinder

Max power 166hp

@ 2100rpm

Max PTO power

140hp

Fuel tank 302.8 litres

Transmission

PowrQuad Plus

Hydraulics

Closed-centre

pressure and flow

compensated

(Premium)

Rear lift 4808kg

Wheelbase 2.68m

Weight 6620kg

integrated with GPS – a StarFire 3000 dome is fitted.

During *FMJ*'s visit, the 7710 was being driven by Phil's right-hand man Ben Dorrington, and was rowing up the grass with a Krone Swadro 46 single-rotor rake. At other times it is used with a Kuhn GA 7501 Plus twin-rotor hay rake and other equipment. It can also be found mowing during the year using a rear-mounted JD 331 mower and occasionally for corn carting during harvest time. It was the business's main tractor until Phil bought the 7430 and

► It was baling on 55 acres of land at Hill Top Equestrian in the village of Pitton, a few miles east of Salisbury, with the help of its fellow John Deere workhorses. Just over 3000 bales were produced this year from the land at Pitton.

Fleet favourite

Although the 6400 is a popular machine, Phil's favourite tractor from his fleet is the 7710, largely due to its comfort when working long days. At around 8700 hours, the tractor is an early model from 1997/8 and was previously based in March, Cambridgeshire, and thus is his only tractor that hasn't passed through Hunts. It is a versatile machine according to Phil, as the tractor is fitted with auto-steer and is fully

“I wouldn't say no to another brand, but I do have a passion for the older school Deeres”

A well-matched combination is the John Deere 7710 and Krone Swadro rake



it was taken off mainline duties and is only used occasionally during the winter months, although Phil certainly intends to keep it.

As mentioned earlier, Phil was reluctant to part with his first 6910, which started the business and he became sentimentally attached to the machine, so it took some encouragement to sell the last 6910 to purchase the 7710. In hindsight, he now admits it was a very wise decision, as much as he loved the 6910!

John Deere 7430

The third and final John Deere in the fleet is the 2011 JD 7430, which, like the 6400, was bought through Hunts Forest Group and has always been a local tractor. Driven by Phil's brother Jay Barnes, the 7430 has only clocked 5800 hours and was hauling a McCauley 19-tonne short-bed twin-axle low-loader trailer during FMJ's visit. The 7430 is generally employed on arable work such as drilling with a Reco Sulky 3m combination seed drill.

The tractor does not have air brakes but has the capability to compress air and has all the genuine and original parts so it can be used for an airline, effectively acting as a mobile compressor. Phil says this is quite handy, especially when baling.

For bale loading, the 7430 was working with Phil's recently purchased JCB Loadall, which on 7200 hours is another low-hours machine. It replaced a John Deere 6200 loader tractor, which had always been owned by Phil's father-in-law and is the main tractor at home on the farm, sharing its workload with a 990 David Brown. "I used the 6200 for a few days a year, but as workload increased I went for the JCB Loadall. The extra reach makes life easier," Phil concludes.

FMJ

On this baling job near Salisbury in July 2022, 55 acres of land were covered over the course of a few days



Above: Another classic is the Westmac Welger AP630 baler, which has proved itself to be a valuable asset to Phil's business

Left: The JCB 525-67 Loadall only joined Phil's fleet early in 2022, replacing a John Deere 6200 loader tractor

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Viccon Bio Opticut 14 combi baler, farmer owned, £14,900. Tel: 028 37 548971. Co. Tyrone. **[JW226]**



John Deere V451M baler, 2018, 45,000 bales, £17,950. Tel: 01935 841307. Somerset. **[JW205]**



Kuhn i-Bio combi baler, on 500 x 22.5 tyres, shop-soiled, new, £49,000. Tel: 028 37 548971. Co. Tyrone. **[JW232]**



Claas 365RC Variant baler, 2014, 8,737 bales, rota chop, £18,000 + VAT. Tel: 01603 712222. Norwich. **[IJW78R]**



Kuhn 3135 Intelliwrap bale wrapper, 23 knife, film and nett binding, new, EPOA. Tel: 028 37 548971. Co. Tyrone. **[JW238]**



John Deere 842 belt baler, Hi-flow, cover edge, vari-chamber, 2010, 15,500 bale count, floatation tyres, bale kicker, gwo, used recently, £7,900 + VAT. Tel: 07788 785871. Cumbria. **[JW212]**



Anderson TRB2000 round bale chaser, 2017, air, floatations, joystick, £13,000 + VAT. Tel: 01603 712222. Norwich. **[IJW85R]**



Ritchie bale carrier, carries 6 bales, used ourselves, £1,995. Tel: 07817 716882. Devon. **[JW223]**

CULTIVATION



Pottinger C6 Artis plus Terrasem drill, 1,780H/A, radar, min till, £47,500 + VAT. Tel: 01603 712222. Norwich. **[IJW92R]**



Kuhn HR 6004 rotary harrow, 5004, 3004, new/used selection, EPOA. Tel: 028 37 548971. Co. Tyrone. **[JW230]**



Dalbo Front Flex 300 front press, 3m, crosskill rings, shatter paddles and work lights, excellent condition, £4,950 + VAT. Tel: 07788 785871. Penrith, Cumbria. **[JKW96R]**



Quivogne Pluto 3m discs, c/w steel roller and leveller harrow, good order, £4,950 ono + VAT. Tel: 07976 794383. Shropshire. **[IJW120]**



Simba press rolls, 4.6m trailed furrow press, working order but 2 broken rings, £1,200 + VAT. Tel: 07788 785871. Cumbria. **[JW219]**



Kuhn HR3003 power harrow Rauch pneumatic air drill, very smart full spec machine, off local farm, please call William. Tel: 07802 897 800. Northern Ireland. **[JKW129R]**



Kuhn / Accord power harrow combination drill, 3m, good condition, Suffolk coulters, EPOA. Tel: 07563 634657. Chester. **[IJW150R]**



Vaderstad Rexius 650 Cambridge rollers, fitted with hydraulic shatter boards, knives and stone trays, good condition, £5,950 + VAT. Tel: 07788 785871. Cumbria. **[JW220]**



Farm Force drill mate, three metre, 500 mm diameter flexi coil, £750. Tel: 07831 450945. East Yorks. **[IJW182R]**



Maschio Alitalia 400 air disc combi, 2014. £15,500 + VAT. Tel: 01603 712222. Norwich. **[IJW73R]**



KRM Sola cultivator seed drill, 4m, low acres, excellent condition, EPOA. Tel: 07563 634657. Chester. **[IJW149R]**

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FEEDING & BEDDING



Teagle Tomahawk 8550 straw chopper, dual chop, trailed, 2014, gwo, electric controls, swivel spout, £7,750 + VAT. Tel: 07788 785871. Cumbria. [JW215]



Foster S990 silage feeder, 2019, very good condition, full working order, front conveyor belt, £7,900 + VAT. Tel: 07788 785871. Cumbria. [JW216]

FERTILISER SPREADERS



Amazona ZA-M Max spreader, twin disc, £1,200. Tel: 01603 712222. Norwich. [IJW88R]



Amazona ZA-X Perfect 1402 fertiliser spreader, 2018, 10-18m discs, hydraulic headland deflector and hopper cover, very good condition, £3,500 + VAT. Tel: 07788 785871. Cumbria. [JW217]

LOADERS & ATTACHMENTS



Heavy duty bale handler, on Merlo brackets, to handle mini Hesston/Quadrant/round bales, opens to 80'-2m, as new, £1,400. Tel: 07751 917839. North Lincolnshire. [JKW108R]



Albutt buck rake, ten foot, Hardox tines, good condition. Tel: 07976 702858. Powys. [JKW41R]



Trima loader, with brackets, etc to fit John Deere 4 cylinder tractors, £3,995. Tel: 07817 716882. Devon. [JW222]



JCB folding fork, 14ft, Hardox tines. Tel: 07976 702858. Powys. [JKW40]



KRM BXL1300 bag lifter, telescopic reach, 2018, as new condition, hardly been used, £1,900 + VAT. Tel: 07788 785871. Penrith, Cumbria. [JKW98R]



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Manitou pallet tines, £1,200. Tel: 01603 712222 or 07770 692891. Norwich, Norfolk. [JKW79R]

MISCELLANEOUS



Malone post Knockers, £3,500; Malone log splitters, £1,150. Tel: 01746 712217. Shropshire. [JW203]



John Deere Gator 855D UTV, 2013, 2,200 hours, £7,995. Tel: 07817 716882. Devon. [JW221]



Toyota Hilux Active, 2021, 17,000 miles, manual, canopy, off road tyres, £22,500 ex VAT. Tel: 07790 370368. Cornwall. [JW225]

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Varianta 280LW flail topper, 2013, front or rear mounted, £2,800 + VAT. Tel: 07766 216100. Norwich. [IJW76R]



Kverneland Taarup 3228 mower conditioner, mounted, 9 foot, as new, EPOA. Tel: 028 37 548971. Co. Tyrone. [JW233]



Malone Procut 240 mower, £7,200. Tel: 01746 712217. Shropshire. [JW201]

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Joskin rotary toppler TR275 C3, 9' bed, good working order, please call for more details, £650. Tel: 07956 167510. Lutterworth. **[IJW187R]**



Kuhn FC244D mounted mower conditioner, 2018, 2.4m cut, steel conditioner tines, lift control, as new condition, hardly been used, £7,900 + VAT. Tel: 07788 785871. Cumbria. **[JW218]**



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Fleming T900 toppler, galv skids and guards, £2,700 + VAT. Tel: 01603 712222. Norwich. **[IJW74R]**



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Conor 2000 tanker, with Vogelsang dribble bar, 800 x 32, 2016, £16,500. Tel: 028 37 548971. Co. Tyrone. **[JW235]**



Abbey tanker, 2020, hydraulic drive, steering axle, air/oil brakes as new condition. Tel: 07976 702858. Powys. **[IJW146R]**

PLOUGHS



Kongsilde plough, 4-furrow, variwidth, rev, 2018, with hydraulic cross shaft, c/w full set sprung discs, skims, and depth wheel, 1 local owner, good as new condition. Tel: 07551 520108. Northern Ireland. **[JKW127]**

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Kverneland plough, 4 furrow, reversible, model L, hyd front furrow, back disc, steel depth wheel, £2,750 + VAT. Tel: 01579 370246. Cornwall. **[JW211]**



Kverneland i-plough, 5 furrow, 2017, no. 28 bodies, 250 headstock, £POA. Tel: 028 37 548971. Co. Tyrone. **[JW231]**

RAKES & TEDDERS



New Holland Protod 540 tedder, 2022 (New) £5,250. Tel: 01935 841307. Somerset. **[JW206]**



Kuhn GA6501 rake, 20' adjustable, new, 1 only, £11,900. Tel: 028 37 548971. Co. Tyrone. **[JW227]**



Sirtex haybob, holds eight bales, bought in 2003, hardly used, excellent condition, has oil on it to preserve condition, buyer to collect, sold as seen, £850. Tel: 07840 089882. Lancashire. **[JW20R]**



Krone Swadro 880TC rake, 2018, farmer owned, £POA. Tel: 028 37 548971. Co. Tyrone. **[JW228]**



Claas Volto 52 tedder, 2015, 4 rotor, excellent condition, done little work, £4,750 + VAT. Tel: 07788 785871. Cumbria. **[JW214]**



Kuhn GA 8521 rake, twin rotor, hyd adjustable and hyd driven, £7,900. Tel: 028 37 548971. Co. Tyrone. **[JW229]**



Malone Tedder, 4 rotor, 5.7m, £8,750. Tel: 01746 712217. Shropshire. **[JW200]**

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Lely 1020 Profi trailed tedders, 2012 and 2015, from £11,900. Tel: 028 37 548971. Co. Tyrone. **[JW237]**

SPRAYERS



Lemken Sirius sprayer, 10, 18, 24m, mounted, 2017, £14,900 + VAT. Tel: 01603 712222. Norwich. **[IJW77R]**

TRAILERS



JPM multi-purpose trailer, 16t new, ramps, £15,000 + VAT. Tel: 01603 712222. Norwich. **[IJW90R]**



Ifor Williams LM 146 flatbed trailer, 2021, head boar, spear wheel, alloy ramps, £4,250 + VAT. Tel: 01579 370246. Cornwall. **[JW207]**

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Smyth FC12 grain trailer, 2010, hydraulic back door, sprung drawbar and 400 tyres, 8 stud axles, good working order, £6,300 + VAT. Tel: 07788 785871. Cumbria. **[JW213]**



JPM step frame low loader, 37-foot-long, front lift out riggers toolboxes, call for full details, just had 12 months test, barn stored ever night, EPOA. Tel: 07976 702858. Powys. **[IJW145R]**



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Marshall tipping trailers, 8t, x2, call for more items and info, £2,600 each. Tel: 07921 480130. Wigan. **[IJW23R]**



JPM 16t dump trailer, 2022, super singles, magic tailgate, £17,500 ex VAT. Tel: 07790 370368. Cornwall. **[JW224]**



JPM low loader, oil brakes, good tyres, hyd ramps, 900mm wide, good floor, EPOA. Tel: 07976 702858. Powys. **[IJW147R]**



Pettit drop side trailer, with grain sides, nice patina, only used for woodchip, EPOA. Tel: 07885 413068. Shrewsbury. **[IJW133R]**



JPM bale trailer, new, 30 foot, £11,500 + VAT. Tel: 01603 712222. Norwich. **[IJW93R]**



Brian James CarGo Connect trailer, 5m, with ramps, £5,250. Tel: 01746 712217. Shropshire. **[JW204]**



JPM 16DT dump trailer, full spec new, call for more, £13,950. Tel: 01603 712222. Norwich. **[IJW96R]**

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Bomford Kestrel Evo S cutter, 2016, joystick and oil cooler, £9,750. Tel: 028 37 548971. Co. Tyrone. **[JW242]**



McConnel PA5565 hedge cutter, 2018, motion controls, 3 point linkage, 1.6mt orbital head, F14 flails, EPOA. Tel: 01579 370246. Cornwall. **[JW208]**



Spearhead Twiga 836T Orbital cutter, cuts LH or RH, £10,900. Tel: 028 37 548971. Co. Tyrone. **[JW241]**



McConnel PA550E cutter, electric controls, 3 point linkage, power slew, 1.2mt head, F10 T flails, 65hp pump, £5,950 + VAT. Tel: 01579 370246. Cornwall. **[JW209]**

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Topping grass services available, I have the tractor and cutter and I am based Perthshire area. Tel: 07760 151294.

Experienced tractor driver / plantoperator, mechanic and labourer, looking for regular contractual or seasonal opportunities in Leicestershire. NPCT/ NPORS. Call 07794 467215.

Vacancies at Reaseheath College, Reaseheath College is regarded as a leading provider of land-based education in the UK and has the following vacancies; **Lecturer Course Manager Agricultural Engineering,** salary £25,331-£34,718 per annum plus a potential welcome bonus of up to £5,000 paid over two years, full time, permanent. **Advanced Technical Trainer Agricultural Engineering,** salary £25,331 - £34,924 per annum, **full time permanent.** **Instructor Agriculture,** salary £21,649 -£23,646 per annum, full time, **permanent.** **Tractor Driver/ Arable Foreman,** salary £30,601 - £32,138 per annum, full time, permanent. **Lecturer/Course Manager Agriculture,** salary £25,331 - £28,925, permanent. To find out more about our exciting opportunities, please call 01270 613242, email humanresources@reaseheath.ac.uk or visit our website www.reaseheath.ac.uk

Service Engineer & Sales Representative. Various roles available with leading dealers Scot Agri and Scot JCB throughout Scotland and England. We would welcome applications from engineers with plant or agricultural experience, and those with experience or an interest in agricultural sales. In return we offer a competitive salary and holiday package, plus company van or car. For more information and to apply visit www.scot-jcb.com/careers

Agricultural technicians & engineers. We have exciting opportunities at Chandlers for

experienced engineers and technicians to be involved in the service and repair of premium brand agricultural machinery across or 12 branches. We welcome applicants with relevant technical experience on agricultural machinery, qualified in land based engineering and also applications from engineers and technicians working on similar equipment such as plant and HGVs. Working both in our workshops and on farm as required our jobs are varied and at times technically challenging. In return we offer an attractive and competitive package with fully fitted company van and full franchise training provided. For further information please refer to our website www.chandlers.co.uk/careers or forward your CV to hr@chandlersfe.co.uk or call 07970121095 for an informal discussion. All enquiries are treated in strictest confidence.

Qualified mobile plant engineers. service and repair LiuGong range of equipment. Competitive pay plus company vehicle. Permanent full time positions. LiuGong Direct UK are looking for experienced, qualified mobile plant engineers to service and repair their LiuGong range of equipment. Working across the UK directly for the manufacturer's. product training will be provided. Be computer literate, a good communicator and willing to work overtime. Package includes company vehicle, highly competitive rate of pay pension scheme, 25 days holiday. Contact 0203 897 0970 or email info@liugong.co.uk Workshop fitters. - working across the range of LiuGong product. Permanent full time positions. LiuGong Direct UK are looking for experienced workshop fitters, based in Uxbridge, working across the range of LiuGong products. Product training will be provided. Package includes competitive salary, pension scheme, 25 days holiday. Contact 0203 897 0970 or email info@liugong.co.uk

Installation engineer required for Storth the experts in slurry management. Based in Lancashire, the candidate will have a number

of responsibilities, including installation of automatic slurry scrapers and erecting of slurry stores. Experience in basic hand tools and electrics is required, and experience in concrete is preferable. The candidate must be willing to work away from home if necessary and work individually or as part of a team. Wages will be based on experience, immediate start. Hard working and self-motivated. To apply, please contact marketing@storthmachinery.co.uk or to view a full list of current vacancies at www.storthmachinery.co.uk/careers

MIG Welder, required for Storth the experts in slurry management. Based in our team at our Head Office in Burton in Kendal, Near Carnforth Lancashire. The Successful candidate will be able to work with both technical drawings or verbal instructions provided by our in house design team. Must be able to fabricate and work to engineering drawings. Previous welding experience essential. Good Attention to detail and be able to work on own initiative. Capable and proficient in the use of grinders & gas cutting equipment. Experience in the use of overhead Crane & Slinging an advantage (training will be given). Competitive salary dependant on experience. To apply, please contact marketing@storthmachinery.co.uk or to view a full list of current vacancies at www.storthmachinery.co.uk/careers

Machinery journalists wanted Sundial magazines, the publishers of Classic Tractor, Farm Machinery Journal, Forestry Machinery and Earthmovers are looking for machinery journalists to support the development of its off-road machinery portfolio. It would be ideal if you had a background in machinery journalism with a working knowledge of the agricultural and/or construction industries but this is not a prerequisite. If you have a flair for

writing and an interest in photography, we would be delighted to hear from you. your contributions to the magazines would be on a freelance basis. To register your interest send an e-mail - telling us a little bit about yourself and your ideas to Paul Cosgrove, Publishing Director at paul@sundialmagazines.co.uk

Parts Marketing Manager. VKverneland Group is looking to recruit a Parts Marketing manager to oversee this important part of the business. After 40 years of service to the company the current parts marketing manager is looking to retire later this year. Parts marketing and sales is a vital part of the business and in this role the individual will be responsible for all aspects of the promotion, sale and supply of our genuine parts, working closely with our dedicated dealer network to promote and grow the sale of our high quality parts. This role will report directly to the managing director. If you are interested in applying, please send your CV and covering letter to info@kvernelandgroup.com for the attention of Joe Bell, Managing Director.

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With a readership of owners and operators of modern farm machinery, there's no better place to advertise than the Farm Machinery Trader pages in *Farm Machinery Journal*. Trade and private machinery adverts are **FREE** and you can also have a **FREE** picture!

Complete the form below and post it to us with your photograph, email your advertisement to **classifieds@farmmachineryjournal.co.uk** or place your advert online at **www.farmmachineryjournal.co.uk**

If required, your photo (JPEG or PDF) should be sent as an attachment to your email message. In addition to the wording required, please provide your full name and address (not for publication).



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Advertise your farm machinery for sale in *Farm Machinery Journal* for **FREE!**

We'll include a **FREE** photo too. Advertising is easy, but hurry to catch the earliest possible issue.

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- **Email** to **classifieds@farmmachineryjournal.co.uk**. Remember to include your full name and address details. Pictures can be sent as a JPEG or PDF.
- **Online** Place your advert online at **www.farmmachineryjournal.co.uk**

FREE ADVERTISING CONDITIONS

Your name and address **must** be provided, but will not appear in the advert unless you request it. Advertisement wording can be sent on a separate sheet or photocopy of the form if you do not want to cut your magazine.

I wish to place the following advertisement in the next 1 ☐ or 2 ☐ issues of **FMJ**

.....

Tel no. Town

Sundial Magazines (publisher of *Farm Machinery Journal*) would like to keep you updated about the latest offers, products and services. To receive these please tick the box. ☐ Private ☐ Trade ☐

The publisher cannot accept any responsibility for the quality of machinery advertised in *Farm Machinery Journal* or for failure in payment, etc. Contracts are between the individuals concerned and no liability can be attached to Sundial Magazines or its officers. Particular attention should be paid by advertisers to the requirements of the Trade Descriptions Act 1968 governing trade descriptions, especially when detailing accurate descriptions of goods offered for sale. The Business Advertisements (Disclosure) Order 1977 requires all advertisements by people who sell goods in the course of a business to make that fact clear. The responsibility for this lies with the advertiser. It is a further legal requirement that when VAT is to be charged, it is made clear whether VAT is included in the price shown or not.

Name
 Please complete this form
 Address

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World of Farm Machinery

Your photos of machinery spotted in action around the globe

1



2



1 The Royal Cornwall Show returned in 2022, where a recent shake-up in Cornish tractor dealers was evident. Replacing the green tractors, Cornwall Farm Machinery's stand looked resplendent with Case IH machines, including the Aprilia Racing livery Optum to commemorate the manufacturer's sponsorship of the MotoGP team. "It was a great show, and well attended," comments Allen Horrod.

2 This 2014 New Holland CX7080 combine was photographed by Alf Cosgrove harvesting barley in the village of Platt, Kent, in August.

3 Photographed completing its 46th harvest is this 1976 New Holland Clayton 1530 combine. The last five harvests have been with the Cooper family in Spennithorne, North Yorkshire. "The crop was Planet Spring Barley and she did 40 acres without a hitch," says Catherine Cooper.

4 Peter Fedor captured this Claas Lexion 760 cutting winter barley on the very first day of harvest in sunny Essex. On grain duties were AWT Farm Services' JCB Fastrac 4220 and HM trailer. Soon after, Peter was in the field with this MF 7624 Dyna VT and 2270 XD baler in Suffolk.

3



4



4



Email us your pics

For a chance to see your machinery photos on this page, send a high-res photo to peter@farmmachineryjournal.co.uk. Please include a brief description of the machine, where the photo was taken and the names of anyone in the picture.



RG655
2014, 5129 Hrs, 240 HP
32m Chafer Boom
Tyres: 620/75R34 (50%)
£85,000.00



MT755B
2006, 11880 Hrs, 320 HP
Speed: 40Km/h
Track: 25 Track %: 30
£36,750.00



MT765C
2011, 5670 Hrs
Speed: 40Km/h
Powershift Transmission
£65,000.00



MT765C
2009, 9326 Hrs, 360 HP
Speed: 40Km/h
Track: 30 Track %: 60
£55,000.00



MT765D
2013, 7651 Hrs
Speed: 40Km/h
Track: 25
£67,750.00



MT775E
2015, 6360 Hrs, 439 HP
Speed: 40Km/h
Track: 30 Track %: 40
£81,500.00



716
2018, 787 Hrs, 160 HP
Tyres: 540/65R28 (75%)
650/65R38 (75%)
£102,500.00



718
2021, 690 Hrs, 180 HP
Tyres: 540/65R30 (100%)
650/65R42 (100%)
£121,250.00



724 & MXT412 LOADER
2012, 11372 Hrs, 240 HP
Tyres: 540/65R30 (60%)
650/65R42 (60%)
£69,000.00



724
2018, 3950 Hrs, 240 HP
Tyres: 600/65R28 (40%)
710/70R38 (40%)
£112,500.00



828
2016, 3394 Hrs, 280 HP
Tyres: 600/70R30 (40%)
650/85R38 (40%)
£92,750.00



828
2017, 4412 Hrs, 280 HP
Tyres: 600/70R30 (30%)
710/70R42 (40%)
£103,000.00



MF 1740 M
40 HP, ROPS Spec
Tyres: 26x10.50-12
13.6-16 TURF TYRES
£22,950.00



MF 7718
2021, 220 Hrs, 190 HP
Tyres: 540/65R28 W (70%)
650/65R38 W (70%)
£87,500.00



MF 7726 EXD6
2018, 1920 Hrs, 260 HP
Tyres: 600/65R28 (30%)
650/65R38 (30%)
£87,500.00



MF 8740 S EXDV
2018, 2049 Hrs, 400 HP
Tyres: VF650/60R34 (90%)
VF710/75R42 (90%)
£117,000.00



MF 85.245 EXD7
2021, 417 Hrs, 245 HP
Tyres: 600/65R28 (100%)
650/75R38 (100%)
£120,000.00



MF 85.265 EXDE
2021, 466 Hrs, 265 HP
Tyres: 600/65R28W (100%)
650/75R38W (100%)
£134,500.00



N163D
2014, 5000 Hrs
Tyres: 480/70R28 (50%)
580/70R38 (75%)
£48,950.00



T174EA MR
2019, 1635 Hrs, 180 HP
Tyres: 540/65R28 (90%)
650/65R38 (90%)
£84,750.00



T214V ST
2020, 613 Hrs, 215 HP
Tyres: 600/65R28 (100%)
650/65R42 (100%)
£112,000.00



T234V ST
2020, 491 Hrs, 235 HP
Tyres: 600/65R28 (100%)
650/75R38 (100%)
£116,500.00



T254V ST
2017, 4226 Hrs, 255 HP
Tyres: 600/65R28 (50%)
710/70R38 (60%)
£69,995.00



T254V ST
2021, 609 Hrs, 235 HP
Tyres: 600/65R28 (95%)
650/75R38 (95%)
£121,500.00



MANITOU MLT 634
2014, 4902 Hrs
6m Reach, 3400kg Lift
£35,000.00



MANITOU MLT 634-120
2011, 5600 Hrs
6m Reach, 3400kg Lift
Tyres: 460/70R24 (10%)
£25,000.00



MANITOU MLT 735
2009, 5000 Hrs
7m Reach, 3500kg Lift
Tyres: 460/70R24 (40%)
£45,900.00



MERLO 42.7
Year: 2015, 6400 Hrs
7m Reach, 4200kg Lift
460/70R24 (50%)
£38,250.00



MERLO 32.6
2011, 4750 Hrs
6m Reach, 3200kg Lift
Air Con
£28,000.00



MERLO TF33.7-115
Year: 2019, 2500 Hrs
7m Reach, 3300kg Lift
405/70R24 (70%)
£49,950.00



FORD RANGER
2018 (18) 3.2 Wildtrack
Auto Double Cab
53,290 Miles
£24,990.00



ISUZU D-MAX
2017 (66) 2.5 UTAH
Manual Double Cab
68,700 Miles
£17,690.00



MITSUBISHI L200
2016 (16) 2.4 Barbarian
Manual Double Cab
117,732 Miles
£13,990.00



NISSAN NAVARA
2018 (68) 2.3 Tekna
Manual Double Cab
25,316 Miles
£25,990.00 (NO VAT)



NISSAN NAVARA
2018 (18) 2.3 Connecta
Manual Double Cab
89,688 Miles
£16,490.00

Errors and omissions excepted. All prices +VAT

AG SALES ; Graham Peall: **07970 121109** / Andrew Elms: **07860 464753**
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C430

LOADING VOLUME
2.2m³



1.3m
CONVEYOR LENGTH

C460

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3.65m³



1.7m
CONVEYOR LENGTH

C470

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4.65m³



2.2m
CONVEYOR LENGTH

C490

LOADING VOLUME
6.85m³



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