

# FARM MACHINERY

August 2022 // Issue 100 [www.farmmachineryjournal.co.uk](http://www.farmmachineryjournal.co.uk)

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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

Claus Mayer, Dave Franciosy, David Laley, David Pullen, David Wylie, Graeme Kirk, Howard Sherren, Jonathan Theobald, Jonathan Wheeler, Ken Topham, Mick Roberts, Scott Garvey, Simon Henley, Stuart Gibbard

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TEL 020 8639 4400 FAX 020 8639 4411

EMAIL info@farmmachineryjournal.co.uk

WEB www.farmmachineryjournal.co.uk

#### SUBSCRIPTIONS

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Trinity House, Sculptins Lane, Wethersfield, Essex, CM7 4AY

TEL +44 (0)1371 853634

EMAIL farmmachineryjournal@escosubs.co.uk

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August 2022  
Issue 100

COVER IMAGE  
Simon Henley



## Welcome

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

More than eight years ago, we descended on Gerry Wildy's Gloucestershire dairy farm on a cold February day to test a new Massey Ferguson 6616. It was *FMJ's* first proper field test but back in 2014 high-horsepower four-cylinder tractors still had some work to do to convince stalwart six-cylinder users that they had the muscle to compete. How things have changed. And you've only got to look at Massey Ferguson's current range to see how far machinery has come since the very first issue of *FMJ* was printed.

The endless developments have helped to fill 100 issues of *FMJ* with new machinery. Few could have anticipated that we'd have seen tractors and robots actually driving themselves in fields. Such an ability truly did seem like a space-age concept that most dismissed as some form of marketing gimmick. But, as we've come to realise, this was the future. We've been proud to chart the journey of these machines, and we will continue to do so into the future.

*FMJ* can also be proud that it has stuck to its roots as a magazine for operators of farm machinery, and we've only been able to do that with a top-class team of journalists, operators and photographers, all of whom have extensive experience of machinery. After all, how can you trust the opinion of a writer who can't get behind the controls and tell you what they think? Thankfully, this is how we built our reputation for honest, independent and trustworthy reviews. And it's what we'll keep doing for the next 100 issues and beyond. Thank you for your support, and for allowing us to do what we do best.



Peter Skilton, Editor



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# NEWSDESK

The latest machinery developments, launches and updates



## AgXeed appoints dealers to bring AgBots to Britain

**D**utch manufacturer AgXeed has started marketing its range of autonomous tractors in Great Britain, following the appointment of AgBots UK and SoilEssentials as distribution and service partners.

The British-based dealers will be expected to get close to customers and guarantee short and transparent links to the company. AgXeed believes service means more than just assisting in the event of damage or maintenance; it begins with consultation and analysis of customer farms, right up to the complete implementation of autonomous systems.

Established GPS and smart farming specialist SoilEssentials is taking responsibility for the northern part of

England and Scotland, while AgBots UK will cover the rest of England and Wales. "We are very excited to have been given this opportunity by AgXeed," SoilEssentials' Gregor Welsh said. "The AgBot is a complete game-changer for our customers."

AgBots UK, meanwhile, is a new company that nevertheless has comprehensive

knowledge in the fields of agronomy, agricultural technology and local conditions. "The team at AgXeed understands technology, farming and what is important for the future of our industry," AgBots UK's Stuart Robertson said. "Autonomy is the next step in the agricultural revolution and we are proud to make it happen."

AgXeed currently offers three autonomous tractor models: the 5.115T2 tracked machine; the 2.055W3 three-wheel robot; and the recently launched 2.055W4 four-wheel, two-wheel drive model. They offer 156hp, 75hp and 75hp respectively.

The AgBots can operate with standard implements thanks to their front and/or rear linkage, electric PTO and powerful diesel engines connected to a generator to provide electric power to the drive train.

All the AgXeed machines follow the international standards ISO 25119 and ISO 18497 in relation to full autonomous use. ISO 25119 governs the safety-related parts of control systems for tractors and machinery for agriculture and forestry, while ISO 18497 is the standard for the safety of highly automated agricultural machines.

This certification means insurance policies can be obtained for the AgXeed tractors that take into account variables that include: type of operation; oversight/monitoring; public rights of way; and transportation between sites.

**Above:** The AgXeed 2.055W3 offers 75hp, a 2500kg capacity rear-linkage and 85lit/min hydraulics

**Right:** The 156hp AgXeed 5.115T2 can carry 8000kg on the rear linkage and 3000kg on the front



## CLAAS AND AMAZONE ANNOUNCE NEW INVESTMENTS

Claas's involvement in the series A funding round builds on an earlier investment in the spring of 2021, while Amazone has put money into the business for the first time - although it was already co-operating with the Dutch firm to develop its mounted implements for autonomous use in the field.

This intensification of what were already successful co-operations means Amazone and Claas can both be considered strategic partners of AgXeed. Claas, in particular, said the investment had secured it further access to AgXeed's innovative technologies for autonomous agricultural machines.

At the same time, Claas has signed a distribution agreement with AgXeed that will see selected Claas dealers in Germany and Switzerland become distribution and service partners.







## Stage V Case IH Luxxum tractors get more low-down power and torque

**C**ase IH's Luxxum tractors have been upgraded with a new engine that means the three models, designed for mid-size livestock and mixed farms and delivering 101, 110 and 117hp, offer even better performance while meeting the Stage V engine emissions standard.

Still paired with the ActiveDrive 4 smooth-shifting semi-automatic transmission, the new 3.6-litre four-cylinder FPT F5 engine provides more power and greater efficiency. Although larger in capacity, the latest power unit takes up the same space as before, maintaining the tractor's compact overall size.

The new engine has several performance benefits, including increased power output at the lower end of the range, and up to five per cent higher torque levels, delivering higher productivity and better driveability. Maximum torque is now achieved at the lower engine speed of 1300rpm, improving load response and start capability under heavy loads.

As an all-purpose utility tractor, front loader operation is often key for Luxxum owners. Therefore, the new machines have a fully compatible electro-hydraulic joystick that speeds up work rates. It combines the front loader controls with those for the

transmission, so there is no need to switch between the multi-controller and joystick.

The joystick works with new Case IH L series front loaders that come in different ranges to meet different customer needs. The 'A' range is a functional, simple, reliable and economical product, while the 'U' range is ideal for everyday handling tasks. The flagship 'T' range is designed for intensive handling work. A wide range of attachments is also available.

The new L series loaders can be ordered through the Case IH dealer configurator digital software as a single purchase of the selected tractor and its matched loader.

## MF'S BEAUVAIS FACTORY CELEBRATES ONE MILLION TRACTOR PRODUCTION MILESTONE

Massey Ferguson has celebrated the production of the one millionth tractor at its Beauvais plant. The milestone coincided with the company's 175th anniversary, although MF has only been manufacturing tractors on the site in northern France since November 1960.

The vice president and managing director

of MF EAME, and president of AGCO in France, Thierry Lhotte, presented the tractor – an MF 8S.305 Dyna-VT – to Brittany-based arable farmer and contractor Thierry Aubrée.

Beauvais opened with the production of the 825 in 1960 and the site has grown continuously since then, producing tractors including the 3000 in 1986, the first with

onboard electronics, and the 8600 in 2008, the first agricultural use of SCR technology.

The facility produces many of the brand's most popular tractors, including the MF 4700M, MF 5700M, MF 5S, MF 6S, MF 7S, MF 8S and MF 8700S series. Up to 100 tractors are produced and shipped daily to dealers in more than 70 countries.







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# Carrier XT offers greater efficiency

**V**äderstad has added the Carrier XT - used for high-speed primary tillage and seedbed preparation - to its portfolio of disc cultivators.

Hydraulically rotating disc axles help to increase the disc angle towards the soil, so penetrability is maximised. This allows a full cut-out at a shallower working depth or reduced soil flow at deeper working depths. Both factors contribute to reduced diesel consumption.

The Carrier XT is available in three working widths - 4.25m, 5.25m or 6.25m - and can be delivered as trailed or mounted versions. All models can be equipped with a range of single and double packer options.



## CLAYDON MARKS ITS 20TH ANNIVERSARY WITH NEW DRILL

Claydon demonstrated a 6.0m model from its new range of Evolution mounted drills at Cereals 2022. The newcomers, available from autumn this year, replace the company's current Hybrid mounted drills.

The launch comes as Claydon marks the 20th anniversary of the invention of its first direct strip-tillage drill in 2002. The nine new Claydon Evolution models build on the extensive experience of direct strip seeding technology the company has accumulated during the past two decades.

With working widths of 3.0m, 4.0m, 4.5m, 4.8m, 5.0m and 6.0m, the Evolution models have nine, 13, 15 or 19 tines, and most feature a 1910-litre hopper, 160 litres more than the previous Hybrid models.



## NEW FEATURES FOR LATEST DEWULF POTATO PLANTERS

Belgian manufacturer Dewulf has announced two innovations to its Miedema Structural 4000 planter. The four-row belt planter is now available with the company's Smart-Float system, allowing the tractor to pull the planter at a much lower point, meaning the weight is distributed more evenly across all four tractor tyres.

Multiple set-up options and adjustments controlled automatically from the cab mean Smart-Float also makes it easier than ever to achieve the exact planting requirements.

Dewulf has also introduced a portal steering system for its Miedema Structural 4000. The pivoting axles and shorter wheelbase allow the planter to turn by up to 35 degrees instead of the usual eight degrees.



## BOBCAT'S SITE GROWS TO MEET DEMAND

The former Sambron plant at Pontchateau, France, is thriving under Bobcat's ownership, and telehandler production is set to reach a record 3500 machines this year and double that in 2025. All Bobcat's rigid telehandlers for markets globally are manufactured there, including 29 models split between ranges for the construction and agricultural markets.

A €4million investment saw the site expand from 82,000 to 95,000 square metres between 2016 and 2019, and now production is being reorganised to make best use of the available space. This includes buying two large robots that can weld telehandler frames 30 per cent faster than before.



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# NH dealer Russells expands

**N**ew Holland has announced that Russells has acquired neighbouring dealership RES. Based at Malton, North Yorkshire, Russells had nine New Holland Agriculture depots across Yorkshire, Derbyshire, Nottinghamshire and Northamptonshire before the deal. The firm plans to integrate RES into its agricultural business, retaining the Harby depot, near Melton Mowbray.

The RES territory is a good fit with Russells' current territories, and there will be continuity of service to RES's existing customers, as owner Bob Skinner and his staff are all joining the Russells team.



## NICHOLSON CELEBRATES 50 YEARS

June 2022 marked the 50th anniversary of Norfolk-based farming equipment manufacturer Nicholson. Founded in 1972 by David Nicholson and Sidney Cornwall, the family business designs and manufactures a range of harvesting and processing equipment. With a strong reputation at home and abroad, it exports about 65 per cent of its production.

The company is best known for its onion harvesting equipment, including the highly regarded Onion Top Tailer, the first original product brought to market, that is found in packhouses worldwide.



## ROUSSEAU TARGETS ELECTRIC CENTURY

French verge- and hedge-cutter manufacturer Rousseau hopes to sell 100 of its electric-drive models this year following the addition of a new model - the E-Thenor 615PA - to its range.

The conventional hydraulic power transmission system has been replaced by electric components for driving the rotor, with claimed average fuel consumption savings of 35 per cent.

The new model has a 1.2m cutter head and a maximum horizontal reach of 6.15m.



## BERGMANN INTRODUCES UPDATES TO WAGONS



German loader wagon manufacturer Ludwig Bergmann has enhanced its Royal series machines. They now feature a new, straight tailgate with automatic locking and release that follows the same design as the company's larger wagons.

For fast unloading, the tailgate of the Royal S models with dosing rollers can now be fully opened for even distribution of fodder on the clamp floor. At the same time, the Royal S is also available with a combination of dosing rollers and a cross conveyor for feeding fresh grass.

## NEWSINBRIEF

### Silver medal for Merlo eWorker

Merlo's electric eWorker telehandler has won a Silver medal from the Royal Highland and Agricultural Society of Scotland in its annual Technical Innovation Awards.



### Fendt dealer celebrates 30 years

Alan Snow Agricultural Engineers, which covers Devon and Cornwall, is celebrating 30 years as a Fendt dealer. A new 722 Vario in pearl white marks the milestone.



### First aid kit for Amazone sprayers

Amazone's new AidPacks offer essential wearing and spare parts for sprayers in a plastic case. They ensure the parts needed to resolve common problems in the field.



### Bunning product support appointment

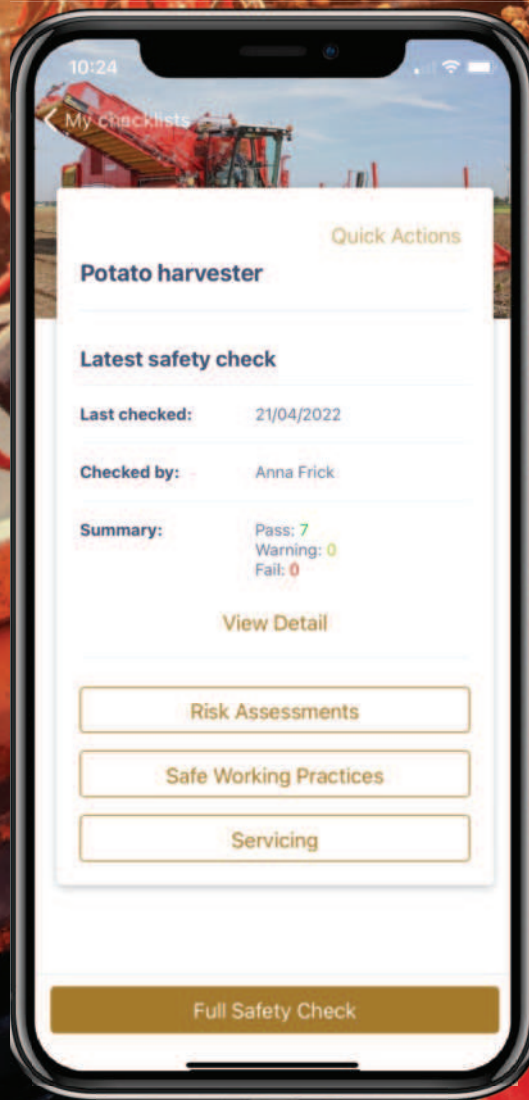
Josh Ward has been appointed product support technician at GT Bunning & Sons. He will work with customers on the telephone to diagnose and resolve issues.







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## WORKING DEMONSTRATION

Krone teamed up with JCB and McCormick for their demonstration plot at this year's ScotGrass. New products from Krone included two tedders in the Vendro range and a four-rotor Swadrow TC 1250. The latter is an entry-level machine with more mechanical adjustments than the larger models and is pitched at large farmers and contractors.

The grass crops at the event were heavy and thankfully the weather was dry on the day, despite heavy rain the evening before, and as a result a good stream of visitors came through the gates.

As usual, the working forage harvesters were a big draw, including the Krone BIG X 530, seen here loading an RX 360 GL forage wagon pulled by a new JCB Fastrac 8330 iCON. It was the first public outing for the updated Fastracs, the yellow handrails denoting the latest models, and two were on show at the event working alongside Krone UK. The 8330 drew plenty of attention and the iCONTROL interface was well received by those who got a look inside the cab.

IMAGE KEN TOPHAM







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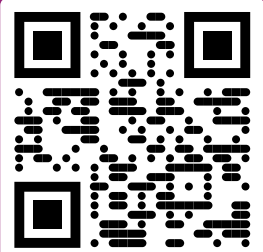
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# Two men went to mow

**FMJ teamed with LandPower TV to test Kubota's M7173 Premium KVT tractor and front and rear mowers. A heavy crop for first-cut silage provided challenging conditions and a surprising verdict**

WORDS AND IMAGES SIMON HENLEY

**O**ne of the key benefits of modern high-spec tractors is they can be set up to suit the needs and preferences of multiple operators. During the process of evaluating tractors and implements we try to explore these features, however faced with time constraints or a limited acreage of ground it's not always possible to fully appreciate how they work. But this time it was different.

In an outing to mow for first-cut silage the conditions weren't ideal. There had been quite a lot of rain the previous week and ground conditions were tender. In terms of yield, this

first cut of grass was one of the heaviest crops in years. From the perspective of giving our test tractor and mowers a thorough evaluation, the heavy crop and difficult ground conditions proved to be a combination that challenged both men and machine alike.

Let's introduce the equipment. The tractor was a brand-new, all-singing-and-dancing Kubota M7173 Premium KVT, which is currently the

most powerful and comprehensively equipped tractor in Kubota UK's arsenal. The M7003 tractors look almost identical to former M7001 and M7002 ranges and there are still three models: M7133, M7153 and M7173.

In practical terms, the power outputs remain unchanged: 130hp (150hp max), 150hp (170hp max) and 170hp (175hp max), respectively. However, the way in which the 6.1-litre, four-cylinder engine

Our test included Kubota DMC7032N (3.2m) front and DMC6332T (3.2m) rear mower-conditioner units

*"Kubota has tweaked the curve so peak torque is reached further down the speed range"*

COVER  
STORY





Far right: To place the mower into working position you pull a cord attached to the mower body (right), which diverts the oil from the suspension system and allows the mower to be lowered into position



► delivers its output has been revised so a constant flow of power is now delivered between 1800 and 2100rpm, and max-rated power is delivered at 1900rpm.

Kubota has also tweaked the torque curve so peak torque is reached further down the engine speed range. Constant torque levels are delivered between 1200rpm and 1600rpm, while maximum twist occurs at 1400rpm. In the range-topping M7173 you get top-side of 711Nm of torque at 1400rpm.

The Kubota variable transmission (KVT) is a two-speed CVT sourced from ZF in Germany. Providing an infinitely variable speed range of 0.5kph up to either 40 or 50kph, the transmission features two operational modes: Field Mode (0-20kph) and Road Mode (0-50kph).

Like most modern tractors, there is a forward-reverse shuttle to the left of the steering column in addition to a forward/reverse arrow-shaped switch on the multi-controller hand lever. The tractor can be piloted using either the conventional foot pedals or by pushing/pulling the lever to control speed.

### What about the mowers?

Our test tractor came with Kubota DMC7032N (3.2m) front and DMC6332T (3.2m) rear mower-conditioner units. The Vicon-developed mowers are part of Kubota's comprehensive DMC (disc mower conditioner) portfolio, which includes no less than 32 different models with front and rear mounted, singles, doubles, triples and trailed options.

The front mower was a new N-model, which means it features optional nylon conditioner tines. The rear unit was a T-model, which features steel conditioner tines. Mowers with an optional roller conditioner are tagged as R models. Both the front and rear mowers tested

***"Once you've done it a couple of times it quickly becomes second nature"***

here are also available in other widths.

Features of the front mower include a mechanical suspension system, which allows 24 degrees of modulation across its working width. The ground following ability extends to 250mm while ground clearance when lifted is a generous 420mm. Other features include adjustable swath plates and an adjustable conditioner plate.

Stubble height adjustment is integrated into the suspension linkage, eliminating the need to adjust the linkage A-frame on the tractor. You also get a one-touch parking handle to lock the machine in position for dismounting. Our test mower featured the standard manual-lift FlexProtect mower guards but hydraulic units are optional.

The design of the mounted rear mower integrates many features found on the front unit, however one significant difference is the suspension system. Equipped with QuattroLink, the DMC6332T is part of what Kubota describes as its racing mower line-up, which features a four-arm floating hydraulic suspension system fitted on to a fixed carrying arm.

This clever suspension provides impressive tracking and contour following ability, plus the kind of responsiveness generally associated with a trailed machine. Designed to provide extreme flexibility, it offers a 700mm working travel range and a transverse operating range of 30 degrees.

Another feature is the Kubota BreakAway protection system, which enables the mower to swing



Above and below: Joystick or spool valve control? The simplicity of the K-Monitor (right) makes it very easy to set the tractor to suit different operator preferences and driving styles





backwards and over an obstacle, then automatically return to its working position. There's no need to stop, no need to shut the mower down and no need to get out of the cab.

### Simple to set up

The DMC6332T mower was simple to set up for work, as James Rickard of LandPower TV explains: "Folding and unfolding the mower to/from its transport position and setting it up for work is all done from the driver's seat. To place the mower into working position you pull a cord attached to the mower body, which diverts the oil from the suspension system and allows the mower to be lowered into position. The benefit here is only one spool block is required.

"As the mower approaches its working position you set the ground pressure on the carrying arm using a sight gauge located on the boom, which you can clearly see from the cab. As you reach around eight degrees on the gauge you take your hand off the spool valve and release the cord. This will bring the gauge to the required zero setting when the mower is cutting grass. Once you've done it a couple of times it's very easy and quickly becomes second nature."

The tractor was also prepared using the K-Monitor terminal. Simple to use and very easy to understand, the terminal allows operators to prioritise specific menu options and assign functions to specific locations, depending on personal preference.

James Rickard is a joystick man. He assigned the operation of both the front and rear mowers to the tractor's secondary cross-hatch joystick, which is conveniently located on the armrest control console to the offside of the multi-controller transmission lever.

As part of the set-up procedure, James adjusted the engine droop control to 10 per cent so the tractor would prioritise its available power to the PTO shafts. Direction changes were performed with the left-hand shuttle lever, while James used the throttle pedal to control the tractor's speed, which with PTO engaged acts as a proportional travel pedal.

In practice, James's speed control technique involved mashing the pedal to the floor and letting the tractor determine how fast it could travel as it automatically adjusted the forward speed in accordance with the mowers' demand for power. Dropping 6.4m of damp grass on undulating fields, forward speed varied from

9.5kph up to a maximum of 11.5kph.

With James at the helm, the Kubota made seemingly light work of mowing the heavy crop, although forward progress was noticeably curtailed in thicker patches and when working uphill. Using the joystick to control the mowers, James quickly mastered the timing of his openings and finishes, with little or no overlapping into the headland swaths.

### Different drivers

After lunch it was my turn to continue mowing, however initially things did not go smoothly. Remember I mentioned James was a joystick man? Well, I'm not. I really struggled to make clean openings and finishes controlling the mowers with the joystick, which required pulling back and forth to control the front mower and side to side for the rear.

Designed primarily for loader operation, the lever is developed for multi-function or shared oil flow applications. This means that moving the joystick at a slight angle activates two hydraulic circuits. This became a problem for me, because instead of picking up the front and then rear mower, on several occasions I picked up both simultaneously. ▶

## TECHSPECS

### Kubota M7173 Premium KVT

**Engine** Kubota 6.1-litre, 4-cyl, turbo-intercooler

**Power** 170hp

**Max power** 175hp

**Torque** 711Nm @ 1400rpm

**Transmission** KVT, two-speed

**Speed** 0.5-50kph

**Hydraulics** 110L/min, closed centre, load sensing

**Rear linkage** Quick hook, Cat III, 9400kg

**Valves** 4+1 (electric)

**Rear PTO** 540/540E/1000/1000E

**Front PTO** 1000 (optional)

**Front tyres** 540/65R28

**Rear tyres** 650/65R38

**Fuel tank** 330 litres

**AdBlue tank** 38 litres

Mowing first-cut silage in Lancashire and dropping 6.4m of damp grass on undulating fields, forward speed varied from 9.5 to 11.5kph







Above: The front mower was a new N-model featuring optional nylon conditioner tines. The rear unit was a T-model with steel conditioner tines. Note the single lever conditioner adjustment (left)

► This was not a Kubota fault. It was entirely an operator fault and a very frustrating one at that. The solution was to re-assign the operation of the mowers to the proportional spool valve switches located on the armrest console, which using the K-Monitor literally took about 30 seconds. Problem one was solved. Now for problem two.

### Opening at full tilt

With James at the wheel the openings and finishes were made at almost full tilt. Using a finely-honed technique, he barely eased off the go-pedal to slow down the tractor until the rear mower was raised and he'd started making his headland turn. On the other hand, I prefer to slow the tractor as I lift the front mower out of work to ensure a clean finish with the rear mower.

James's technique was necessitated by using the droop control system. The problem I had

with this occurred at the headland, where the slightest reduction of pressure on the throttle pedal abruptly slowed down the tractor to a virtual crawl. Once again, where James had mastered a technique for overcoming this, his methodology did not suit me.

My solution was to turn off the droop control. Having noted the maximum speed the tractor could attain while mowing, I limited the speed of the transmission in low range to 11.5kph. This essentially made my right foot the droop control.

As I was mowing I adjusted the tractor's speed manually using the throttle pedal, backing off when I felt the engine loading up or heard the pitch of the mowers change. You might call it old school, but it did provide infinitely greater control and smoother/less aggressive speed changes, particularly on the openings and finishes.







## Praising performance

In terms of the mowers' performance we had almost nothing but praise. The uniformity of cut and the neatness of the sward left by the DMC units can only be commended. Some of the fields were a little rough in places with dips and troughs that pushed the suspension systems to the absolute limits.

The rear mower never missed a beat. Kubota's QuattroLink suspension is superb and its ground-following ability almost unrivalled. In areas where we had to coax the front mower gently to avoid digging into the dirt and potentially blocking the conditioner, the rear mower passed through unfazed. We never blocked the rear mower, but we did block the front mower twice.

In our defence, the crop was both wet and extremely dense when this happened. Even our host farmer Andrew Coar (working in the adjacent field) managed to block up his twin Kuhn set up on a couple of

Left: Cab interior is well constructed with a high level of refinement, which has been continually improved and developed with each generation of M7

Above: For an extended review of the Kubota M7173 Premium KVT and mowers, watch the latest videos on [LandPowerTV.com](http://LandPowerTV.com)

Top right inset: Our test DMC7032N (3.2m) front mower featured the standard manual FlexProtect mower guards

Right: The swath formation was excellent. Neatly formed and well shaped, the well-packed windrows featured an even density throughout

occasions. The problem occurred when doing the final short runs and merging into another swath. It was even more of a surprise because we had the conditioners set up for a less aggressive (medium) conditioning effect.

When it happened the second time the thought occurred it might be the nylon conditioner tines that were the root of the problem. It's arguably unlikely, yet judging by the swath, the actual benefit of using nylon tines when comparing it to the crop that had passed through the steel conditioner tines on the rear mower was virtually indiscernible.

The swath formation from both mowers was excellent. Neatly formed and well shaped with an even density throughout, the freshly mown windrows emerged from the mowers like a perfectly executed arc weld.

The fact is, there's not much to dislike about either of these Kubota DMC machines, both of which are eminently suited to the K7173 tractor.

As for the tractor itself, Kubota continues to impress us as it continually refines the M7 range. The cab is roomy and quiet, the seat is comfortable and the all-round visibility is excellent. This tractor has a quality feel to it. It's built tough but with enough refinement to make it a pleasant place to sit for those long days during the busy season.

Furthermore, and arguably more importantly (as we inadvertently proved), the Kubota M7173 Premium KVT is an extremely adaptable tractor, which can very easily be set to suit different operator preferences and driving styles. And in this day and age that's very important. **FMJ**

***"The rear mower never missed a beat. QuattroLink suspension is superb"***







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# From green to red

Contractor Chris Gregory relied on John Deere tractors for nearly 14 years, until he swapped to a new Case IH Puma 175 CVX Drive last year. *FMJ* discovered why he made the switch

WORDS AND IMAGES DAVID LALEY

**F**rom the moment he bought a second-hand John Deere 2650, Chris Gregory became hooked on the Mannheim-built machines, which would help him expand his fledgling contracting business.

"The 2650 was a brilliant little tractor: it was versatile, reliable and punched above its weight," says Chris. "As a result, I remained loyal to John Deere for more than a decade as my business grew."

A 2007 John Deere 7530 and a pair of 2013 and 2014 6210Rs remained the backbone of Chris's fleet up until

last year when in April he replaced his ageing 7530 Premium with a new Case IH Puma 175 CVX Drive. On the back of its performance he placed an order for a second Puma 175 equipped with a front loader, which is due to arrive soon. So, what prompted a die-hard Deere fan like Chris to switch his allegiance from green to red?

"First and foremost, it came down to the deal I was offered by local agent Farmstar, who also supply my Vicon round balers," he says. "I've dealt with them for a number

of years now and they've always provided excellent service and back-up, so it wasn't a complete leap of faith into the unknown. At the time my John Deere 6210Rs were continuing to perform well, but despite clocking 10,500 hours, the older 7530 Premium had suffered from a host of engine and brake issues so I decided it was time to look for a suitable replacement.

"While my heart was set on running another John Deere, the deal I was offered on the Puma CVX Drive made the best financial sense at the time, especially if I wanted to swap the 7530 for a brand-new tractor."

## Updated range

Case IH announced a raft of updates to its Puma range for 2020, including the striking styling already available on the Magnum and Maxxum ranges. This meant the Puma also gained improved



Above: A digital radio, CB, lighting, heating and air-conditioning controls are integrated into the roof console



Left: The multi-controller joystick is used to control the tractor's direction of travel, transmission ranges and hydraulic lift

## TECHSPECS

### 2021 Case IH Puma 175 CVX Drive

**Engine** FPT 6.7-litre, 6-cyl, turbocharged, Stage V

**Rated power** 180hp @ 2200rpm

**Max power** 224hp @ 1800rpm with Power Management

**Max torque** 940Nm @ 1500rpm

**Diesel tank** 330 litres

**AdBlue tank** 48 litres

**Hydraulics** 160 L/min @ 210bar

**Front hitch** 3568kg

**Rear hitch** 8257kg

**Spool valves** Five rear mounted

**Turning radius** 5.45m

**Wheelbase** 2.79m

**Weight** 6782kg

**"The deal I was offered on the Puma CVX Drive made the best financial sense"**



Harry Clark reckons the new Puma 175 CVX Drive has been much more fuel efficient than Chris Gregory's John Deere 6210Rs



► road- and work-light packages, as well as redesigned steps, premium specification steering wheel, document storage compartment and monitor rail with sockets for attaching electronic devices.

The other significant update to the FPT 6.7-litre, six-cylinder Puma range, which now meets Stage V emissions regulations, was an increase in engine and transmission oil change intervals to 750 and 1500 hours respectively.

The Puma 175 CVX Drive that Chris Gregory bought sits at the head of Case IH's compact line of Pumas, which currently comprises eight models from 140hp to 180hp. In 2022 the smaller Pumas were enhanced further based on customer feedback Case IH received. These latest enhancements consist of improved cab access, a premium automotive-style interior and an entirely new joystick for use with a front-end loader. In addition, the CVX Drive gearbox also received improved shuttle and drive pedal sensitivity, along with better acceleration and deceleration characteristics.

Prospective compact Puma buyers now also have a choice of three levels

of trim specification: from the Selection package available on entry-level models to the more innovative Advanced and Professional packages available on Multicontroller and CVX Drive versions.

### Impressive performance

Despite his tractor not being equipped with the most recent upgrades, Harry Clark, the main operator of Chris Gregory's 2021 Case IH Puma 175 CVX Drive, has been very impressed with its performance and efficiency. "It definitely punches above its weight," says Harry, who has worked for Chris since 2017 and been a full-time self-employed machinery operator for the past six years, during which he has driven many different makes of tractor.

"I was tasked with running it on Chris's new Vicon RV5216 round baler for most of last summer before using it with a 6m power harrow, mower,

Right: This bespoke exhaust guard is more than just for show and protects the Puma's exhaust when used for hedge-cutting

Below inset: Case IH's AFS Pro touch-screen terminal is easy to navigate and adjust



Far right inset: A three-speed rear PTO is engaged with a soft start function that gradually increases torque on the driveline



slurry tanker and hedge-cutter, and it proved to be a decent all-rounder. It has an excellent power-to-weight ratio and has been more fuel-efficient carrying out the same tasks as the John Deeres. Its compact dimensions also make it very manoeuvrable around yards when leading straw and hay and these characteristics also made it an excellent choice of tractor to handle a two-row Grimme potato planter and Chafer front fertiliser tank.

**"It has an excellent power-to-weight ratio and has been more fuel efficient"**







"The FPT engine has really impressed me with its torque characteristics and fuel efficiency," he continues. "It's great for PTO work and handled the Vicon round baler with ease last summer. It also has plenty low-down grunt for drawbar work and pulling a subsoiler."

### Two-range transmission

The Puma's low-down torque is transferred to the ground through Case IH's CVX Drive continuously variable transmission, a two-range

**Top left:** The Puma comes with an impressive external LED lighting system that provides up to 30,000 lumens

**Above left:** The Puma 175 comes with a useful 330-litre diesel tank and 48-litre AdBlue tank

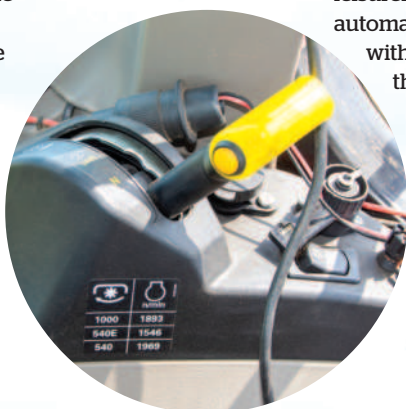
hydro-mechanical unit that utilises planetary gears, a double clutch and two automatically shifting ranges to provide the 175 with transport and field modes.

Thanks to its intuitive APM management system the CVX Drive transmission is capable of working seamlessly between 0.03kph and 50kph, achieving its top speed at a leisurely 1750rpm. It does this by automatically matching engine speed with the selected ground speed to the most appropriate gear ratio.

All the operator has to do is

move the Multicontroller joystick or press the accelerator pedal. The CVX Drive transmission is also fitted with active-hold as standard, which prevents the Puma from moving on slopes without the need to depress the brakes or clutch pedal.

Chris's Puma 175 CVX Drive is also equipped with automatic four-wheel drive and differential lock systems to reduce wheel-slip. The Puma's wheels are fitted with chunky Michelin 540/65 R30 and 650/65 R42 tyres, which provide excellent traction and are decent on the road too, reckons ▶



**This picture:** Chris Gregory's Puma is kitted out with a set of Mitas AC85 380/85 R34 and 380/90 R50 narrow tyres on bespoke wheels for planting potatoes

**Above:** The spacious cab comes with a fully adjustable and suspended seat





Right: The 6.7-litre, six-cylinder FPT engine is rated at 180hp but boosts to 224hp when the tractor's power management system is utilised

► Harry. The Puma's suspended front axle provides 10.5cm of travel too.

Harry has also been impressed with the Puma's PTO and hydraulic systems, which have performed trouble-free over the past year. The Puma features a three-speed rear PTO offering speeds of 540, 540E and 1000rpm, with soft start that gradually increases torque on the driveline to reduce wear on both the tractor and implement. A hydraulic brake also reduces speed immediately as soon as the PTO is switched off.

Chris's Puma 175 CVX Drive is equipped with a 3568kg capacity front linkage, which comfortably handles a Chafer Quick Start fertiliser applicator, while the Puma's 8257kg capacity rear linkage has rarely been stressed. The hydraulics provide oil flow up to 160 litres per minute to the hitch and five rear-mounted spool valves, to which the flow can be adjusted to each through the AFS terminal.

### Cab compromise

Although Harry thinks the John Deere 6210R's cab provides better comfort and visibility, he's still been impressed with the Puma's armrest layout and external lighting. "While there's nothing wrong with the cab, visibility is compromised by its larger pillars where additional sets of controls have been integrated," he explains. The four-post suspended cab comes with an impressive external LED lighting system



## "While I'm still a Deere man at heart, it made sense to invest in the Puma"

providing up to 30,000 lumens of brightness in all directions. Inside, the operator is treated to a suspended and adjustable seat, along with a decent size passenger seat too.

The main controls are located on the Multicontroller armrest to the right of the operator. It incorporates Case IH's AFS Pro touch-screen terminal to monitor performance and any implements being used via integrated ISObus controls. The GPS, Headland Management Control II system and AFS AccuGuide automated steering are also run through the terminal.

The armrest's Multicontroller joystick precisely controls forward speed, direction of travel and

switches between the CVX Drive transmission's two ranges. Hydraulic controls are also incorporated into the joystick. The electronic remote valves are controlled via a bank of toggle switches and a smaller joystick, while the intuitive control panel features touchpad controls to further refine the transmission, hydraulics, hitch position and PTO.

Overall, Chris has been delighted with the performance and reliability of his new Puma and is already looking forward to receiving his second example with a front loader.

"While I'm still a Deere man at heart, it made good economic sense to invest in the Puma from a dealer who has always provided me with excellent service and back-up," he says. "The Puma has definitely performed better than I expected and both Harry and I have been very impressed with its manoeuvrability and fuel economy."

FMJ



Above inset: Operator Harry Clark has been impressed with the performance and fuel economy of the Puma 175 CVX Drive

This picture: The 8257kg Category III rear linkage makes light work of handling this two-row Grimme GB215 planter





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# Big on baling

**Last year TR & L. Cooper took delivery of a New Holland BigBaler 1270 Plus. *FMJ* caught up with the outfit to find out how it compares to the previous generation**

WORDS AND IMAGES **KEN TOPHAM**

**T**R & L. Cooper is in the big bale trade, buying out of the swath and selling in the bale. As farmers and contractors, they run four 120x70 balers, three of which are New Hollands, the fourth a Massey Ferguson.

The most recent purchase was a BigBaler 1270 Plus, which joined the fleet last season from local dealer Malpas Tractors after adding a 2019 BigBaler 1270 to the fleet two years earlier and having a good experience. The latest baler uses the Loop Master

double knot system and last season it completed 7000 bales.

Both 1270 balers in the fleet are ISObus connected, but the feature Robert Cooper likes most about the New Hollands is that if an electronic fault occurs the machine can run in headless mode without a screen, although these are the last generation to offer this feature.

The BigBaler 1270 Plus is not dramatically different from the older machine and buying the second 1270 was an easy call for the Coopers.

**Below: The hoods and guarding help to keep the electric fans effective, with little report of debris build-up around the knotters**







## TECH SPECS

### New Holland BigBaler 1270 Plus

**Bale dimensions** 120x70cm

**Bale length** 100-260cm

**Min power** 122hp

**PTO speed** 1000

**Pick-up** MaxiSweep, 2.23m

**Feeder** 3 packer forks, 9 tines

**Stuffer** Fork type with 6 tines, shear-bolt protection

**Plunger** 48 strokes/min, 710mm stroke

**Knotter** Loop Master, 6-string

**Twine balls** 32

**Axles** Single or twin

Above: From small to large swaths, the 1270 feeds well. The airless wheels are another bonus with no risk of punctures

Above left: Lindsey Cooper is the usual operator of the Loop Master. She's a fan of big combines and not chasing the crop around to make bales

Below: Tool storage is always an issue on tractors but the 1270 has a very generous store

The pick-up features plastic strippers, and initially Robert thought they were going to be an expensive option, thinking they would break frequently. Happy to be proved wrong, they have been a pocket friendly item with no breakages and Robert appreciates how much better than steel they are, and they don't rust.

The roller crop press has proved excellent, keeping crop flowing in low volume swaths and when following large combines, particularly when the combine stops, the roller pushing

***"The baler is a good progression, just that bit more efficient and user friendly"***

lumps down and rolling them out. The feed impeller above the tines also receives praise, giving good feed to the pre-packer in varying crop conditions.

One niggle the Coopers have found with the pre-packer is the extra slots in the bands between the packer tines, where Robert reports that in sticky grass these extra slots would get built up with crop and then cause a partial blockage in the housing, resulting in the shear-bolt breaking.

### Operator review

Main operator Lindsey Cooper reports the new baler is a pleasant evolution, praising the interface and electronic bale length system. "It's a nice machine to use," she says. "I keep a tape measure in the cab just to check the bales but the measurement is never out so it's one less thing to watch when you're working. The baler is a good progression from the last, just that bit

more efficient and user friendly."

Electronic bale length is new to the Cooper business and Lindsey is now far less dependent on the tape measure. Although she does check if changing crop or bale length; there's no guesswork, the system is very consistent and variable crop volume and crop types don't throw it out. But, like the lollipops, there is a manual option, and a measuring wheel can work in the traditional way with the change of a pin. So, in theory, if the display fails you could set this 1270 to full manual and carry on working if there was an electrical issue.

A pressure gauge on the drawbar indicates bale density in manual mode.

Lindsey reports that the split bale ejector is useful for ejecting either the bale in the rear of the chamber or very nearly empty the chamber if changing customers or crops. "You can get pretty much everything out ▶







► of the machine,” she says, “but obviously you have to be careful making the next bale when the chamber is empty.”

The tailgate folds up neatly, the two sections curling round the end of the chamber, which makes transport and manoeuvring more convenient. Usually, we see tandem axles on

single axle is easier to pull on the field,” he says. “The later 710 tyres are a squarer profile and don’t float as well as the rounder profile we’ve had before, but generally we prefer a single axle.”

### Tied in knots

This machine’s Loop Master knotting system is the main difference between the fleet’s two 1270s and it makes two sets of knots per bale. The first knot is a looped knot and the second a ‘standard’ knot at the end of each bale. This technology has filtered down from the high-density models and is claimed to increase knot strength so low-density bales may use cheaper twine or high-density bales can be heavier.

While probably not a deal breaker for most users, the change means that all those tails of knots don’t end up in bedding or, more critically, in feed. As Robert points out, another advantage is that when the crop is sticky, usually in grass, those tails don’t hang around and end up clogging the knotter assembly.

The Coopers use Tecfil twine from ERH Agri in Doncaster. It’s good

**Below:** Keeping it simple, the lollipops in clear view are still a valued indicator of string problems

**Below left:** Factory fit LEDs are useful but the camera is always on, monitoring bales and any potential problems

## “We don’t travel far by road and the single axle is easier to pull on the field”

modern balers in the six-string sector, but as an ex-demo unit the Coopers didn’t have a choice on this. Despite this, Robert says that all of their balers are single axle and it isn’t an issue. “We don’t travel far by road and the







**Left:** Lindsey dropping the bale off the tail as she did not need to empty the chamber

**Below:** Operator Lindsey Cooper says she's far less reliant on a tape measure with the new baler



**Below:** The standalone ISObus display with camera feed. All the information and settings the operator could need



The header works well, from the crop press to the plastic strippers on the tines, complemented by the feed impeller



Chamber pressure gauge means the baler can run headless if there is an ISObus issue



**Left:** The measuring wheel is electronic but can work manually in case of an electrical problem



**Below:** The knotters stay clean via electric fans. Although there is debris there, it never causes a stoppage

quality and a consistent product that works well in the New Holland machine. The twine boxes won't quite hold enough for the longest days but generally if they are well stocked will last most stints in the field. The 1270 will make 500-600 bales depending on crop with a full load of 10kg balls of twine.

Keeping the knotters clean can be a challenge. The electric fans are not new to the Coopers but generational improvements to the hoods and guarding round them has helped to improve the effectiveness of the airflow. While there is still debris round the knoter area, it never causes a problem, aided by a good daily maintenance regime by the operators.

Above the hood on the knotters is one of Robert's favourite features on the New Holland - the lollipop. It's a simple but effective system and as soon as there is a problem with the string a lollipop gives the signal.

No sensors or displays are as simple and Robert reckons they are faster indicators of an issue than the ISObus system.

Although there are LED work lights on top of the baler and strip lights under the guards for the twine boxes, in Lancashire the dew tends to stop play before darkness becomes an issue. The factory-fit camera however is a more utilised addition, displayed on the screen either in split screen for work or full screen for transport and reversing under a shed.

The Coopers had a glitch-free first season with their latest 1270 baler but, as Robert says, they rarely give trouble when new; it's when they have some years on them you see the real reliability. That said, the ability to go full manual is a useful feature. The 1270 is a pleasant evolution of an already solid performer: more user friendly and easier bale length setting plus more consistent results get the thumbs up.

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**MULTIDRIVE 6195**, 2010, 4,000LT, 12-24M + GPS, APPROX 8,400 HRS.



**KNIGHT SP1835**, 2009, 3,500LT, 12-24M + GPS + AUTOSTEER, 6,700 HRS.



**HOUSEHAM AR 4,000LT**, 2010, 12-24M + GPS + AUTO STEER, 6,530 HRS.



**HOUSEHAM AR 3,500LT**, 2013, 12-24M + GPS, 5,140 HRS.



**BATEMAN RB55**, 2010, 5,000LT, 36M + GPS + AUTO STEER, 8,600 HRS.



**HOUSEHAM AR 3,000LT**, 2007, 12-24M, 6050 HRS.



**HOUSEHAM AR 3,000LT**, 2006, 12-24M.



**BATEMAN RB25**, 2002, 3,000LT, 12-24-28, VG BOOM, 11,600 HRS.



**CHAFER SENTRY E**, 2015, 6,000LT, 12-24-32M + GPS STAND ALONE SYSTEM.



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# Being the judge

Following its acquisition of Pichon, Samson has seen a number of changes in its organisation and product ranges. *FMJ* went to see how the two brands' new machines stack up

WORDS **PETER SKILTON** IMAGES **PETER SKILTON/SAMSON GROUP**

**I**t's been a busy few years for the Samson Group. Since 2018 the Danish company has seen some of the most significant expansion in its almost 80-year history. Like many implement manufacturers, Samson started out in 1943 in a local village blacksmith, which founder Thorvald Pedersen called Fabriken Samson, a name inspired by the biblical character Samson, known for his immense strength.

The first muck spreaders came around 1955, followed by a tanker in 1964, and so the growth continued. Danish entrepreneur Ove Glerup bought the majority of shares in Samson in 1999, followed soon after by the other Danish machinery firms of SAK, JOS and UM in 2000.

Fast-forward to 2019 and Samson was once again expanding, this time with the acquisition of French

manufacturer Pichon, a muck and slurry specialist in its own right and with a wide export reach into 45 countries. One of the key drivers of the deal was Pichon's modern manufacturing facility in north-western France, completed in 2016 and offering the facilities and capacity to expand Samson's production, as well as another factory in Poland.

Rather than absorbing the Pichon brand and painting every French-built muck spreader and slurry tanker green, Samson now manufactures and distributes the distinctive galvanised Pichon machines alongside its own implements.

But there is a hierarchy and, speak to any of the Samson Group's staff, including those under the Pichon banner, and they'll refer to a 'pyramid'. Samson sits on top with

Above: Danish company Samson will celebrate its 80th anniversary next year. Its green machines are instantly recognisable

higher-spec products aimed at professional contractors and large-scale farms, and Pichon comes in below with a range of machinery aimed at smaller contractors and farmers.

In terms of output, the group would point those handling up to 25,000m<sup>3</sup> of muck or slurry towards a Pichon machine, while volumes from there on are better suited to a Samson product. However, there is a crossover in terms of spec for those in the 10,000-25,000m<sup>3</sup> category, whereby a specced-up Pichon and Samson overlap.

## Shift in attitude

In recent years, the green agenda and politics in Europe have been in favour of muck and slurry machinery manufacturers. This has been accentuated this year by the surge in fertiliser prices and a changing

Below: A dual-brand dealer arrangement sees both Pichon and Samson brands sold, each targeted at different end users



**"Samson sits on top with higher-spec products aimed at professional contractors"**



The SV tankers are now modular, meaning plenty of brackets to tailor the standard spec



► mindset on the value of natural manure and the nutrients of organic matter. Where animal waste was once considered waste, the rise of water plans have seen more farms utilise the product intelligently.

In some respects Danish farms have been ahead of the curve here, as splash plates have been banned for more than 20 years. As a result, Samson has significant experience in helping customers to apply muck and slurry in a more considered manner.

Travel across Denmark and you'll see slurry stores covered, a legal requirement that sees most farms opt for a tent-like structure. This means slurry can't be diluted by rain and ammonia can't escape. There's also a trend for mixing slurry and applying it only in the right weather conditions by injection or incorporation, the only permitted methods in Denmark. This means maximum utilisation from slurry.

The company is now using its experience and knowledge to kick start the UK market. It's by no means a stranger to these shores, having over 100 bits of Samson kit at work, plus around 300 Pichon machines. However, a dual-brand approach to unify the dealer network will see



The SV models will eventually replace the full range of TCI tankers, some of which are still in production

customers directed towards the most appropriate machinery across the group's Samson and Pichon brands.

The first dual franchise dealer to offer both brands is the Tallis Amos Group, with more dealers to follow, which ties in nicely with the introduction of

Below: Rear beater diameters are 885mm, seen on the MK10 (left) or 1035mm, seen on the MK40 (right)



Pichon's MK muck spreaders offer a range of tyres, cameras and worklight kits



some newly launched tankers and muck spreaders from both brands.

### Pichon tankers

The SV series of twin-axle slurry tankers from Pichon are the first series of standardised products, where S stands for slurry and V for vacuum. The range consists of the SV16, SV18R and SV20R, R denoting the larger two tanks as recessed machines to lower the centre of gravity. Capacities are 16,600, 19,000 and 21,100 litres respectively, but the company is looking to introduce more models in the future.

The SV models replace the TCI tankers but continue the tradition for an integrated chassis as opposed to a bolt-on design. The fully galvanised SVs have brought with them a change in production, where a standard design includes multiple brackets that allow a modular construction. Essentially, the streamlined system means the tankers are all built the same and then customised to suit each order. This significantly reduces the time from order to delivery as opposed to building each tanker from scratch. At the time of writing, Pichon says this manufacturing time is around four months.

The modular approach will also enable buyers to future-proof their operation, as the SVs can be upgraded over time, such as changing from a dribble bar to an incorporator. It should improve resale values too, as future buyers are able to further customise the tankers.

The SVs can use Pichon's new, own-designed iControl 7S control system with a 7in touch-screen for managing spreading settings, as well as a manual joystick and physical buttons. The system can operate automated filling, transport and





spreading cycles with data collected to monitor operations.

Pichon-built bars are available from 9-18m with macerators as standard. Vogelsang units are fitted for wider working widths. When choosing a dribble bar, options are available to optimise output, such as a hydraulic turbo feeder and 8in diameter unloading pipe. There are also injectors from 3-6m and a tine incorporator that works down to 6in. Flow meters are available as an option to control the application rate.

### New muck spreaders

Joining the SV are Pichon's latest MK muck spreaders, which are fully galvanised with a simple, robust design, narrow body and large diameter vertical beaters. The company says these spreaders are built to last: the chassis is made from 6mm steel and the body attached using stainless-steel bolts. Both are covered by a five-year warranty.

The new range consists of 13 models with capacities from 10 to 24m<sup>3</sup>, all with a sprung drawbar and 10-stud axles. On twin-axle models the rear axle steers. The working width extends to 24m and options include a guillotine door, hydraulic power unit, side deflectors, hydraulic belt tension and body extensions. There's also a range of in-cab control

**Above: This twin-axle SV16 is a non-recessed model with 16,600-litre capacity; 8in pipework easily handles thick slurry**

**Below: Numerous filling options include the Ejector, ready in less than five seconds without leaving the cab**

**Below right: Samson tankers are highly specified as standard but options include drive to a rear axle**



units depending on the level of precision required, from simple control via tractor hydraulics to ISObus with a full weigh-cell system.

The design of the body optimises loading volume and muck discharge, while the spreading table allows for greater regularity and spreading width. The floor uses two 16mm marine chains, with removable slats an option. Two horizontal beaters and spreading discs ensure optimum lateral distribution of the product with right and/or left deflectors for spreading at the roadside or field edge. Vertical beaters are 885mm diameter on MK10 to MK30 models, increasing to 1035mm from MK35 to MK60T models.

### Samson's slurry series

Recently, Samson has launched a number of new machines, including the two- and three-axle Universal Spreader (US), the TG tanker series, and the single-disc TS injector in eight and 12m configurations, but the big news is the launch of its new PG II Genesis tanker range.

Samson has been manufacturing the PG II since 2013, but the Genesis version introduces a number of improvements. Twin-axle models with 18 and 20m<sup>3</sup> capacities are available, designed for tyres up to 1.95m tall and 800mm wide, as well

as 28, 31 and 35m<sup>3</sup> tri-axle models with 1.85m, 800mm tyres. Automatic tyre pressure regulation is offered.

Another high-spec option is Samson's hydraulic power drive (HPD) or hydraulic wheel drive (HWD). They offer hydraulic power transmission from the tractor to the tanker to combat low traction on hilly or wet ground, reducing wheel-slip on the tractor that damages the ground. On tri-axle models this goes to the middle axle, and to the front on twin-axle versions.

Samson has also improved the implement carrying abilities of the PG II Genesis. Axle positions and weight distribution have been optimised to suit the full range of application methods. Filling options include an external filler, pump tower with telescopic arm and a patented Ejector system, which uses a venturi effect for pumping slurry and can be activated in less than five seconds. A small amount of slurry is retained in the tanker, which is used to create a vacuum for quicker filling.

Control is handled by the SlurryMaster 8000 control unit, a sophisticated unit that includes a touch-screen and joystick and can offer remote support. It also handles Samson's own high-definition camera system that has a clever night vision function.

**"Samson has improved the implement carrying abilities of the PG II Genesis"**



**The PG II tanker has been in production since 2013. The Genesis version is the latest iteration**



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# Sprayers spring back

Cereals 2022 saw its Sprays & Sprayers arena spring back to almost post-Covid levels of interest, as plenty of new machines and technology made their debuts at the event

WORDS MICK ROBERTS IMAGES MANUFACTURERS/MICK ROBERTS/TIM SCRIVENER

**S**prays & Sprayers is the go-to show for all those wanting to see the latest application technology, and visitors to this year's Cereals were not disappointed. The event saw a wide range of the latest technology on display, along with machines working through a crop and travelling along a bumpy track in the events arena.

While three completely new self-propelled machines making their debut possibly grabbed the limelight, there was also a lot to see on the stands around the ring.

Among the on-stand demonstrations of new equipment, the latest closed transfer system design attracted a lot of interest from those looking to reduce risks when filling sprayers. Similarly, there is increasing interest in new nozzles, while spraying rigs showing new designs at work were seldom without an audience.

Developments in new spraying technology are coming thick and fast and at the event visitors could see not only a range of new options, but also compare how the systems differ among manufacturers.

## Sands Infinity

It's all change at the top of the Sands sprayer range, in which two new 242hp hydrostatic Infinity flagship models take over. With a stainless-steel tank capacity choice of 5000 or 6000 litres, both can be fitted with booms up



*Developments in new spraying technology are coming thick and fast"*



Sands Infinity

to 40m wide. A 1.2m under-beam clearance enables the machines to be equipped with wider wheels, but still offer a turning circle of 7.6m. Track widths can be adjusted from 72-88in (1.8-2.2m) and the machines are also equipped with fully independent suspension.

Up in the cab, operators will find a new armrest as well as the Sands overhead screen control system. Outside, the filling station is now located on the side of the sprayer.

## Knight 1850v

Latest tyre technology enables Knight to extend the capacity of its smaller, 1800 series self-propelled range up to 5000 litres on the new 1850v model, which made its debut at the show.



Knight 1850v



► While shown on Michelin Axiobib VF 600/60 R30 tyres, it is also able to travel up to 50km on row-crops. Dimensions are further constrained by a flatter-folding boom that reduces the transport height, along with saddle tanks between the wheels, which hold the extra liquid and lower the centre of gravity.

Elsewhere the sprayer's specification is similar to the existing 3500-litre 1835 and 4000-litre 1840, with a choice of 225hp or 255hp engines.

## Grim GSM 3000

While a newcomer to the UK self-propelled sprayer scene, Grim is a well-established Italian manufacturer. Now available in the UK through a distribution agreement with Merse Agriculture, the firm unveiled its GSM 3000 from its smaller 7 series, equipped with a 3000-litre capacity tank and 24m aluminium Pommier boom.

Power is from a 170hp FPT engine that is mounted at the back behind the tank. A Danfoss hydrostatic motor transmits drive to a mechanical final drive and differentials.

For spraying, there is a 300-litre/min diaphragm pump, with an additional 600-litre/min pump for filling. Larger 9 series machines are said to follow.

## Househam Spirit

A new Claas Jaguar X10 cab heads the list of updates Househam has made to its Spirit entry-level self-propelled sprayers. The modern cab offers full climate control air-con, an air-suspended seat and a 27-litre fridge.

Although the lightweight Spirit still provides just less than 1m of ground clearance, Househam has lowered the machine to improve stability. Upgrades to the hydrostatic transmission see a switch to Bosch Rexroth wheel motors, which offer higher road speeds and more torque to increase its hill-climbing ability.

Elsewhere the sprayer's spec stays the same, with a 3000-litre tank, a four-cylinder diaphragm pump and a choice of 24m, 27m or 28m-wide booms.

## Landquip UTV sprayer

Developed for quick and effective treatments of margins, game cover and conservation headlands, Landquip's new 200-litre UTV-mounted sprayer includes a few neat, practical ideas.

Eight nozzles on the 4m-wide spray bar all have manual shut-off valves, enabling operators to adjust the width to suit, or even use just the end nozzle. The boom folding mechanism doubles as the break-back and there's a single-nozzle hand lance and hose for spot treatments. Boom height is adjustable from 0.4 to 0.6m.

A 12v electric 15-litre/min pump creates application pressures up to 3.5bar, with electrical spray on/off.

## Altek Elektra valve

A new electrically operated valve being developed by Altek is designed to work quickly and be small enough for use

Grim GSM 3000



Househam Spirit



Landquip UTV sprayer



Syngenta 3D ninety nozzle



Altek Elektra valve

with single-nozzle control systems. Set for launch this year, Elektra is suitable for use with all standard nozzle bodies and uses a 12v DC motor to turn a small ball valve through 90 degrees to open and shut the flow. This, says Altek, makes it much smaller than existing pneumatic/electric designs and works faster.

It will also connect into the CAN-node of Altek's Smart C Spray system, which provides individual and multi-nozzle control with auto-switching as well as turn compensation. A CAN 'bridge' also enables it to work with other ISObus-compatible systems.

## Syngenta 3D ninety nozzle

This nozzle now boasts a LERAP four-star rating - the highest available in the UK testing system, which recognises the 90 per cent drift reduction technology (DRT) design.

The four-star rating was attained at up to 5bar pressure for



Lechler XDT nozzle



This wide operating range, says Hardi, increases flexibility enabling operation at different speeds. The single jet design is said to reduce risk of blockages, while also making it easy to clean.

### Lechler XDT nozzle

Up to 90 per cent drift reduction across a pressure range from 1.5bar to 8.0bar is delivered by Lechler's new XDT nozzle, which is suitable for use with pulse width modulation systems (PWM).

Symmetrical double flat-fan jets are angled 40 degrees forwards and back. Along with the 130-degree spray pattern, this set-up is said to optimise coverage, avoid shadowing and is particularly suitable for treating vertical targets.

Available in sizes from 02 to 08, the nozzles produce ultra-coarse to extremely coarse droplet sizes, primarily aimed at pre-em, early post-em and systemic product applications.

### Horsch tilted nozzles

Novel 'tilted' sprayer nozzle caps from Horsch are designed for use for band applications and to increase coverage on ridge crops. There's a choice of two versions: a 06 (grey) with a 17.5-degree angle for a 10cm tilt; and a 04 (red nozzle) with an 8.75-degree angle for a 5cm tilt. Using a combination of straight and tilted nozzle caps offers a broad range of row width configurations. Each nozzle cap is equipped with an Agrotop RowFan 40-02 E nozzle.

For band spraying at 25cm nozzle spacings, the tilted nozzles enable the row width to be adjusted by 5cm with 04 nozzles or 10cm with 06s. A combination of nozzles fitted in the standard 50cm and narrow 25cm spacings will improve applications to ridged crops.

### Ag Leader RightSpot

The new RightSpot pulse width modulation (PWM) control system is specifically developed for use with the InCommand 1200 terminal, which is employed by a number of the UK's independent sprayer manufacturers.

RightSpot is not ISOBus compliant and will operate only on the Ag Leader terminal. But, in common with other PWM systems, RightSpot maintains the set pressure using solenoids to switch nozzles on and off to preserve the droplet

size and application rate, regardless of changes in speed. It provides individual control of up to 144 nozzles plus turn compensation using GPS position and sensors on the boom.

### Capstan PinPoint III

With the launch of PinPoint III Envelop, Capstan is now introducing the option to control its pulse width modulation system via ISOBus, directly through compatible universal terminals. Until now it was only via a dedicated terminal.

An increasingly popular option on Bateman and other sprayers, the latest ISOBus version effectively takes over the rate controller functions as well as delivering the same PWM functions as the existing PinPoint II system. At the same time, it also maintains the pressure and droplet size with PWM and controls the turn compensation as well as variable rate applications from prescription maps and is able to deliver spot spraying.

EMJ



*Using straight and tilted nozzle caps offers a range of width configurations*



Horsch tilted nozzles



Hardi Nanodrift nozzle



Capstan PinPoint III



Ag Leader RightSpot

the 05, 06 and 08 sizes, which allows the nozzles to provide drift reduction over a wide range of conditions and water volumes.

Up to now nozzle LERAP ratings are typically achieved when operated at lower pressures, which helps reduce the number of fine drift droplets. The 3D ninety design consistently produces a more even droplet spectrum and maintains the pattern even at higher pressures.

### Hardi Nanodrift nozzle

Two large inlets allow air to mix with incoming liquid on the new Hardi Nanodrift nozzle, which tests at the German JKI Institute show cuts drift by 90 per cent.

Nozzles in sizes including 025, 03, 04 and 05 are all approved for 90 per cent drift reduction at working pressures from 1.0bar to 6.0bar. The 02 provides 75 per cent drift reduction at pressures from 1.5bar to 6.0bar.



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# Horses for courses

**When it comes to hedge-cutting, having an idea of what kind of work and how long you will undertake it for will go a long way in deciding which machine is right for the job**

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

**T**hings have come a long way since the slash hook in terms of hedge-cutting and today there is a wide range of options from many manufacturers. Two of the most mainstream variants are large farm-spec models that may see 300-500 hours of use and heavier contractor level machines, which will feature a more robust build and a larger feature set to tackle a full season of work.

The features and build of trimmers are really what separate entry-level and top-end machines. What is commonly known as a 'farm machine' will work in a setting where expectation matches output. However, plenty of contractors will run a smaller trimmer for access reasons or as a back-up to a larger machine, as well as businesses that need to cross over into landscape or amenity work. The benefit of three-point mounting will appeal to those who have a machine not dedicated to one tractor, where trimming is a wet day job.

Contractor spec hedge-cutters will often mean axle brackets, a heavier build and more powerful pumps and motors. The domain of the 1000-plus hour operation, the versatility and output of the larger machine will also see them in use verge mowing or hosting a wide variety of attachments like saw blades. Forward reach is another feature that has become a popular choice for high-hours users, while contour following will be an important feature for some, as well as the ability to carry a wider head. A parallel linkage simplifies reach operations, as seen in the round-up of machines that follows.

## **McConnel**

A popular farm-spec machine is the PA5555-60, which comes with powered slew, 60hp motors and LED lighting. This

McConnel also comes with an oil cooler, which increases its capacity to work in high-load conditions for longer. A feature that may appeal to users who don't dedicate one specific host tractor to the

**Contractor spec will often mean a heavier build and more powerful motors**





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→ trimmer are the control options, → as it can have the high-end Evolution system, the more modest motion proportional controls and a cable option. The standard head is the 1.2m Multicast unit with F14 flails, which are versatile cutting tools for most conditions.

At the other end of the scale is the 6575T available with the variable forward reach (VFR) system. In standard guise the 6575T is a 6.5m reach trimmer with a full-width rear bumper. Being among the larger trimmers from McConnell, the 6575 is attached via five-point axle mounting, though three-point hitching is an option. The motors are 75hp and can power a variety of flail heads up to a 2m Multicut. The all-singing Revolution controls can bring the Easy Drive System (EDS) cruise control for those doing miles of verges, however the more modest Evolution and Motion control systems are also available. Lighting and a reversing fan are also standard features.

### Razorback

A relative newcomer to the sector offers the Auto-Level 550 to suit the farmer bracket. The 5.5m-reach model is three-point mounted and like its larger sibling features Razorback's unique self-levelling Co-Pilot headstock arrangement, which counteracts the inevitable

**A rotary system is said to take less power and increase reliability**

tilting of the tractor when working. Proportional controls are standard, as is a road lighting kit. The standard head is probably the most noticeable feature of the Razorback. It is a rotary system with three sets of blades, which is said to take less power and increase reliability.

The big brother to the 550 is the 680 - a 6.8m reach version. With two models in its range Razorback has kept things simple. In fact,

there is very little in the spec difference other than reach. It features the co-pilot system and same 68hp motors, although the

host machine will need to be heavier to provide a safe base.

As well as the 1.5m rotary head there are two flails available: a 1.2m and 1.5m option with hammer flails. The rotary unit has a hydraulic rear roller and adjustable hood, with which the firm says debris throw is much reduced with two blades on each hub. A three to four-point hitch stabiliser kit is available for both machines but is probably of more value to buyers of the longer reach unit.

### Kuhn

This modest range of hedge-trimmers includes the Poly-Longer, a three-point mounted machine with a stabiliser frame. A 5m reach sees the Poly-Longer at the shorter end of the Farmer machines but it's a well-specced unit nonetheless with 51hp motors, proportional controls and a separate box for the low frequency functions. The mounting is via three-point hitch, with a range of stabiliser options to add more contact points to the tractor chassis. There is a range of heads to suit. A 1.2m flail is the standard fit and a reciprocating knife and saw attachment are available.

The larger Pro-Longer GII is Kuhn's heavy-duty machine with 5.7m of reach and 80hp motors. It comes in two variants - straight arm → and a forward swept option. →



**McConnell**



Left inset: The 6575 is mid-range in McConnell's 65 series. Reach is 6.5m with a telescopic arm

Below left: The 680 from Razorback has a 6.8m reach and weighs 2050kg

Above: The 5.5m McConnell PA5555-60 requires a host tractor with at least 70hp



**Razorback**



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**Forward reach is achieved by using an offset slew that swings 140 degrees**

**Spearhead**



The Pro Flex S67 needs a tractor of 120hp and 5t to handle it. Arm reach is 6.5m

→ Like the farm-spec machine, it has proportional control and a separate box for the flail direction, float and operator information. This larger Kuhn machine uses the same heads as the Poly-Longer, a 1.2m flail being standard with shackle mounted Y-flails that cut up to 30mm.



Above inset: The Pro-Longer GII has a horizontal reach of 5.7m and available circuit power of 80hp

specified and forward-reach models are available.

The S55 is a fixed 5.5m machine featuring 65hp motors. Attachment is via three-point linkage and control is through a standard proportional system. There are a multitude of heads that are compatible, but the standard offering is the 1.2m flail. The Twiga Classic does have a forklift box, which may be a useful feature when putting the machine away for the off-season.

The professional option from Spearhead is the Pro Flex S67, a 6.5m unit, which as a base unit comes with

a strong feature set. The head is on a rotator for bi-directional cutting. The forward reach is achieved by using an offset slew point that swings through 140 degrees, placing the head in the operator's view. Proportional control is through the Propilot system; the hydraulics are 85hp and cooling is standard. As with the Classic, a multitude of heads can be used. The flail has the drive on the tractor side leaving the blind side free of clutter.

### Weaving

Italian-built Agrimaster trimmers are sold by Weaving. The farm option is the R520, which has a 5.2m reach and is three-point hitch mounted, including a stabiliser kit. The controls are a proportional



### Spearhead

A comprehensive range of trimmers are available. The Twiga Classic S55 is in the farm series but they do come in variants that are quite highly

### Weaving



Above: 90hp is the minimum for a tractor hosting the R520, which weighs 1.1t



Above: The 6.5m telescopic arm of the Agrimaster R650T uses a three-belt head drive



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→ joystick via cable, providing a simple mechanical solution. The 58hp hydraulics power the 1.25m belt-driven 20-flail head. Parking stands and a forklift box are included and the machine has a powered slew.

A contractor-spec model from Weaving is the R650T, which has a similar feature set as the R520 but with a 6.5m reach and heavier build. It is three-point mounted with a stabiliser kit and fully proportional joystick controls with head and arm float and electronic rotor engagement. The larger machine has a telescopic arm. The head is a 1.5m unit with 24 T-flails and power is 65hp with a belt-driven rotor. An oil cooler is built into the frame, with power slew and breakback also standard features on the 650T.

### Bomford Turner

Its most popular farm machine is the 5.7m Kestrel Evo S model, which is three-point mounted and is available with a variety of stabiliser kits from chains to more rigid frame options. The Kestrel comes with cable control as standard but a proportional

***A forklift box may be useful when putting the machine away for the off-season***

### Bomford Turner



Above inset: The Falcon is the flagship in Bomford's VFA range; the forward arm improves visibility



Left inset: The Kestrel Evo S features road lighting, tubular three-point linkage and power slew

electronic joystick is available. The hydraulic system is rated to 54hp, powering a 1.2m flail that features a belt drive.

In standard spec the Kestrel Evo S is a simple machine but like others it can be specified to a level that could suit more intensive users.

For contractors Bomford has the Falcon series. The 6.5m machine comes with a forward-reach arm as standard giving nearly two metres of travel for visibility. The controls are ICS 4 with a programmable, fully proportional electric joystick and the system also allows for float on the arm and head for verge mowing. The Falcon only comes as an axle bracket mount and has a multitude of head options. The hydraulics are rated to 74hp, which can satisfy heads up to two metres wide.

### Shelbourne Reynolds

A comprehensive range of trimmers is available, including the common farm-spec unit, the 457, an entry-level machine that has 5.7m reach, is three-point mounted and comes with a four-point stabiliser kit. Standard controls are cable but electronic proportional controls are available. Hydraulics are rated to 50hp and the head is a 1.2m flail, which features belt drive from the motor. Like many of these entry-level machines, the 457 can be specified with a multitude of extras, including a thermostatically controlled oil cooler.

At the pro level is the 7060T, which has a 6.0m reach on a telescopic arm. A variable forward reach model is also available, which increases reach to 6.2m. An electronic proportional control system is programmable to individual user preferences and hydraulics are 70hp, with an 85hp option. The 7060T is three-point mounted and can be stabilised by extra links. For maximum stability there is an axle bracket option. An oil cooler is standard.

EMJ

An arm and head float kit is available for the Shelbourne Reynolds 457



**Shelbourne Reynolds**



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*"In the future we see new technologies and the mainstream introduction of electric power"*



# CHANGING WITH THE TIMES

Recently the subject of an extensive overhaul, Merlo's UK HQ now boasts a brand-new training centre and warehouse, which *FMJ* viewed during a guided tour from general manager Shaun Groom

WORDS AND IMAGES SIMON HENLEY

**L**ast month *FMJ* visited Merlo's global headquarters in Italy, where we were given a guided tour of the factory and introduced to the latest updates incorporated into the company's extensive portfolio of materials handling machinery. As a follow-up to our visit to Italy, this month we are taking a close look at the Italian manufacturer's UK headquarters in Hampshire. Merlo UK Ltd became a full subsidiary of the Merlo Group in 2011. Today, it is one of seven global subsidiaries that support more than 600 dealers worldwide.

Merlo UK has recently been the focus of some



noticeable changes. During the past decade sales of the company's products in the UK have lost some ground to competitors, yet the company is determined to redress this situation. Last year Merlo appointed Shaun Groom as its UK general manager, a man with a great deal of experience in the agricultural machinery sector, who has established a reputation within the industry for getting things done.

During *FMJ*'s visit to the Merlo HQ at Ringwood we had the opportunity to sit down with the new captain of Merlo UK, who discussed some of the changes the company is making here in Britain and what its plans are for the future.

**Farm Machinery Journal (FMJ)** Can you tell us about the recent redevelopment of the Ringwood facility?

**Bottom:** Used for training purposes, these cab stations are fully operational with live electronics that feature the latest in-cab monitors and software for Merlo's ASCS implement recognition system

**Below:** The influence of UK telehandler buyers will remain a key focus in the future of Merlo in the UK. The popular Turbofarmer range accounts for 50 per cent of the company's UK turnover



**Shaun Groom (SG)** Plans to refurbish the facility were originally discussed in 2018. However, because of the pandemic, the initial development work was delayed. The complex here was subjected to a complete refurbishment at a cost of over £750,000. It included the construction of a brand-new training facility, extended warehouse facilities, a new equipment storage area and a complete redesign of the offices and our instructional facilities.

The project involved many of the 26 people working here, who literally rolled up their sleeves and helped clean up the site where the new holding yard is now situated. We are all very proud of what has been achieved here.

**FMJ** Why was it deemed essential to construct a new training facility?

**SG** The training centre is an essential element in our move for the future, particularly as we see the progression of new technologies and the mainstream introduction of electric power. Training had previously been relegated to just one room and a single service bay, forcing the company to do a lot of dealer training off-site. This has now been rectified. This year Ringwood will host classes for more than 300 dealer trainees. The training centre features a brand-new workshop and classrooms. Our goal is to educate technicians from foundation level up to advanced level. This also includes advanced electronic and telematics updates for senior technicians. Currently 12 courses are offered at the new facility. The workshop features a wide range of new equipment, including the latest diagnostic technologies and cab stations with live electronics, which feature the latest in-cab monitors and software for ASCS instruction.

**Above inset:** Shaun Groom was appointed general manager for Merlo UK last year

This is also a BAGMA-certified facility so we can train technicians from construction and plant hire companies. Additionally, we've invested in new equipment relating to the service and maintenance of the latest Merlo electric-powered vehicle ranges.

The work here also involves research and development for Merlo products. Our product development and training manager Nigel Perrin has worked here for 25 years. His work with organisations including FISA has produced many of the safe load charts used in Merlo products within the agricultural, construction and forestry sectors.

**FMJ** Tell us about the improvements to the parts department and parts distribution service?

**SG** Parts distribution is now a data-led business. The job of a dealer





► salesman is to sell a Merlo machine to a customer. Our job at Merlo UK is to ensure the same customer wants to buy a second and a third Merlo machine, by providing dedicated customer service and warranty support, which includes a fast, reliable and efficient parts delivery service.

A significant change to the parts department has been the implementation of new storage space solutions, which have increased the capacity by more than 30 per cent. The Ringwood facility acts as the distribution centre for all UK dealers. It now carries more than 6500 line items, and parts arrive from Italy every week.

Our national parts manager Robin Cooch joined the company four years ago. When he arrived the first-time order fulfilment rate was just 69 per cent. Today Robin has increased that to 97 per cent, and 84 per cent of our dealers receive the parts they ordered the previous day before the start of business the following morning.

We are also implementing measures to reduce our carbon footprint, which includes the introduction of recyclable paper tape for packaging and replacing bubble wrap with ruffled paper. We have also integrated the use of re-useable plastic pallets, which go back and forth to the factory and remain permanently in use.

**FMJ** Can you reveal why Merlo has established an HMRC customs bonded warehouse facility?

**SG** Merlo as a company wants to stand out and be seen. This is a family business, which means corporate decisions can be made almost immediately. Faced with Brexit, the idea of becoming a customs bonded warehouse

***“The Multifarmer was designed for hard work and lends itself to high-hours operation”***

controlled by HMRC was to ensure the continuity in our supply chain from Italy both in terms of parts and machinery. Essentially, what it does is simplify the border/frontier procedure and the transition through customs. It took 18 months to secure HMRC approval, however it has literally saved us from the

aftermath of Brexit and the supply chain difficulties incurred by the pandemic.

Stock and machinery arriving at Ringwood from Italy are managed jointly by Merlo and HMRC. The warehouse is essentially a border point so unauthorised access into the warehouse is completely prohibited. As part of the process, audits of shipments from Europe and stock levels are regularly taken by HMRC officials.

The benefit of this set-up is that customs charges only apply when the goods are invoiced and leave our facility for distribution. Normally, tariffs would apply prior to shipment and/or entry into the country. Essentially, by becoming a customs bonded facility we can ensure the free flow and continuity of supply to our UK dealers and customers.



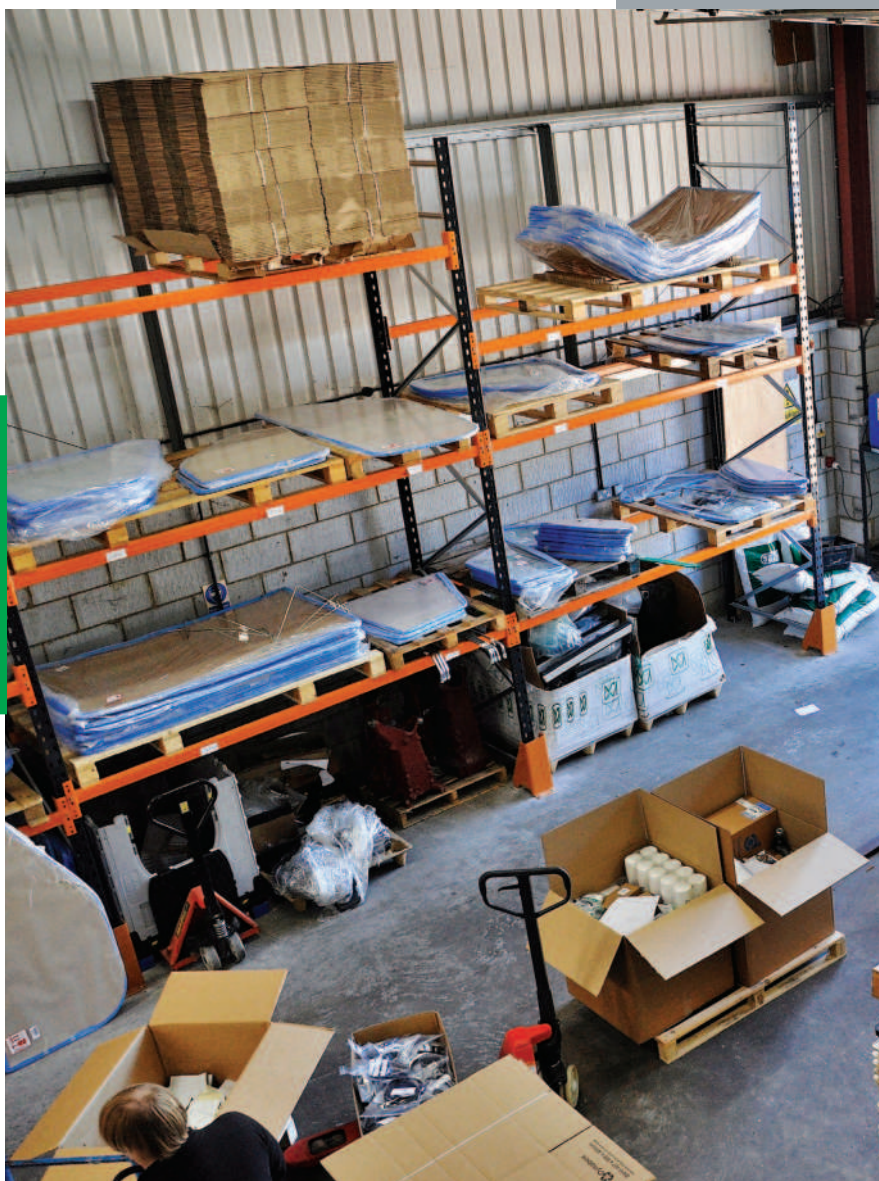
Left: Merlo has made a firm commitment to electric power. These Merlo eWorker forklifts are powered by lead-acid batteries, which use sustainably sourced elements and can be easily/cheaply recycled



Above: The new training centre was completed in December 2021 and now serves the UK, educating Merlo technicians from foundation level up to advanced level

Below: Merlo's HQ incorporates a customs bonded warehouse controlled by HMRC and Merlo. It was established to simplify the frontier procedure and customs

Right: Merlo UK has produced many of the safe load charts seen in Merlo telehandlers and has played an influential part in the development and operating parameters of Merlo's ASCS system

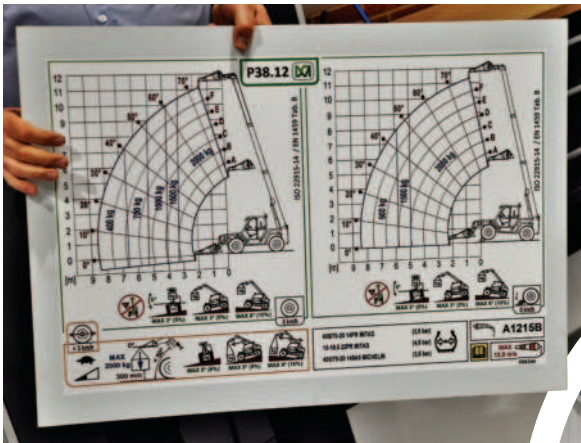






**Left:** The new training centre includes not only a new workshop facility but also new classrooms

**Below inset:** Product development and training manager Nigel Perrin, right, has worked at Merlo for 25 years



### **FMJ** How has the structure of Merlo UK changed since your appointment?

**SG** Merlo is committed to upholding a dealer network throughout the UK and Ireland. Our job is to support our dealers so they can support our customers. As part of this quest we have made some dealer changes, which included separating construction from agricultural dealers. There are different requirements for customer and product support, which needed redefining.

### **FMJ** What are the standout Merlo products in the agricultural sector?

**SG** The influence of UK telehandler buyers cannot be ignored and will remain a key focus in the future. The Turbofarmer range is our core product on the UK market. It is a comprehensive, well-engineered line-up of machines that represent 50 per cent of our turnover in the UK.



Merlo is committed to electric power, which we demonstrated in Italy during your visit last month. While we will be offering lithium-ion battery power in the future, at present we are focusing on the use of lead-acid batteries in our products. The key benefits of lead-acid batteries are they use more sustainably sourced elements, which can be easily and cheaply recycled. One of the disadvantages associated with lithium-ion batteries is they are very expensive to replace or recycle - the cost of which is frequently passed on to the end user.

### **FMJ** Which Merlo products do you think have potential for greater sales in the future?

**SG** Arguably one of the most under-exploited products in the Merlo portfolio is the Multifarmer telehandler. Introduced in 2000, the Multifarmer was the first telescopic handler equipped with a three-point linkage, a mechanical PTO and certified for EU trailer homologation.

The uptake of the Multifarmer has noticeably increased in some parts of Europe, particularly as finding labour is now an issue in many parts of the agricultural sector, particularly for smaller and mid-sized farms. In my opinion, the need for one machine that can undertake multiple tasks is becoming increasingly essential.

The Multifarmer was designed for hard work and lends itself to high-hours operation. With modern boom suspension and Merlo's hydro-pneumatic cab suspension, it can provide a high level of comfort and degree of operational flexibility that's almost unrivalled.

Another product line that stands out is the compact Cingo range of materials handling and transport machines. Powered by either batteries or an engine, they are available in various configurations with a mind-boggling range of attachments. This makes them suitable for use on farms, at stables, in garden centres, inside factories, or for interior construction projects. The list of applications suitable for the Cingo range is virtually limitless.

**FMJ**





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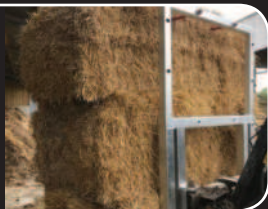
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*"Swathing remains one of the simplest ways of preparing the crop for harvesting"*

This pristine 1997 Mentor is one of two run by Colin Martinson. It's seen here in the hands of Pete Martinson



# SIMPLE SWATHING

Colin Martinson has been operating oilseed rape swathers for more than 40 years. *FMJ* went to see his current fleet of three Shelbourne Reynolds swathers in action

WORDS AND IMAGES DAVID LALEY

**D**espite their decline in popularity over the past 20 years, contractor Colin Martinson remains convinced that using self-propelled swathers to cut oilseed rape is one of the best methods of preparing the crop for harvesting.

Based at Howden in East Yorkshire, Colin currently runs three MacDon-based Shelbourne Reynolds swathers: a pair of 1997 Mentors and a later 2004 Advantage. They are used to swathe around 1000 acres of oilseed rape and borage each year. With the potential banning of chemical desiccation with Glyphosate on the

horizon, they may yet be required to complete much more work in the future.

"Although in some circumstances the cost of swathing may be prohibitive to growing a profitable crop of oilseed rape, particularly if the weather is against you, it remains one of the simplest ways of preparing the crop for harvesting," says Colin. "Depending on the weather, we tend to start swathing oilseed rape no earlier than 10 July, just prior to winter barley being harvested, and can complete our current acreage

comfortably within 10 days to a fortnight.

"Once swathing has taken place, if the weather remains consistent it's much easier to plan a date for harvesting the



Left: Colin Martinson has been running oilseed rape swathers for more than 40 years

Above: The Advantage's revamped cab incorporates larger adjustable mirrors and uprated lighting

crop compared to chemical desiccation. A major benefit of swathing is that it kills the plant immediately once the stems are detached and left on 20 to 30cm-long stubble. This allows the crop to dry out and die off evenly in readiness for harvesting in a shorter, more predictable time frame within a week to ten days of swathing. ▶







**Left: The Advantage features an improved one-piece hinged engine cover, while all of Colin's swathers use rotary air intake cleaners**

**Far left: The Advantage cab interior includes a passenger seat, digital displays and redesigned control console**

**Left: Colin's swathers are transported to fields on bespoke low-loaders like this one, built by Easterby**

▶ "Although using Glyphosate continues to be the most cost-effective method of preparing oilseed rape for harvesting, it's far harder to predict a specific harvest date, and if it doesn't take to the crop properly it may end up ripening unevenly and take far longer to harvest. You also have to wait a minimum of 14 days to harvest oilseed rape following desiccation, and realistically you're waiting three weeks, possibly even longer before the crop has had a chance to ripen enough and die off before it can be direct harvested with a combine.

"The biggest threat to the benefits of swathing is the weather. Heavy rain

and showers can push the swaths on to the ground, shattering pods and making them very difficult to retrieve. However, if swathing is planned properly prior to harvesting it remains one of the easiest and stress-free ways of getting a decent crop of oilseed rape into the shed in the shortest possible time."

### Extensive experience

Colin has more than 50 years' experience of swathing that began in the late 1960s when his late father Frank, founder of F. Martinson and Son

diversified into swathing peas. "While ploughing, cultivation work and combine harvesting were the main tasks he specialised in, he also began operating plant machinery and I began working as a mechanic for a neighbouring pea group," explains Colin. "My father was quick to make the most of this opportunity to supply equipment and resources to the group.

"One of the jobs we began carrying out was windrowing and swathing peas in front of the group's fleet of trailed viners. We used to run four modified reverse-drive grey Fergusons fitted with McBain pea cutters working 12-hour shifts, 24 hours a day. The old McBains were replaced with Reynolds cutters



*"There's a decent chance of a rape swathing renaissance taking place"*



and shuttle boxes were also fitted to the tractors before we invested in our first three wheel self-propelled Hesston swathers," says Colin.

The advent of self-propelled viners in the early 1980s brought this chapter of their business to a close but, undeterred, Frank and Colin kept hold of the Hesstons, which formed the basis of their oilseed rape swathing service.

"We were contemplating selling them before we realised there was an opportunity to support our ever-increasing fleet of combine harvesters with another service," says Colin. "While the old Hesstons weren't really designed for swathing anything other than peas, we were able to modify and adapt them by

fitting side knives and they generated a lot of extra business for us."

During the 1980s the Hesston three-wheelers were gradually replaced by a fleet of four dedicated Hesston oilseed rape swathers. By the mid-to-late 1990s Colin's fleet of swathers peaked at six with the addition of a pair of Claas Maxi Swathers bought to support the Hesstons and his huge

**Top:** Firestone 21.5-16.1 flotation tyres are fitted to the drive wheels of the swathers

**Above:** Narrow BKT 9.5L-14 tyres are used on the swathers' castor steering wheels

**Above right:** The capability of these swathers is second to none and Trevor says he can cover up to 100 acres per day

**Below:** The Advantage was the successor to the Mentor and is powered by a more powerful 108hp Cummins engine

line-up of 19 New Holland combines.

"The vast majority of farms we were supplying combines to bought into the system. We had the swathers available to cope with the acreage, and swathe the crop at the right time, while we also had the combining capacity to harvest the crop in the shortest possible time frame with the Shelbourne Reynolds pick-up headers we continue to use today."

### Reduced fleet

The rise in popularity of using herbicides such as Glyphosate to desiccate oilseed rape in readiness for direct harvesting led to the

### Farm Facts

**F. Martinson and Son**

**Owner** Colin Martinson

**Business** Agricultural contractor

**Location** Howden, East Yorkshire

### Core Fleet

- 20 tractors including Challenger, Massey Ferguson, Case IH and New Holland
- 9 combines including New Holland and Case IH
- 3 Shelbourne Reynolds swathers
- 1 Sands self-propelled sprayer





► decline of oilseed rape swathing and forced Colin to reduce his fleet of swathers.

"The additional running costs of using swathers became difficult to justify for many farmers, while desiccation also reduces the risk of pod damage in variable and poor weather, which has become more prevalent over the past decade." Despite this Colin still has plenty of customers who prefer having their oilseed rape swathed, and with the threat of Glyphosate being outlawed in the UK after December 2025 there's a decent chance of a rape swathing renaissance taking place.

"I ended up swapping the Hesston and Claas swathers around 10 years ago for the three MacDon-based Shelbourne Reynolds machines I run now," says Colin. "They've been very reliable and cope easily with their current workload. We've gradually been taking on more customers again in recent years, particularly farmers who've reintroduced borage into their rotations."

***"These swathers are second to none, and you can soon cover up to 100 acres per day"***



**Top:** The 16ft header leaves a wide and flat swath with the seed pods on top to be harvested a week to ten days later

**Above inset:** Operator Trevor Fletcher enjoys spending time aboard a Mentor swather each summer



### Cummins power

Colin's pair of immaculate 1997 Shelbourne Reynolds Mentor swathers are powered by four-cylinder turbocharged Cummins engines developing 96hp, while a rotary air intake cleaner helps reduce the accumulation of dust and chaff around the radiator fins at the rear. Power is delivered to the ground through a two-speed hydrostatic transmission via planetary gear reduction final drives situated in the front wheels.

"The Cummins engines never give in and are very economical, even when dealing with the densest oilseed rape crops," says operator Trevor Fletcher. "The two-speed hydrostatic transmission is also very

smooth and allows you to change direction quickly." The transmission is operated through a joystick to the right of the operator. It also controls the Mentor's direction of travel and main header functions too. Castor rear wheel steering provides unrivalled manoeuvrability while Firestone flotation tyres keep compaction to a minimum and provide excellent stability.

The Mentor's large panoramic cab gives the operator an excellent view of the header, with nine external halogen lights mounted into the cab roof for working at night. Inside, the cab is filled with creature comforts including a fully adjustable pneumatic seat, air conditioning, heating controls and a radio. The control console features header lift switches and dials to alter the speed of the reel and conveyor on the move.

Up front, the Mentor is equipped







with a 16ft draper header specifically designed by Shelbourne Reynolds to leave a wide flat swath with the pods laid on top. The header features a six-bat flipover anti-wrap reel and a pair of hydraulically driven variable speed side knives. A hydraulic draper drive controlled from the cab is also used to vary the conveyor's speed, enabling it to handle the densest crops.

"Once you get the hang of the castor angle steering on the headlands the capability of these swathers is second to none, and you can soon cover up to 100 acres per

**Above left: The Mentor's control console includes the main hydrostatic lever used to change direction and operate the transmission**

**Above right: The older Mentor swathers are powered by a 96hp four-cylinder turbocharged Cummins engine**

day," says Trevor. "The most important thing to remember when swathing is always cut into the lean of the crop so the pods aren't pushed to the ground."

### Added Advantage

Colin's more modern 2004 Shelbourne Reynolds Advantage swather was the successor to the Mentor and is fitted with a more powerful 108hp 3.9-litre turbocharged Cummins engine and larger 284-litre fuel tank. Other noticeable upgrades include a one-piece hinged glass fibre engine cover that provides easier access to the radiator and coolers. Externally, the cab features larger mirrors and an uprated adjustable lighting system.

Inside, the control console has been completely redesigned. It includes a digital

display that records engine and header hours. Additional storage compartments, a passenger seat and an infinitely variable steering column are also incorporated.

While Colin is quick to praise the performance of his current fleet of swathers, transporting them on the road has been one of his biggest challenges. "Moving them around efficiently can be quite daunting," he explains. "Their width, slow forward speed and rear steering makes them incredibly awkward and sensitive on the road.

"I circumvented this originally by devising a system to allow the swathers to freewheel out of gear and built a rear-mounted hitch for them so we could lift and tow them on the road with a tractor. This worked well but did lead to excessive tyre wear. Now we use two types of bespoke low-loader trailer originally built by Easterby Trailers and Agri-Weld, which we continue to modify and refine to our own requirements."

Now in his late 60s, Colin says he doesn't plan on replacing his Shelbourne Reynolds swathers anytime soon. "In the right hands they continue to perform exceptionally well and remain one of the most comfortable and reliable modern classic swathers around. And they're more than capable of handling a lot more work each season."

EMJ





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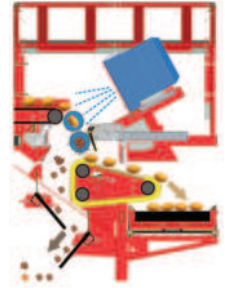
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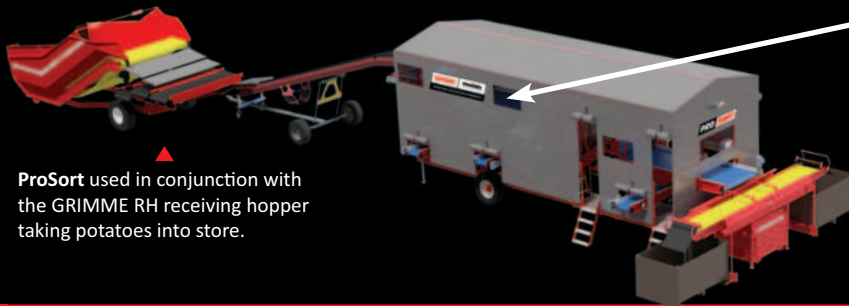
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*"The 828 was a drop in power but a step up in versatility"*



MACHINE  
FENDT 828 VARIO

## Back in favour

After 20 years away from Fendt, BW Upton & Sons returned to the brand in 2020 with a new 828 Vario. *FMJ* went to see how the Fendt has fitted into the fleet

WORDS AND IMAGES **KEN TOPHAM**

**T**he Fendt 828 is not a new tractor, but the model seems to have had a surge in popularity recently. An 820 had been the prime mover for BW Upton and Sons back in the early 2000s, before the farm took a 20-year break from the German brand, which saw a line of John Deere and New Holland tractors fill its space. In 2020 the business returned to Fendt, again choosing a tractor from the 800 stable.

The last time we met Harry Upton was to peek inside his cab when the Fendt was barely a year old. Since then, the 828 has gone through a full year cycle and the Uptons have added a second 828 to their fleet. Farm and contract work sees the

Fendt carry out a wide range of roles, but the primary field operation Harry took on when the 828 landed was drilling cereals. Formerly the firm's Vaderstad Rapid A600s was pulled by a New Holland T7.315HD, which Harry had used for a season when he took over the task from his dad.

The 828 is Fendt's middle ground between the 900 and very popular 700 series. In terms of advantages, one area where the 828 wins over the 700 is factory fit Vario Grip, which is an optional extra but for the Uptons it is considered a valuable one. And while the extra speed is no use on UK roads, the 60kph Vario transmission does offer some gains in efficiency. Against the next range up, the 828 is nearly two tonnes lighter than a 930. ▶



Above: Between some showers the Uptons were catching up with headland planting. The light soil was well compacted after several machines had turned on it

Left: Pulling out the wheelings from the potato planting crew, the 828 wasn't challenged by the three-leg subsoiler

Below left: The 828 does have a reasonable amount of standard storage. The slide-out drawer is handy for heavy items



Bottom left: A Ross Agri toolbox has been added to hold large items. The colour-coded box looks almost OEM



### Profile

**BW Upton & Sons**  
Machine 2020 Fendt 828 Vario  
Purchased 2020  
Used for Two years  
Operator Harry Upton  
Location Ellerdine, Shropshire



## Tech specs

### 2020 Fendt 828 Vario

**Hours** 2200

**Engine** Deutz  
6.1-litre, 6-cylinder

**Rated power** 287hp

**Rated speed** 2100rpm

**Max torque** 1217Nm  
@ 1450rpm

**Transmission** ML220  
two-range CVT

**Top speed** 60kph

**Hydraulics** 152 L/min  
(205 L/min option)

**Valves** 2 front, 6 rear

**Rear linkage** 11,000kg

**Front linkage** 5060kg

**Fuel tank** 550 litres

**AdBlue tank** 50 litres

**Dimensions** WxLxH  
(m) 2.75x5.67x3.3

**Wheelbase** 2.95m

**Unladen weight** 9.52t



Left: The 828's cabin provides a pleasant workspace, the armrest hosting every high-frequency function

Right: A 10.4in Varioterminal can be split into four sections and used for a camera monitor



Left: A full array of LED work lights are highly rated for their considered positioning that results in few dead spots and little reflection



Left: The 828 comes with plenty of SCV outlets, with two factory-fit valves at the front

Below right inset: The multi-function lever has been around for a while but is still a versatile and configurable operator interface







► The Uptons took delivery of their second 828 in April 2022, but it's Harry's 18-month-old tractor that has been an obvious hit. The 828 features a 6.1-litre, six-cylinder Deutz Stage V-compliant engine producing 287hp, with 1217Nm of torque and 30 per cent torque rise. The transmission is the mid-weight ML220, a larger unit from the ML180 found in the 700 series.

The only non-standard spec item on Harry's 828 is the hydraulic pump, which was specified as a high-capacity unit that offers 205 litres per minute. If anything, the upgrade was to future proof themselves. The Vaderstad drill needs a good supply and they felt if they ever added anything to that operation they might need the flow. The rear lift capacity is 11,000kg, which is at the high end in this class of tractor.

### Favourable fuel economy

The 828 boasts a fuel tank capacity of 505 litres and 50 litres of AdBlue. Fuel economy has definitely come into

*"A 20t Ktwo trailer needs a decent tractor on the front - the Fendt handles it well"*

focus this year and Harry says the 828 will consume between 40-50 litres an hour while drilling, compared to the New Holland's 55 litres. On haulage duties, at 25-30 litres an hour, the tank will last up to three days, obviously aided by the transmission's efficiency.

The Uptons farm in Shropshire and their arable enterprise produces potatoes and cereals. Their contracting business caters to a large-scale organic producer, where both 828s are employed on varying tillage and haulage operations. Harry also works with a silage contractor when the spring planting and sowing campaign is finished.

As a replacement for the New Holland, the 828 was a drop in power but a step up in versatility. "The T7.315 HD was a great draft tractor, well on top of anything we do," Harry explains. "The 828 is lighter and needs more ballast for heavy field work, but you can take that off when you don't want it and it's a smaller

tractor physically. On the road it's very smooth. I haul silage with a 20t Ktwo Compactor trailer, which needs a decent tractor on the front - it handles it well."

During our visit, Harry was subsoiling headlands on the Uptons' own potato ground, ready to finish off planting. The three-leg Spaldings machine isn't massively challenging for the 828, working deep enough to break the turning pan from the planting crew, and the cultivator tines were levelling out the soil well.

Harry had the Vario Grip tyre inflation set to 0.8bar, which is on spec for the Trelleborg TM 900 tyres (710/70R42 rear and 600/70R30 front). Harry says he would like to see the Trelleborg VF1060 tyre in

comparison, although the standard equipment works very well with Vario Grip. 300kg wheel weights aid traction when using the Vaderstad A600S Rapid drill, which transfers little to no weight to the tractor in work.

### Water works

The front linkage on the 828 is rated to over 5000kg and is mostly utilised at irrigation time when Harry



In the cab, the armrest is an operator friendly interface with multiple programmable buttons



The factory-fit Vario Grip tyre inflation system from Fendt is exceptionally neat, with no protruding pipework



Above: Connectivity is good on the 828 with ISObus and three-pin power outlets grouped together





► carries a pipe reeler. The watering season can begin in April if the weather is dry, often irrigating carrot beds to encourage the weeds so the beds can be burned off (with gas burners) to create stale beds for their organic customer. Otherwise, the links are used for a two-tonne weight block or, in the winter, a snow plough.

*“Once you spend some time with it the interface is logical and easy to use”*

The second and most recent 828 in the fleet handles spading duty with an Imant spader to bury straw from carrots that had been protected from frost over the winter. With a front-mounted 3m Lemken power harrow for levelling straw and wheelings after harvesting, the power harrow isn't working deep, just levelling ahead of the spader to get a good burial of the straw, which is applied generously in the autumn. The 2022 tractor is specified with 650-wide rear tyres for in-furrow ploughing but is otherwise almost the same spec as the 2020 unit.

Operator interface is a key consideration these days. As a result, the Uptons opted for Profi Plus spec, which has all of the functionality you could want. “It took a bit to learn the layout, coming from a New Holland,” says Harry. “It seemed a bit more complicated, but once you spend some time with it and get to know the menu layout the interface is logical and easy to use.”

The cab provides a nice workplace and the multi-function lever holds up as an operator-friendly interface with mappable buttons for individual implement functions and headland

control. The 10.4in Varioterminal can be configured to have four split displays; Harry also uses it as a rear-facing camera display.

### Bright lights

The lighting kit is all LED and one of the points Harry makes is that there are no reflections in the windows and mirrors, while the spread of light is very even and pleasant to use. Storage-wise, the 828 fairs okay. Inside there is space for personal items, plus a drawer under the seat for heavy items. Harry added a Halfords 12v coolbox, which sits by the offside door/window, and externally he has added a Ross Agri toolbox, which complements the step drawer on the opposite side.

Harry uses the AGCO GPS receiver on his 828, which for cereals sowing and the farm's own operations works well, as they don't need to work off

Above: With the tyres at 0.8bar, the footprint increase is obvious with almost four cleats in contact with the ground

Top inset: Vario Grip has been a revelation for the Upton fleet, effortlessly turning the 828 into a low ground pressure machine

Top right: Two SCVs and a 5t front linkage are useful features, hosting anything from a pipe reeler to a power harrow on the front of the 828s

Above right: Hydraulic top links seem run of the mill these days but are a useful option especially on larger tractors

the JD Link system for sowing cereals. The second 828 has had an RTK Starfire dome fitted with a Solsteer patch loom for auto-steering, which allows smooth integration when working with their customer who uses the Deere system extensively in vegetable growing for precision planting, hoeing and tillage.

So far, the change to a smaller prime mover has been positive for the Uptons, aided by the support from TR Machinery, a subsidiary of RVW Pugh. Increasing the amount that a tractor can be utilised on a day-to-day basis means the investment is working harder and makes more financial sense. With the addition of a second 828 in the fleet, the frame size and versatility has obviously been a good match for the business. **EMJ**



The 828 was making light work of the headlands. Harry has been pleased with the versatility of the Fendt as a tractor that can step up and down for different tasks



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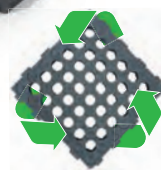
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**USED Manitou (Whites Handling) Telehandler Grab**, 2013, 7ft 6in wide, good Kverneland tines, twin ram, hydraulic hoses, good tidy grab. Manitou brackets.....**£2,000**



**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, 0.80m<sup>3</sup> 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**



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MACHINE  
SUMO LDS 3

## Pan busting

**With a policy for zero-tillage establishment, Colin Fisher chose a Sumo LDS 3 subsoiler for pre-drilling with a Sumo DTS to revive soil structure and improve crop establishment**

WORDS AND IMAGES SIMON HENLEY



Above: Serrated front discs cut an opening for the tines to ensure they have a clean entry into the soil. Packer depth can be controlled up and down, using the two-pin depth assembly on the packer arms

Left: Mounted on a John Deere 7810, the Sumo LDS 3 requires no folding or packing for transportation

**D**eep tillage seeders like the Sumo DTS are designed to exploit the advantages of strip-tillage. This type of system can be applied to plough-based, minimum tillage or, more popularly, no-tillage applications. Basically, strip-tillage is a one-pass seed establishment system, which uses wide row spacings (300mm-plus) to create a seedbed only where the seed is to be planted. But there's an issue here because identifying strip-tillage as a zero-tillage or one-pass system is technically stretching the truth.

Warwickshire farmer and contractor Colin Fisher made the decision to purchase a 3m Sumo DTS back in 2017. His choice was inspired by an ongoing struggle with

blackgrass and the desire to reduce the time and cost of tillage operations.

### Previous visits

FMJ has visited Mr Fisher twice in the past. On our first visit in 2017 he was still getting used to the Sumo DTS and the quirks associated with a strip-tillage system. He confessed buying the DTS had been a gamble, however, during our last visit in April 2020, he stated: "Our soils have become more resilient to the weather, and we've seen a significant decline in blackgrass infestation. The benefits of leaving the fields alone to let the ground recover are now showing. Earthworm numbers are higher than we have ever seen and infiltration rates have significantly improved, even on our heaviest land." ▶



### Profile

#### Fisher Rural Partnerships

**Machine** Sumo LDS 3  
**Purchased** 2021  
**Used for** One season  
**Operator** Colin Fisher  
**Location** Nuneaton, Warwickshire

Left: The Sumo LDS 3 has helped Colin Fisher to address problems with soil panning



## Tech specs

### Sumo LDS 3

**Type** Low-disturbance subsoiler

**Working width** 3.0m

**Discs** 18in serrated

**Tines** Hardox leg and point with hydraulic auto-reset

**Spacing** 500mm

**Points** Interchangeable/cast point

**Depth** Adjustable to 350mm

**Packer** F-Type (depth adjustable)

Below: Colin Fisher's Sumo LDS 3 came from Sharnford Tractors Ltd in Leicestershire. His decision to buy it was fuelled by the need for a low-disturbance subsoiler that would leave a level finish



Left: Sumo offers four different packer options including the T-, R-, M- and F-type, seen here, which aerates and consolidates the soil surface (inset)







Far left: Tine or leg depth is adjusted manually. Tines are secured using a tine-depth pin with five depth settings



Left: Leg protection is provided by a pressure adjustable hydraulic auto-reset system

### Recent purchase

Since then, Colin Fisher has purchased a 3.0m Sumo LDS 3. Having been invited to see the new machine in action, our first question was to ask why he had opted to buy a Sumo low-disturbance subsoiler?

"The autumn drilling campaigns of 2019 and 2020 were both very challenging," he explains. "In 2019 conditions were so wet only a small acreage of autumn crops were planted. The following year, the week after we'd finished drilling it started raining and never stopped. Our ground varies from medium clay with a high silt content to some of the heaviest clay in the Midlands. Having had two wet years back-to-back, we started noticing the good work we'd done improving soil structure was being undone.

"We had surface water collecting in fields where we'd never seen it before, yet the ditches were clear. Yields were also noticeably down, which was compounded by the increased acreage of spring crops we'd been forced to plant in areas where winter crops had failed. Most of our ground had not been subsoiled since we started using the DTS. When we adopted strip-tillage it was anticipated that deep cultivations would not be required as often. It was becoming increasingly obvious this was not the case.

"Having conducted numerous soil tests, it was discovered that compaction was a big part of the problem. We realised we would need to subsoil more regularly. We needed to shatter the pan beneath the depth of the drill tines to restore the soil structure and improve water ingress."

### Set on subsoiling

In the past Colin has relied on contractors for subsoiling or has

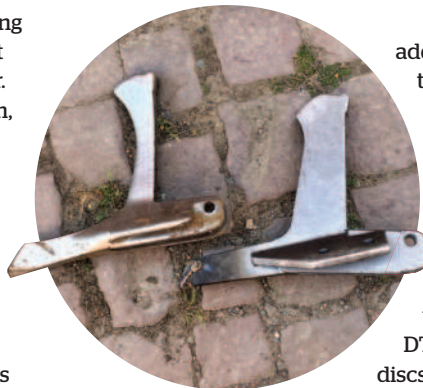


Above inset: The LDS tines and points lift and shatter simultaneously, with very little surface disturbance

borrowed a subsoiler from a neighbour. Last year he decided to bite the bullet and invest in one of his own. "I wanted a low-disturbance subsoiler because it would leave a level finish," he notes. "A drawback of using the DTS is that it doesn't leave a particularly level finish. You're literally relying on the press wheels to pack the soil, which is another reason why following the DTS with a set of rolls is so important.

"Another operational factor with the DTS is if you happen to be working in fields with rough ground, caused by wheel ruts or deep cultivation work, it places unwanted

***"We've learned you cannot keep cultivating or planting at the same depth year on year"***



Above: High levels of wear occurred on heavy ground, where replacement was necessary after two days

additional strain on the tractor and drill. In severe cases we will work down rough areas of the field with a Sumo Trio prior to drilling. The design of the Sumo LDS lends itself perfectly to working ahead of the DTS," he adds. "The front discs cut an opening for the tines to ensure they have a clean entry into the soil. Working at a depth of 350mm (14in), the LDS tines and points lift and shatter simultaneously with very little surface disturbance.

"At the rear of the machine, the roller gently compresses the surface to create a level finish. I opted for the F-type shark-fin flat roller, which ensures the soil surface is aerated across the full width of the machine as it consolidates the soil. Common sense dictates you should subsoil the field so you are crossing the

tramlines at an angle of at least 20 degrees. We actually discovered that the greater the dissection angle the easier it was for the drilling tractor. In some fields we deliberately crossed the tramlines at 90 degrees, just to see if it made any difference.

"One thing we did discover was you really need at least 200hp to pull the 3.0m LDS. You can pull it with 175hp but it makes the tractor work hard. In terms of cost, we were typically burning 250-300 litres of diesel in 10 hours depending on ground conditions."

### Counting the costs

"Wear metal was another cost consideration," concedes Colin. "On a typical day we would cover 12ha (30 acres). The points cost approximately £45 each and there are six legs spaced at 500mm. On some heavy ground a full set of points wouldn't last two days. The cost of wear metal over a total area of 85ha was calculated at just over £11.50 per hectare. That's nearly £1000.

"The cost of subsoiling prior to drilling obviously adds to the total cost for planting the crop. However, in the fields where we had subsoiled, the tractor pulling the Sumo DTS drill was not only able to travel faster, covering a greater acreage per day, it also used less fuel. Fuel consumption dropped from an average of 300 litres a day to around 220 litres, while the acreage planted increased from 12ha a day to approximately 18ha. Last autumn was an almost perfect drilling season, which also helped us make better progress."

The ground subsoiled last autumn prior to drilling has produced some of the best-looking winter crops Colin Fisher has seen for several years. The question now is how often will it be necessary to subsoil before planting in the future?

"The lesson we've learned here is that you cannot continually keep cultivating or planting at the same depth, year on year," concludes Colin. "Even with a leading tine strip-tillage drill like the DTS, you are eventually going to get problems with soil panning. At this stage, I would anticipate using the LDS every second or third year, varying the working depth between 300 and 350mm, depending on weather, field conditions and soil type. In the meantime, I'm looking forward to seeing how this year's crops yield." *EMJ*





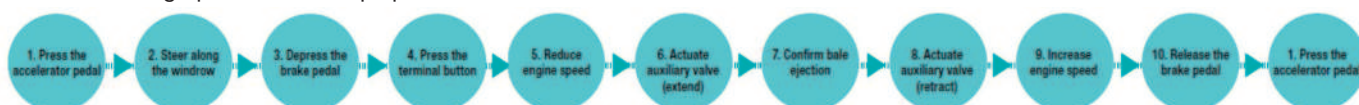
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**Paul Madeley**

# Rising farming costs could see fields left unplanted



**Rural experts are warning that increasing costs coupled with a reduction in subsidies could lead to fields in Shropshire being left unplanted as farmers face tough decisions on how they operate**

**W**e're really entering an unknown area and farmers need to take stock. Over the past 12 months, fertiliser prices have shot up from £250-300 a tonne to nearly £1000, which is having a huge impact on the farming industry.

This price rise has coincided with a 20 per cent reduction to the Basic Payments Scheme in England compared to last year. Together, these factors are causing a real financial risk for smaller farms.

July is the month that many farmers look at buying their fertilisers for the next 12 months, so it will be a big decision time for many, who are considering whether or not it's worth planting their fields next year. We could very well see fields in Shropshire and beyond left unplanted next year, which will be an unusual situation to be in and will be far from ideal - especially with the huge focus on UK food security that has been highlighted by the conflict in the Ukraine.

**A**s fertiliser prices rise together with fuel and machinery costs, it means many farmers are looking at returning to more traditional methods of farming this year - methods that could actually bring some benefit to biodiversity and the environment. Farmers may be looking at utilising crop rotations better this year with the use of cover

**Paul Madeley is managing director and founder of Madeleys Chartered Surveyors in Shropshire.**

crops and nitrogen fixing crops in order to fix nitrogen together, maximising the use of organic fertilisers to reduce the use of artificial fertilisers and pesticides.

**I**t is also clear that in the emerging schemes under ELMS and the existing Countryside Stewardship Mid Tier scheme there are many options which can be included within an agreement in order to financially assist this with options focused on cover crops, legume fallows, etc and herbal rich leys. Clearly the focus at present is

on the protection of soils and water.

Whatever they decide, we are urging farmers to get professional advice about the situation that they are facing. It is a perfect time to speak to an expert who can review the farming enterprise, the current Countryside Stewardship schemes and the emerging schemes that they can apply for to see how they could potentially adapt their farming enterprises and take advantage of some of the existing schemes available, which would ease the situation financially but also have a positive impact on biodiversity. **FMJ**

**Below: Maximising the use of organic fertilisers can reduce the need to buy and store artificial fertilisers and pesticides**



**“Some existing schemes would ease the situation financially and have a positive impact on biodiversity”**



# View from the seat

Machinery cabs have become offices, canteens and a social space for buddy-seat dates, and many operators spend serious hours behind the wheel. Here's how Andy Walker has customised his Valtra T235 to suit his needs during long stints at the controls

WORDS AND IMAGES **KEN TOPHAM**

**Y**orkshire contractors Walker Brothers took delivery of their 70th anniversary Valtra T235 in April 2022. After a busy week baling, we met Andy to see his commemorative tractor and what sets it apart from a stock T5, a model that has only been out a short time but has been met with a positive response.

2021 marked 70 years of Valtra, and anniversary models were produced in Valtra's original red paintwork and black wheels matching the interior's black leather seats and floor mat. The Gen 5 T-series also received some interior upgrades, including the corner pillar display.

Andrew has finished the tractor with some additions fitted at PDI by supplying dealer Wilfred Scruton. After Covid delays the T235 landed almost to spec but missing the specified LED worklight kit. Given the choice of waiting for the next tractor or letting Scruton sort the issue at its depot, Andy decided that after already waiting a year he'd go for the dealer option. And they did it proud, fitting 12 UTV Products 40W LED lamps and a KRAMP light bar and beacon bar. "The lights are brilliant," exclaims Andy. "It's like daytime around the tractor. After seeing it, my son Rob ordered a full set for the T4 Valtra he drives. I still got the invoice though!"

## Bat cave

Inside the cab, the Red Edition trim is really smart, finished like the bat cave. Everything - even the windows, which are great for summer - either black or very dark grey. The seats are covered in soft leather and the driver has a sliding headrest. The passenger seat is very well padded too and there's a full array of screens. An Amazone AmaTran 4 ISObus screen controls a Krone baler and the secondary SmartTouch screen is for guidance. The armrest-mounted screen is dedicated to the tractor, while two monitors give a view of the baler wrapping table and netting, and from the cab roof looking backwards.

Elsewhere in the cab the red theme continues. The trim on the armrest is a nice touch, and there is a red LED above the pedals to light up the floor at night. The Valtra comes with a Kenwood KMM-BT506DAB, a brand that seems popular as a replacement for sub-par radios in many marques.

**FMJ**

The Valtra cab stands out in this special trim, the Ultimate studio doing a good job. You can't miss all those screens either!



Andy Walker says he'll hold on to this T235 for a while, partly for its status but also because it was sold to him by a close friend who sadly passed away shortly after



**Machine** 2022  
**Valtra T235**  
**Red Edition**

**Operator**

**Andy Walker**

**Location** York, North Yorkshire

**KEY UPGRADES**

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£66 + VAT, ledlightsforsale.co.uk

**Daken Velvet 500 toolbox**  
£51.50, unitrailer.co.uk

**Hadley Big Bully air horn kit**  
£319 + VAT, kudauk.ltd.uk

**TTi TCB-950 CB radio**  
£99.95, radioworld.co.uk







### Cab up close

**1** The armrest is accented with red, which adds a nice touch of colour to the otherwise dark interior.

**2** A good sound system is standard from the Kenwood DAB radio, with a slot alongside for the TTI CB radio.

**3** Even the buddy seat was upgraded in the anniversary machine with a soft leather cover and plenty of cushioning.

**4** Strobe bars have gained popularity with great bang for the buck in terms of being visible. Andy also added a rear-facing Sparex camera.

**5** There's even a red LED light behind the pedals for atmospheric mood lighting.

**6** A Daken toolbox was added to address a lack of storage space, which on earlier T-series used to be where the AdBlue kit is.

**7** Of course there's a set of air horns. These Hadley units fitted to the roof are a bit more modest than some we've seen.

**8** All of the outlets are used up, with plenty of DIN plugs in the Valtra.

**9** The sliding headrest on the part-leather, part-alcantara seat has gone down well, aiding comfort when looking behind a lot.

**10** Keep her lit has a whole new meaning here, with five LED lights per front corner plus the headlights and LED bar at the top of the cab.

**11** Tinted windows are standard on 70th anniversary models, dark enough for sunny days but not causing issues at night.

**12** Black rims are standard on this model, shod here with Trelleborg TM800 tyres.



Valtra branding is subtle but you can't miss this 70th anniversary special edition tractor







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# 10 QUESTIONS WITH...



PSM Plant & Agricultural Services contracts out of Driffield, Yorkshire. Pete McKie started as a tractor and man outfit and has evolved his business to specialise in farm track and road repairs

IMAGES KEN TOPHAM/PETE McKIE

**FMJ:** What was the first tractor you operated?

**Pete McKie:** It was a Massey Ferguson 590 that was on the family farm. It is still in the family.

**FMJ:** What is your current tractor?

**PM:** A Fendt 724 is my current tractor. It's done 9500 hours.

**FMJ:** What's your favourite machine you've operated?

**PM:** My 724, to be honest. It does everything I ask of it and it's my own. It's a very versatile tractor.

**FMJ:** What's your best and worst day?

**PM:** That's a tricky one. A good day is winning nice

Below: The 724 on crushing duty, processing loose stone down to a gradable material



The track repair business has seen Pete and his crew work from Lincoln to Penrith



Pete has completed 18 seasons working with J.W. Evison & Sons and Evison Bros, pulling one of their big balers with his tractor



jobs that you've worked hard to quote. Collecting my first new tractor was pretty good too. Bad days are big breakdowns, the sort that have to go back to base.

**FMJ:** What don't you climb into the cab without?

**PM:** Phone is automatic, and pack-up (An East Yorkshire lunch bag). Leaving home without that is a schoolboy error.

**FMJ:** What tools are essential to keep on the tractor?

**PM:** We work away from home a lot. The tractor is well kitted out with battery, tools and spanners. The grinder is brilliant. We do some flail mowing on unknown ground and it's great if you pick up wire or something that wraps.

**FMJ:** What development in farming has really transformed your job?

**PM:** The best things we have found lately are

*"Buy the best you can afford to run and build it up. Don't get bogged in finance"*

Nokian Ground King tyres. They suit the hard surface jobs and wear well but will work well in the field too.

**FMJ:** What machine would you like to get your hands on?

**PM:** Does an AC Cobra count? If not, the rumoured new 700 series Fendt. If there is to be a 730 model, that would be an awesome machine.

**FMJ:** What's playing in the cab?

**PM:** I have a very eclectic taste in music, so it can be Absolute Country or Classic Rock... Just not R&B.

**FMJ:** What advice would you give young or aspiring operators?

**PM:** If you want to be an owner-operator, don't get hung up on having new kit. Buy the best you can afford to run and build it up. Times have changed but my first tractor was a £10K New Holland. Just don't get bogged in finance.

FMJ

The Stehr grading blade can be used for repairing and levelling tracks





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# LOWRANGE

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

## Longer Defender boosts capacity

**L**and Rover has launched the Defender 130, essentially an extended wheelbase, eight-seat version of the 110. The three most rearward seats fold away to provide an expansive cargo area with seats for five. A five-seat version is also available.

Overall, the 130 is 340mm longer than the 110 at a total length of 5.36m, however Land Rover claims this doesn't affect its off-road ability, retaining approach and departure angles of 37.5 degrees. Maximum wading depth is 900mm. Land Rover is not targeting the 130 as an out-and-out workhorse: there isn't a commercial version and the addition of 20in alloy wheels, four-zone climate control and exclusive premium bodywork finishes emphasise this.

Under the bonnet comes the option for two petrol and a diesel - all six-cylinders. The petrol options are the P300, a 3.0-litre mild-hybrid producing 296bhp and 470Nm, and the P400, which is 396bhp. The D300 diesel offers 296bhp and 650Nm, said to be good for 34.4mpg.

Trim levels are SE, HSE, X-Dynamic and X, plus a First Edition model. Prices start from £73,895 for a P300 X-Dynamic SE, and prices exceed £100,000 for top-spec models.



## INEOS TO BUILD ELECTRIC OFF-ROADER

Ineos Group CEO and chairman, Sir Jim Ratcliffe, has confirmed plans for a fully-electric four-wheel drive to join the Grenadier. The new model will use an all-new smaller platform than the Grenadier, while retaining its workhorse DNA and off-road capabilities. Launch timings are yet to be confirmed. The second model line will be produced alongside the Grenadier and Grenadier pick-up at the company's Hambach plant.



## NEW OPTIONS ENHANCE POLARIS STORAGE

Polaris has collaborated with Rhino-Rack storage solutions to offer a range of strong, lightweight and rust-resistant aluminium roof racks, bed racks and accessories for the Ranger and General.

Rhino-Rack also offers a range of mounts to securely attach tools and accessories, including a high-lift jack mount, cargo corner bracket to mount a coolbox in the cargo bed, traction board mount and a gun mount bracket.

Additional tie-down points can be added, plus spare tyre straps to transport spare tyres outside of the cargo bed. A multi-purpose tool holder can carry and protect tools thanks to rubber inserts that secure tools and a ratchet-locking mechanism for quick-release.



## ESSEX YAMAHA DEALER MOVES

Quad Bikes R Us owner Kerry Marven has opened a new showroom at Heybridge, Maldon, in Essex. "We moved from our old site in Great Totham to establish bigger premises and become an exclusive Yamaha dealership selling the full range of leisure, sports and utility ATVs," she explains. The new premises highlight the full range of Yamaha machines.



**MIKE  
BREWER**  
Motoring Expert  
& TV Presenter

# I'll tell you the truth about these amazing little pellets

In 1942, American motor industry engineers discovered the little pellets, used in Hurricane fighter planes on the Russian front, removed carbon deposits and kept engines permanently clean. They were worried. This would put a massive dent in profits from replacement parts, repairs and even slow new car sales. But for the fuel additive companies the news was disastrous. So, they started a devious smear campaign to mislead motorists and 'if they were that good the manufacturers would fit them' was born.

80-years on and motorists are still being misled. Whilst cars, vans and lorries all continue to suffer the same deposit-related problems of poor fuel economy, sluggish performance and increased emissions. Hidden engine deposits and clogged exhaust systems are still making billions for the motor industry but it's ordinary drivers, public-health and our environment who are paying the price.



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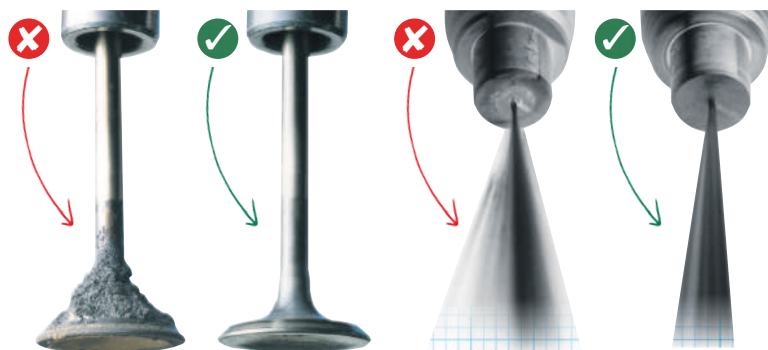
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*Mike*

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**The D-Max has hit the right notes for many farmers and contractors**

Below: Large 9in display is exclusive to the V-Cross. It's clear, but not the most intuitive to use

Right: Suspension upgrades have made the new D-Max much more refined over rough terrain



# Crossing over

The most popular model in the new D-Max range is the V-Cross, but is the top-spec Isuzu worth the premium over the mid-level DL20? Here's our verdict

WORDS **PETER SKILTON** IMAGES **TOM CRITCHELL**

**I**f this year's return to farm machinery shows has confirmed anything, it's that farming folk love a pick-up. The car parks teem with them. But, compared to a few years ago, the mix is changing and this year's LAMMA and Cereals showed a distinct increase in the number of Isuzu D-Max models.

Coincidentally, our V-Cross test vehicle ended up parked alongside an almost identical D-Max. After sharing admiring glances at each other's trucks, the owner next door explained he'd bought his last year to replace a much-loved Mitsubishi. He'd have gone for another, had the L200 not been discontinued. The same went for a friend of his, who, having seen the Isuzu, bought one to replace a Nissan Navara - also discontinued. Both have been impressed with their Isuzus, he concluded.

Much has been said about the demise of choice in the pick-up market, so we'll say no more than to recap that choices are now limited

to four brands - Isuzu, Ford, Toyota and SsangYong. And it seems the Isuzu D-Max has hit the right notes for many farmers and contractors in the market for a new vehicle, such has been its success since launch.

Isuzu recorded 3688 sales at the close of 2021, the year this new D-Max launched, an increase of 16.9 per cent over 2020, which ended with 3154 units. It has also seen a significant shift in the sales mix. Double-cab versions with automatic transmission increased, while the range-topping V-Cross

automatic became the brand's best-selling model. No surprise really, given the company's attempts at luring a wider audience including lifestyle buyers. This success has continued into 2022. Isuzu recorded 838 sales of the D-Max during the first quarter, against a backdrop of industry supply chain issues, shortages and delays.

The last D-Max to appear in *FMJ* was a DL20 model. It's the middle ground of the range, with just enough luxuries to make it comfortable, without being excessive with its functions. In

terms of underpinnings, the two models are almost identical. The double-cab body is the same, the 1.9-litre diesel engine still kicks out 162hp and the four-wheel drive capabilities are just the same. In fact, aside from the performance of the automatic transmission, which we'll come to soon, its road handling is the same too.

Payload on the V-Cross is 1070kg. It's easy to load, with no superfluous style bars to get in the way



## Quick summary

For those who may have missed the previous report, ➡ ➡





Wading depth is 800mm so this stream crossing posed no difficulty for the V-Cross

## TECH SPECS

### Isuzu D-Max V-Cross

**Engine** 1.9-litre, 4-cylinder diesel **Transmission** Six-speed automatic **Four-wheel drive** Yes **Low-range?** Yes **Power** 162bhp  
**Torque** 360Nm @ 2000-2500rpm **Max speed** 112mph **0-62mph** 13.0 seconds **Claimed combined economy** 30.7mpg  
**Max payload** 1070kg **Towing capacity** 3500kg **Ground clearance** 235mm **Warranty** 5 years or 125,000 miles  
**Dimensions (LxWxH, m)** 5.27x1.87x1.79 **Price** £32,349 plus VAT

→ we'll summarise quickly. There is only one engine option in the D-Max, carried over from before. Power is 162hp and torque is 360Nm. Towing capacity is 3.5t. A six-speed auto is available from the DL20 up. The D-Max will work its way up to motorway speeds with little drama, then sit there quietly and calmly. It's trump card is that each model comes in under 2040kg, so the double-cabs can travel at the same speed as cars on single and dual carriageways, where rivals are forced to sit at the lower van limits.

The suspension provides a comfortable ride, especially on farm tracks and unmaintained lanes. Vibrations through the body feel subdued and there are few creaks and rattles in the cab, aided by chassis cab mounts designed to absorb more noise, vibration and harshness. On smoother surfaces the suspension does a good job of managing body roll through bends,

especially during a trip along Welsh mountain roads. Leaf springs adorn the rear, and like many pick-ups they're better with a bit of weight on top of them, but you don't feel the same skipping and bouncing when empty as before.

Already familiar with the way the D-Max drives, this latest stint with the pick-up allowed a better chance to get to grips with the safety features that had caused frustration in the DL20. The D-Max boasts class-leading safety standards, achieving the maximum five-star safety rating in the Euro NCAP test. This UK first for a pick-up is in part due to the Advanced Driver Assist Systems (ADAS) fitted as standard across the range, with Forward Collision Warning, Traffic Sign Recognition, Manual and Intelligent Speed Limiter, along with Lane Departure Warning and Autonomous Emergency Braking as standard.

On paper this all sounds fantastic, yet the interventions can be more sudden and alarming as any changes to the traffic around, the sensors

picking up what they believe to be a danger when really it's just the normal flow of a busy motorway. The audible beeps and flashing lights are tiresome, especially on a long journey, as is the way it violently takes control of the steering wheel should you dare to cross a white line without first indicating.

Luckily, this time we delved deep into the sub menus of the vehicle and found the settings for the system we'd missed before. It turns out you can't access them while driving. Once found you can turn off emergency braking and lane departure assistance. Suddenly the D-Max became much more enjoyable to drive.

### Shifting into auto

The biggest difference between the two D-Max versions tested is the transmission. The six-speed manual in the DL20 is a decent gearbox. The clutch is light and the shifts are smooth. The automatic is good too, yet there are moments where it has a tendency to hunt between gears. And, when

## REAL-WORLD TEST FIGURES

Miles **406.0**  
 Fuel added **52.07 litres**  
 Displayed economy **35.6mpg**  
 Calculated economy **35.4mpg**



Left inset: Fold-up rear seats are an interior highlight, freeing up space for large items while keeping seats clean



# WORKINGVEHICLE

## ISUZU D-MAX V-CROSS



Traction control ensures rear-wheel drive is controlled on loose surfaces, or you can turn it off...



Leather seats are more comfortable and easier to clean than cloth versions in lower-spec models



**Below inset:**  
The D-Max is a good-looking pick-up with a well-proportioned design

to the full V-Cross package. Yet there are many more enhancements that make the top-spec pick-up more appealing.

The V-Cross features 18in wheels, the same size and style as the DL20 but entirely dark grey.

Externally, the grille, sidesteps, door handles and mirrors are all the same shade of Gun Metal as the wheels.

The V-Cross also gets the adaptive cruise control and heated front

seats, so then it becomes a bit more upmarket. The headlights are automatic Bi-LED units, along with LED front fog lights, daytime running lights and rear lights. The performance is vastly improved over the DL20's standard halogen units. Aiding visibility on the V-Cross are front parking sensors and a reversing camera to complement the rear sensors.

### Lots of leather

Inside, the heated seats are leather, the driver getting electric adjustment. The steering wheel is leather too and entry and starting are keyless. The dash in the V-Cross uses a comprehensive 9in touch-screen display exclusive to this model, with Apple CarPlay and Android Auto. Eight speakers give vastly improved audio.

Of course, all the extra functions and luxuries come at a cost, so is it worth it for a pick-up that essentially performs exactly the same as the lower-spec models? The DL20 is £26,999 on the road, plus VAT. For the V-Cross you'll pay £32,349 plus VAT. That's a difference of £5350. The V-Cross certainly packs in a lot more and the leather interior, large touch-screen display and LED headlights are all great additions. Then there's resale value to consider. A top-spec pick-up is always going to be easier to sell. Perhaps this is why more buyers have chosen the V-Cross than any other D-Max model.

EMJ

**“Suddenly the D-Max became much more enjoyable to drive”**

Above right: Gun Metal finish is exclusive to V-Cross wheels, but they're the same size and style as the DL20 and DL40

Right: 1.9-litre diesel engine kicks out 162hp, down on rivals but just enough to avoid being underwhelming



There's body roll through the bends but it's predictable and composed



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**“Once you’ve filled your bucket it’s simply a case of tipping it away”**

The rotary sweeper is an indispensable tool for cleaning yards to minimise crop contamination and slip hazards



# Cleaning up

**One of the most underrated attachments for a telehandler is a brush, but which one to choose and how to use it very much depends on what you’re using it for**

IMAGES MANUFACTURERS/PETER SKILTON/SIMON HENLEY

**W**hen they’re not loading or hauling, telehandlers can be used to keep yards, access roads and country lanes clean. The versatility of a small telehandler has meant it has found favour on dairy farms where a scraper can be fitted, while brushes can also be attached for sweeping vast areas. A simple static bolt-on brush is pushed around the farm much like a broom would be and is useful for yards or grain stores, while something more technical is a rotating brush that is spun hydraulically and collects dirt in a hopper.

While there are purpose-designed brush attachments, another more affordable option is a bucket brush with brackets that can be welded on to an existing bucket. The brush can be rotated

**Right: A bucket brush enables farmers more easily to meet obligations to keep public roads clear of mud and debris**



hydraulically using a telehandler’s auxiliary hydraulics, sweeping debris into the bucket for easy disposal.

The development of hydraulic systems on machines means it’s now possible on modern telehandlers to set the flow to the brush, which keeps it spinning at a constant rate regardless of engine or travel speed. Once you’ve filled your hopper or bucket it’s simply a case of tipping it away or into a trailer.

## Road safety

If you travel on the road you’ll need a plan to handle any debris from your machinery that ends up on the highway.

If it’s a one-off exit from a field then you will likely only need a shovel and brush to clear up the gateway and road. However, regular trips need a more robust plan to keep the road clean, and this should be a priority, which is where an outfit such as a telehandler and brush are incredibly useful. Keeping on top of such a situation is key, say insurers, who handle claims associated with such incidents on a regular basis.

The driver of a tractor or self-propelled machine is responsible for the load, including implements and their contents. This means that anything



# BRUSHES TO BUY



Albutt

## Albutt

An alternative to mechanical bucket brushes is the V-Concept range of sweepers, which feature a patented 'V' system, designed to maximise sweeping capabilities and efficiency. The V7 model is designed to give a simple, effective solution for sweeping dry, loose materials such as grain, moving on to tougher materials like manure and slurry. The 'V' system means fewer rows of bristles are

required to give the same performance – ultimately making it more cost-effective when it comes to replacing the bristles.

## Cherry Products

In partnership with Eastern Attachments, Cherry Products offer the X-Form range of bucket brushes with a galvanised body and adjustable frame to fit most tractor and telehandler buckets. They use hard-wearing, reverse action poly brushes



Cherry Products

and are supplied with all pipework. They are said to be easy to fit and stand upright when not in use.

## Duraquip

The most popular Duraquip telehandler brush has a floating design that allows uneven surfaces to be swept effectively. Heavy-duty castors allow the 2.44m-wide implement to be guided in and out of awkward corners, with the motor mounted within the shell width for protection. It is manufactured from heavy-duty steel to create a single-piece folded shell and has a hydraulic self-emptying collector as opposed to using a bucket. The sweeper uses 560mm-diameter bristles; polypropylene is an option and advised for areas where animals are likely to graze or congregate. A flow control valve gives variable speed adjustment, plus an optional dust suppression system and kerb brush.



Duraquip

## JCB

The Bucket Brush comes with a Domex steel frame for strength without making

▶ that falls off or out of a muck spreader is considered an unsafe load, the same way in which a bale that falls from a trailer would be. Mud thrown from the tread of tyres is equally problematic. If the debris results in an accident

**“As with most brushes, they are suitable for multi-purpose use”**

then the alleged offender could be liable for a penalty.

Keeping roads clean is a joint responsibility between the landowner or tenant as well as the contractor. This means that the operator is also responsible, not just the business owner, and keeping on top of mud on roads should be considered a cost of the job. Whether it's factored into the cost by a contractor or as an option for the customer is







LWC Agricultural Products



JCB



Padagas

the attachment overly heavy – it weighs just 210kg – and with a hood made from galvanised steel to resist corrosion. The low-profile design aids visibility and quick-release mounting brackets welded to the host bucket make it easy to install or remove. Poly-bristle cartridges form the hydraulically-driven rotary brush, and segments are securely held in place but easily replaced when worn or damaged. At 2.67m wide overall, the Bucket Brush is suitable for 2.13m to 2.44m grain shovel buckets in the JCB attachments range. When not in use, it stands upright to take up minimal space in a barn.

### LWC Agricultural Products

A range of bucket brushes from 1.22m to

2.46m to suit front-loader buckets, telehandlers and skid-steers. As with most brushes, they are suitable for multi-purpose use, including mud, aggregate, grain and muck. Weld-on brackets for the buckets, pipes and couplings are supplied as standard and adjustable arms and legs fit most buckets. A rubber buffer is attached to the canopy for upright storage off the floor.

### Padagas

Spaldings offers the Padagas KS-250 powered brush conversion for a farm's existing bucket where material needs to be collected for disposal. This 2.3m-wide design incorporates a single hydraulic motor for the 600mm-diameter brush

and simple mountings to fit the bucket, including side supports that are adjustable to find the best spacing between the brush and leading edge of the bucket.

### Suton

Included in this wide range of brushes and sweepers is the bucket brush, which was first designed by the company in the 1980s. It can collect the usual variety of materials and uses a galvanised body for protection. It can fit any size bucket, from 1.5m to 2.61m, or a matched bucket is also available. It hitches quickly to a bucket and has reversible brush rotation. All machines are now fitted with a 560mm-diameter Ultra Brush with each bristle fitted with 3.5mm brush filaments.



Suton



personal preference, but either way there is a legal requirement to keep the highway clean.

As well as using a brush on a telehandler, another way to minimise the risk to other road users is to give them plenty of warning of potential hazards, and this can also reduce your liability if there is an accident. Road signs that indicate slippery conditions and including text such as 'mud on road' will cover hazards but doesn't remove the need to keep the roads clean.

### Dedicated operator

Roads must be kept clean throughout the operation, not just at the end of the job, which might mean a dedicated operator is needed to clean after a spreader leaves a field. Signs indicating that operatives are working in the road will also be necessary to highlight the hazard.

Left: Converting an existing bucket into a sweeper-collector is a straightforward operation

EMJ

## THE ORIGINS OF THE BUCKET BRUSH

Suton are the designers and manufacturers of the original agricultural bucket brush, which was made to fit a customer's own bucket. It is the brainchild of the then MD Dennis Lee and the late Eric Seaman, works design engineer in the early 1980s. Back in the days before CAD design and proper drawings, each brush was tailor made to the customer's own bucket dimensions.

Early sales were slow but by the mid-1990s the Suton Bucket Brush was the company's flagship product and today the company manufactures over 1000 units every year for customers worldwide. The manufacturing process is now streamlined with set sizes to suit a variety of bucket sizes. The company also stopped supplying wire bristles in the early 2000s, which were harmful to the environment and a danger to livestock and feed.



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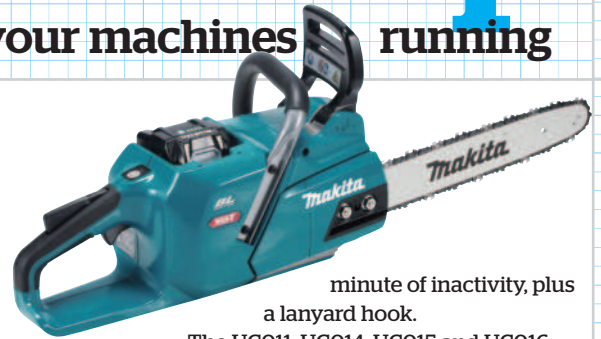
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## New electric Makita chainsaws

**T**he new UC002, UC003 and UC006 XGT 40Vmax top-handle chainsaws deliver 1.4kW of max output with a brushless motor, comparable to a 30cc two-stroke chainsaw. They weigh only 4.2kg



without batteries and feature a large oil reservoir with an adjustable chain oiling mechanism. They also have a variable speed control trigger, a kickback brake and an auto-power off function that automatically turns off the chainsaw after one



minute of inactivity, plus a lanyard hook.

The UC011, UC014, UC015 and UC016 XGT 40Vmax rear-handle chainsaws have bars of 300, 350 or 400mm. 40Vmax Li-Ion battery power generates an output of 1.6kW for chain speeds up to 25.5m/s.

Changing and adjusting the chain is done without tools and there is adjustable automatic chain lubrication.

## Stihl crowns first Women's Timbersports champion

Stihl Timbersports hosted its first ever British Women's Championship alongside the British Championship and British Rookie Championship in June at Royal Three Counties Show, which saw the eight best female lumberjill athletes in Great Britain put their axe, saw and chainsaw skills to the ultimate test. Zoe Penlington from Wales took top spot, ahead of Beth Parker from Southport, Catherine Eccles from Scotland, Dee Hardwick from Redditch, and Justine Narusa, Kristy Bray, Martine Arrowsmith and Sarah Cox all from Wales. Zoe's brother Glen Penlington was crowned the 2022 British Pro Champion.



## Milwaukee launches 18v tyre inflator

Milwaukee has previewed its new M18 Inflator, which will be available soon. It delivers fast, accurate and easy inflation with the portability to take anywhere. It features an auto-pressure check that is designed to wait for the pressure to stabilise, check the system pressure, and fill until the desired target is reached. Auto Shut-Off will stop inflation at the selected pressure, with four memory slots for regular PSI settings. It fits all M18 batteries and has a five-year warranty.

## Q&A

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PROBLEMS



**Q** Our Terex TM250-R has started to surge during heavy work and starts to lose power. The fuel filter has been changed but fuel would not flow clear when priming the system and with the engine running there is air constantly bubbling in the system.

*J. Hamilton, Staffordshire*

**A** The TM250 uses a turbocharged Perkins engine and the symptoms you describe sound like mechanical lift pump failure. A split in the diaphragm can cause air bubbles in the fuel system, low fuel pressure and loss of power. Replacing the lift pump isn't difficult and should take less than an hour. **FMJ**



# 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

## Kuhn Stronger HD 4000 self-propelled sprayer

ROS 1:32

ROS has chosen Kuhn's flagship self-propelled sprayer for its latest release. The metal and plastic model has good levels of detailing and many of the working features offered on the real machine. It has the 36m boom and the 400-litre clean tank options fitted but not the GPS receiver.

£123.50

● [www.kuhn.com](http://www.kuhn.com)



### Row-crop wheels

Both axles are sprung and the wheel track set on the minimum (2.8m) setting, but it has steerable wheels on the front axle only. The model has smart row-crop wheels with mudguards, wheel motor and hydraulic pipework all detailed. A detachable ladder is provided on the right-hand side of the sprayer.



### Crafted cab

The cab is provided with work lights, single warning beacon and folding driving mirrors. It has a hinged door and inside is accurately laid out: steering column and driver's seat plus the joystick in the right-hand armrest, but there's no monitor screen on the right-hand A-pillar.



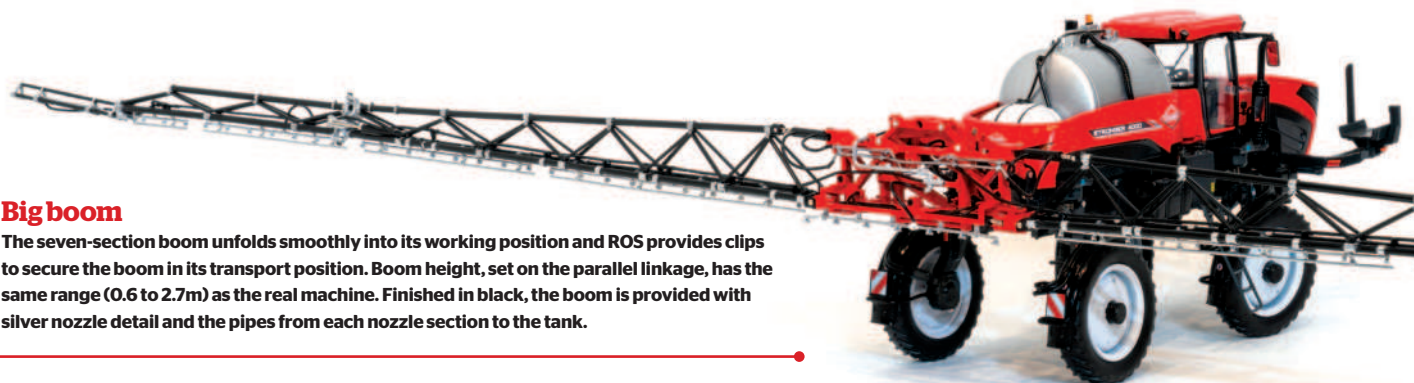
### Cummins power

Access steps to the cab are hinged, as is the bonnet, which lifts to reveal the Cummins engine detail. Under the access platform are the filler pump and pipework, plus a tank level gauge behind the cab and induction hopper, locked in its transport position, on the chassis between the front and rear axles.



### Big boom

The seven-section boom unfolds smoothly into its working position and ROS provides clips to secure the boom in its transport position. Boom height, set on the parallel linkage, has the same range (0.6 to 2.7m) as the real machine. Finished in black, the boom is provided with silver nozzle detail and the pipes from each nozzle section to the tank.





## Krone BiG Pack 1290 HDP VC baler ROS 1:32

This newly tooled baler has many working features. On the drawbar are seven hydraulic pipes for attaching to the tractor, a yellow PTO shaft and an adjustable stand. The pick-up floats on two wheels and has a freely rotating crop press roll.

£100 • [kroneukltd-merchandise.mysshopify.com](http://kroneukltd-merchandise.mysshopify.com)



### Working position

Rear wheels are steerable and two chains and a single ram support the hinged tailgate in its working position. Two yellow road chocks and a fire extinguisher are provided on the bale chamber side. Safety and instructional decals, work and tail lights are also detailed.



### Under the covers

Both side panels pull out and the outer covers also open revealing 15 white balls of twine on each side. The three dark grey top covers are hinged. Under the front cover is the yellow driveshaft and grey flywheel. The main gearbox is detailed under the middle cover and the six knotters below the rear cover.



## International 4166 Schuco 1:32

Schuco's resin International 4166 tractor features a realistic looking grille with headlights. Engine detailing includes black belts, white oil filters and black exhaust. It also has realistic looking tyres and a fully glazed cab with black driving mirrors and silver door handles.

Around £101 (€119.00) • [www.schuco.de](http://www.schuco.de)

### Fixtures and fittings

On the rear mudguards are tail and work lights, while fixed lower links, clevis drawbar and hydraulic sockets are detailed. Cab doors do not open but the instrument panel is detailed inside with silver dials, steering wheel, driver's seat and linkage levers.





# Iron in the fire

In the search for an affordable replacement for a JCB Fastrac 1135, John Stonehouse found just what he was looking for in a rare 2005 Same Iron 165.7. *FMJ* went to see it in action

WORDS AND IMAGES DAVID LALEY



The Iron 165.7 is effectively a dark orange Deutz-Fahr Agrotron 165.7



Right inset: This Same Iron 165.7 was great value for money in 2010 and has become the most versatile tractor John Stonehouse has operated

In March 2010 mixed farmer John Stonehouse found himself without a frontline tractor following a disastrous rear axle failure on his JCB Fastrac 1135 and needed to find a replacement. Neighbouring second-hand machinery dealer Martin Stephenson at Flixton came to his rescue and hired him a 150hp Deutz-Fahr Agrotron 150.7, to which he took an immediate shine.

"It didn't really matter what make of tractor we found to run our 3m Kuhn combination drill so long as it was comfortable and had somewhere between 150 and 180hp," says John. "I certainly hadn't contemplated running a Deutz-Fahr before but the Agrotron Martin hired to us performed exceptionally well, and I was really impressed with the tractor's spacious

cab, control layout and all-wheel braking system."

Although he remained open to purchasing a tractor from any manufacturer, so long as it offered value for money, John kept one eye out for an Agrotron during his search.

"While browsing adverts online I discovered a 2005 Same Iron 165.7 for sale at Cheshire-based Valtra dealer John Bownes," he says. "I immediately realised that aside from its alternative bonnet styling, dark orange

livery and extra power, the 165.7 was identical to the Agrotron I'd used. It was equipped with the same 50kph 40x40 six-range powershift transmission I'd enjoyed using and the identical four-wheel double disc braking system that I really liked for road work."

"It looked in great condition and represented excellent value for money for its specification," he says of the tractor, which had previously lived a well-maintained life on a dairy farm and had clocked 4500 hours in almost five years.

"Obtaining spare parts wouldn't be a problem either

## Profile

**Machine** Same Iron 165.7  
**Year** 2005  
**Owner** John Stonehouse  
**Owned for** 12 years  
**Hours** 6900  
**Used for** Drilling, haulage work and mowing





Above: John is a huge fan of the spacious and airy cab fitted to the Same Iron 165.7

Below: The clevis drawbar is cleverly mounted and tucked away below the exhaust system

Below right: The 50kph 40x40 transmission incorporates six ranges of four



“Aside from its bonnet, orange livery and power, the 165.7 was identical to the Agrottron”

Below left: Spool valve, linkage positioning and PTO controls all fall easily to hand to the right of the armrest

Below right inset: The exhaust follows the contours of the cab so it doesn't impede visibility



because I live not far from Hardwick Agricultural Engineers Ltd who had sold plenty of the equivalent Deutz-Fahr Agrottron models and had also experience running an Iron on their own farm. Not wanting to miss out, I did a deal without venturing to see the tractor and it arrived with us in June 2010.

“From the moment it arrived the Iron performed impeccably and I loved using it for carting grain during its first summer with us. It remains the best tractor we have run on our 11t Rolland trailers, especially when negotiating the steep descent from the top of Staxton Brow. It's by far the safest tractor I've ever used on this challenging 16.4 per cent gradient hill.”

### Front runner

The farm's 3m Kuhn Venta T1301 combination drill has also lived on the

The 170hp Same has no trouble hauling this eight-furrow semi-mounted reversible Dowdeswell MA190 plough







**Right: John bought the Iron to use with this 3m Kuhn Venta T1301 combination, which it handles comfortably**

**Above: John reckons there's no better grain-carting tractor in his fleet at the moment and loves using the Same with an 11t Rolland trailer**

**Right: The Iron comes with a 305-litre diesel tank and decent set of wide tapered steps**



► 170hp Iron's 9200kg rear linkage since joining the fleet in 2010 and John has endeavoured to make the most of the tractor's front linkage and PTO.

"The fact that the Same has a front PTO was a complete bonus and has enabled us to maximise its versatility on our farm. My first project was to build a 3m front-mounted power harrow out of an old 4m Lely Roterra to use with the Kuhn combi-drill.

"This worked exceptionally well for several years and provided some useful ballast on the front to improve weight distribution while running the combi-drill. However, we realised the extra power harrow was starting to over-work certain types of soil so I swapped it for a 3m Guttler packer roll that I attached to a frame with tines that I built myself and this has proved to be much better at consolidating ploughed land."

Back in late 2013 John purchased a Dowdeswell MA190 eight-furrow reversible semi-mounted plough to use with the Same and in 2015 a heavy-duty fully-mounted 4m Farm-Force tine drill specifically to establish beans. More recently, he has increased the flexibility of his Iron even further by purchasing a front-mounted Vicon

mower to pair up with his 3m trailed version "I'd always wanted to run a larger plough and reckoned the Same had the specification, power and traction to handle something bigger

than a five- or six-furrow fully-mounted plough. In the end I bought the big Dowdeswell and several pallets of spares for little money and once I'd got it set up correctly the Same handled it without any issues.

"We ran the drill on the Same successfully for several years before we realised the tractor's major components were under too much strain so we ended up purchasing a second-hand 215hp Massey Ferguson 8250 to use with the Farm-Force drill and the eight-furrow reversible Dowdeswell plough. This allowed us to return the Same to the roles we originally bought it to accomplish, which were the vast majority of drilling, haulage work and mowing. We also use the Iron for powering a 12t Rolland rear discharge muck spreader and occasionally for pulling one of our spare ploughs."

## Deutz engine

John's Same Iron is powered by a Euro II-specification six-cylinder turbocharged and intercooled 7.1-litre Deutz engine. Rated at

## Tech specs

### Same Iron 165.7

**Engine** Deutz Euro II 7.1-litre 6-cyl turbocharged and intercooled  
**Power** 170hp  
**Engine speed** 2350rpm  
**Max torque** 683Nm @ 1400-1700rpm  
**Torque reserve** 45%  
**Diesel tank** 305 litres  
**Transmission** 40x40 powershift, 6 ranges, 4 power gears plus creep speeds  
**Max speed** 50kph  
**Rear linkage** 9200kg  
**Front linkage** 4000kg  
**Rear valves** 4  
**Hydraulics** 120 L/min variable displacement pump with load sensing  
**Wheelbase** 2.77m  
**Steering radius** 4.95m (without assisted braking)  
**Weight** 5970kg

**"The Same has proved to be one of the best value second-hand tractors we've invested in"**

**Above: The Iron 165.7 is powered by a frugal 170hp 7.1-litre six-cylinder Deutz engine**

170hp at 2350rpm, the engine also features liquid oil cooling, electronic fuel injection and delivers its max torque of 683Nm between 1400 and 1700rpm. Power is transferred to the ground through a six-range 40x40 transmission that's also equipped with creep speeds and an electro-hydraulic power shuttle for smooth and safe direction changes.

"It's an incredibly frugal engine that provides ample power at the PTO and plenty of low-down torque for draught work and pulling trailers. It's also a very simple transmission to use with the powershift ratios engaged through a pair of push buttons on the main gear lever or a smaller joystick on the armrest," says John.

The Iron's integrated armrest includes powershift controls, hydraulic linkage buttons and engine speed management buttons. Additional hydraulic, PTO, linkage position, lighting and windscreen wiper controls are situated on a console behind the main gear lever. "It's a very well thought-out and spacious cab that's incredibly comfortable thanks to its fully adjustable suspended seat, integrated cab suspension and front axle suspension," adds John.

The Iron comes with a closed-centre hydraulic system that

**Left inset: Toggle switches are used to turn on the flashing beacons, windscreen wipers and external light**







provides 120 litres of oil per minute thanks to a high-capacity variable displacement pump featuring load sensing. The electronically controlled, radar equipped category III rear linkage is capable of lifting an impressive 9200kg. External linkage and PTO controls are also conveniently located in the Iron's rear mudguards. However, it's the all-wheel oil immersed double disc braking system that has impressed John the most.

"It's a very well thought-out hydrostatically operated braking system that provides fantastic stopping power and control on the road," he says. "In hindsight



Left inset: Like many tractors indigenous to mainland Europe, the Iron's cab features an opening front screen and large sunroof

though, I wish I had sourced another set of Pirelli tyres like the ones fitted to the tractor when we originally bought it and not the BKTs I replaced them with, which don't have quite the same handling characteristics.

"Aside from that the Same has proved to be one of the best value second-hand tractors we've invested in and has now clocked 6900 hours. Other than replace a set of fan belts, the radiator header tank and a solenoid on one of the powershift ratios it has performed exceptionally well and is never likely to leave our farm because of its versatility," he concludes.

FMJ

Below: The fully adjustable and suspended seat features an integrated armrest that includes powershift controls and hydraulic linkage buttons



## Working with a classic

Is your classic tractor still putting in a shift that puts modern kit to shame? Prefer the bark of an old-school six-cylinder? Favour on-farm fixes without connecting a laptop? We want to see your older machines in action. Send details of your working classics, ideally with a photo or two, to [info@farmmachineryjournal.co.uk](mailto:info@farmmachineryjournal.co.uk) and they could feature in FMJ soon!



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# Radio-activity

**In 1955 the Ford Motor Company developed a radio-controlled version of its Fordson Diesel Major. Was this the first autonomous tractor?**

WORDS AND IMAGES  
**STUART GIBBARD**



Over the last year Krone, Lemken, John Deere and Horsch have all unveiled autonomous tractors. The latest concepts have been developed as part of a move to increase automation in farming, not only to save on manpower but also to improve efficiency with more reliance on sustainable systems.

The different autonomous technologies used include electronic sensors, radio control, laser guidance, GPS positioning,

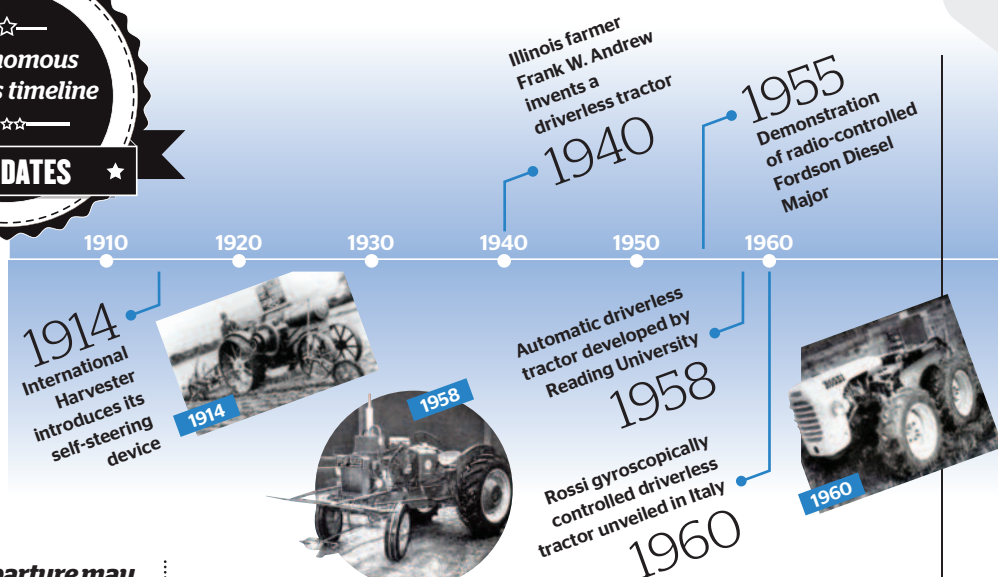
vehicle-to-vehicle communication, computer monitoring, stereo cameras and other guidance systems. The concepts are divided between supervised (remote and monitored operation) and programmable (fully autonomous) systems, and various experimental projects are still undergoing trials.

It has been said that the most expensive part of a tractor is the person in the driving seat. There have been times when driverless systems were promoted to save on wages.

In more recent years, it is all about efficiency: improving productivity, reducing the risk of human error while also addressing the staff shortages in modern agriculture.

The advances that make autonomy possible can be traced back to the 1990s when Massey Ferguson pioneered the use of global positioning systems. This, in conjunction with electronic and computer monitoring, turned the farm tractor into a powerhouse of technological sophistication. GPS guidance means that agricultural





Left: Radio-controlled Fordson Major on demonstration at Boreham House in September 1955

“ This departure may well foreshadow the shape of things to come ”

machines have been semi-autonomous for several years, leaving the driver almost superfluous during many operations.

However, the idea of a driverless tractor is by no means a recent concept and has been about ever since motor power arrived on the farm. Following the introduction of its Mogul 8-16 model in 1914, International Harvester developed a self-steering device that ran in the furrow and guided the tractor while ploughing. Of course, the driver still had to make the turns at the headlands.

### Driverless system

In 1940 Illinois farmer Frank W. Andrew invented a driverless system based on his International 10-20 tractor. A steel cable attached to the tractor's front wheels was spooled round an old wagon wheel mounted on a pole. The system reeled the driverless tractor in as it circled the pole, allowing it to cultivate in spirals across the field – an intriguing idea, but not particularly practical.

During the post-war years, tractor manufacturers became overly inventive; many novel but not always successful concepts were trialled. They included electric power, gas-turbine engines, multi-wheel drives and variable-speed transmissions. Some of the experimental concepts provided the groundwork for future developments, while

others disappeared without trace.

Of all the manufacturers, the Ford Motor Company was the one that showed the most interest in autonomous tractors, or automatic tractors as they were referred to at the time. During the 1950s its American

tractor division developed 'The Sniffer', a driverless tractor that was guided by underground cables. Meanwhile, Ford's British engineers at Dagenham had come up with a more viable proposition – a radio-controlled tractor.

On 20 June 1955 the 100,000th Fordson Diesel Major rolled out of the British factory. First introduced at the end of 1951, the uncomplicated and hugely reliable Diesel Major had been

an unprecedented success and accounted for 99 per cent of all the tractors built at Dagenham. Home sales were up by 22 per cent, but two-thirds of production went for export, the USA being the largest market.

To capitalise on its success, Ford's British tractor division sent the 100,000th Diesel Major on a promotional tour of the country. One bright spark in the sales department came up with the idea of developing a radio-controlled tractor as a further publicity exercise. The engineering department, led by the executive engineer, John Foxwell, was tasked with turning the idea into reality.

### Outside help

A radio-controlled tractor was an entirely new field for Ford's engineers, who sought outside help. The project was outsourced to radio electronics specialists Fenlow Products Ltd of Weybridge in Surrey, who handled the entire design installation.

The radio-controlled Major was demonstrated ▶

## Specifications

### Radio-controlled Fordson Diesel Major (1955)

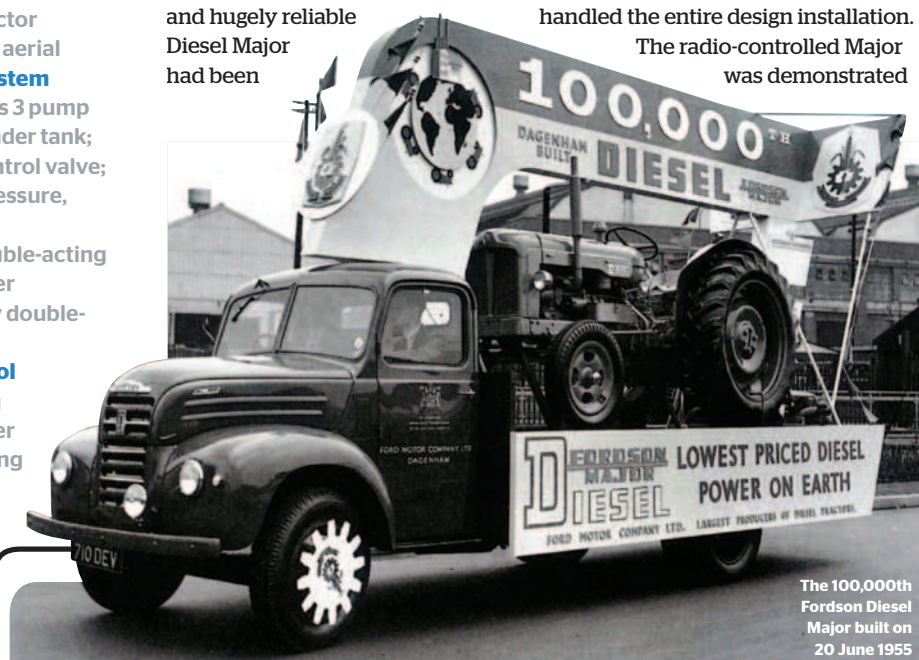
**Transmitter** Six-channel, 12v battery-operated; frequency, 27.12 megacycles; remote control box with 8ft cable

**Receiver** 12v battery-operated in case on offside of tractor with 5ft whip aerial

**Hydraulic system** Plessey series 3 pump with 5gal header tank; Keelavite control valve; operating pressure, 500psi

**Steering** Double-acting 3sq.in cylinder controlled by double-acting valve

**Clutch control** Single-acting 3sq.in cylinder with restricting orifice in return line



The 100,000th Fordson Diesel Major built on 20 June 1955



1962  
Self-steering  
Agri-Robot  
tractor trialled  
in Holland

1968

Ford predicts future in its  
'Agriculture 2000' presentation

1968

1970

NIAE uses ultrasonic  
technology for  
driverless tractor

1972

1980

1989  
Dowler Gantry  
concept promoted for  
zero-traffic systems

1990

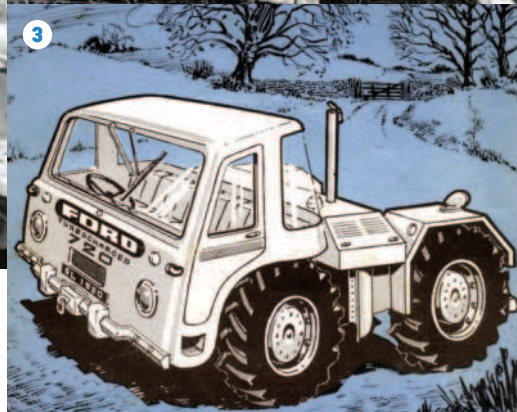
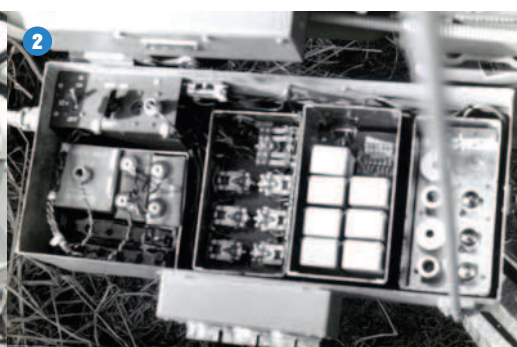
2000

1965  
Ford Typhoon II  
experimental  
tractor fitted  
with external  
cameras

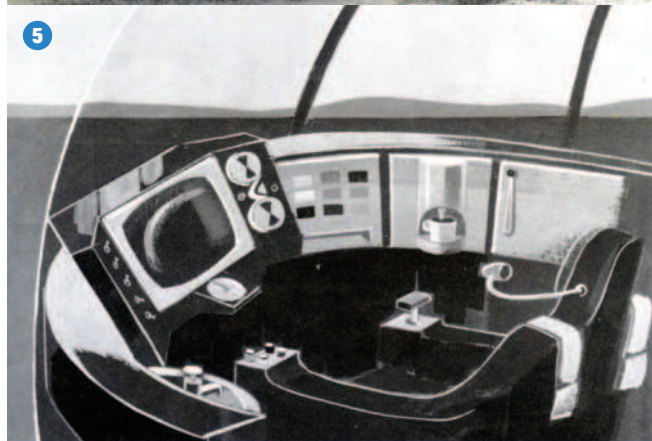
1966  
Radio-controlled  
version of Ford 3000  
tractor demonstrated

1994

1994  
Massey Ferguson  
offers GPS on its  
tractors



YOU AND THE FUTURE



1 Electronic apparatus  
and rams controlling  
steering and clutch  
located on nearside of  
tractor

2 Electronic apparatus  
in receiver box operated  
from tractor's 12v  
battery

3 Ford's 1968 predictions  
for the future of tractor  
development

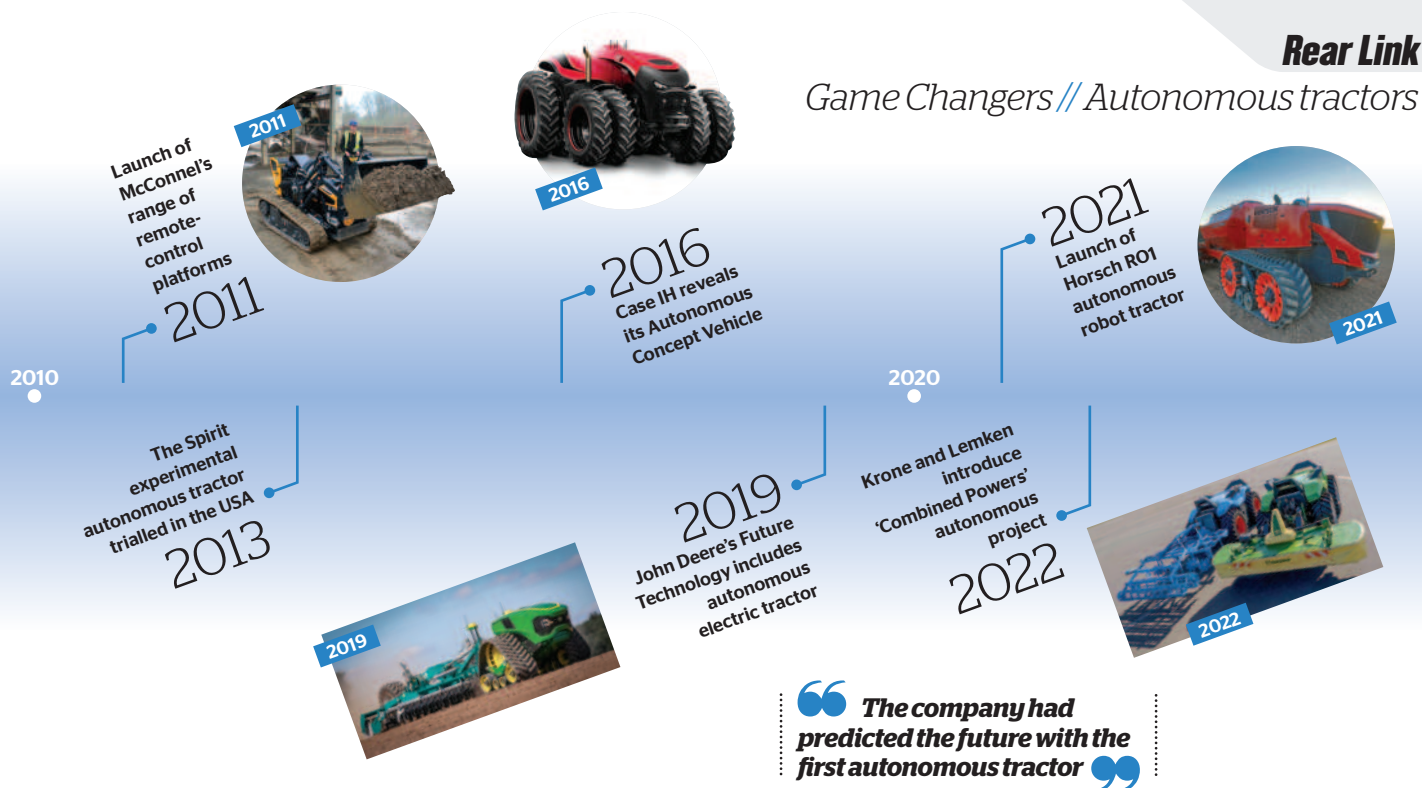
4 NIAE's hydrostatic  
Major used for trials  
of a guide-wire system  
for driverless tractors

5 Ford's 'Agriculture  
2000' presentation  
suggested remote  
monitoring for tractors

6 Receiver with 5ft  
whip aerial mounted  
on offside of remote-  
controlled Major

7 Hydraulic functions  
operated by  
front-mounted Plessey  
pump with five-gallon  
header tank





► for the first time at the Ford Mechanised Farming Centre, the company's training school at Boreham House in Essex, on 27 September 1955.

A transmitter with a hand-held control box attached to an 8ft cable relayed signals to a receiver in a case fixed to the offside of the tractor. Both the transmitter and the receiver were powered by 12v batteries. Six channels controlled the steering left; steering right; clutch operation; hydraulic linkage raise; linkage lower; and engine stop. A bank of coloured lights on the receiver indicated the electrical function of each command.

The various functions were operated hydraulically by a front-mounted Plessey pump with a five-gallon header tank located beneath the tractor's radiator. Valves operating the hydraulic cylinders were controlled by electric solenoids that received messages from the transmitter. The radio equipment was supplied by Radio & Electronic Products of South Norwood and the control valves by the Keelavite Rotary Pumps & Motors Company of Coventry.

Steering was via a double-acting cylinder controlled by a double-acting valve magnetically operated via an electric solenoid. The cylinder was connected to the steering drop-arm. Bypass taps permitted manual steering when necessary.

A single-acting ram controlled the clutch and operated directly on the linkage from the pedal. A slotted eye on the fixed end of the clutch cylinder allowed an override for manual operation. A small restricting orifice in the return line from the cylinder and control valves regulated the rate of clutch engagement.

The Diesel Major only had a basic

position-control hydraulic system with a single control lever in a quadrant controlling raise or lower with a centre detent for hold. To raise or lower the implement on the radio-controlled version, the existing control lever was removed and its linkage connected to a motor-driven actuator.

The actuator was controlled by limit switches to provide the correct stroke and to automatically centre the valve when the operating switch on the control panel was moved to the neutral position. The switch on the panel had three positions: up (raise); central (neutral); down (lower). In the neutral position, the spring-centring cam in the tractor's hydraulic system returned to the detent (hold) position.

The engine stop control was operated via a solenoid with a linkage directly on to the lever on the fuel-injection pump. This was held in the stop position by a spring and was only in the running position when energised. This acted as a default safety device so that should the radio signals or battery fail, the engine would stop.

### Field demonstrations

After the radio-controlled tractor was unveiled at Boreham, it was used in several field demonstrations over the next 12 months,

sometimes with one man operating two machines. The aim of the project was not to reduce manpower on the farm but to illustrate the possibilities of operating a tractor remotely in dangerous situations where the operator could be kept out of harm's way.

Ford claimed that conceivable uses for the tractor included military mine-clearance or transporting radioactive materials in atomic plants. In a press release accompanying the demonstrations, the company stated: 'In addition, this departure may well foreshadow "the shape of things to come" in our go-ahead farming industry.'

A few years later the NIAE at Silsoe began trials of an autonomous tractor, based on a hydrostatic version of the Fordson Major, using a guide-wire system. It was part of an ongoing project, initiated in 1958 by Reading University, in which the tractor was guided by a wire buried in the ground.

By the 1960s Ford had become preoccupied with the shape of farming in the future. It produced a film presentation entitled 'Agriculture 2000', which discussed what was likely to happen in tractor developments by the end of the century. It actually foresaw the almost universal adoption of four-wheel drive, axle suspension, safety and luxury cabs,

computerisation and even fully autonomous tractors operated from a central control centre on the farm.

Ford also returned to its radio-controlled concept with a remotely operated version of its 3000 tractor. However, as with the Diesel Major variant, the concept was never put into production, nor did it lead to mass redundancies on the farm. But the company had indeed predicted the future with what was arguably the first real attempt to develop an autonomous tractor.

EMJ

Right: Radio-controlled Ford 3000 promoted for handling nuclear waste





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# FARM MACHINERY TRADER

## BALERS & BALE EQUIPMENT



**Massey Ferguson 1840 baler**, small square conventional baler, in-line, 1.9m pick-up, hydraulic density adjustment, proven design, warranty and finance available, £22,950 + VAT. Tel: 015395 60833. Kendal. **[GHW107R]**



**Kuhn i-Bio combi baler**, on 500 x 22.5 tyres, shop-soiled, new, £49,000. Tel: 028 37 548971. Co.Tyrone. **[HW237]**



**Vicon RV 5216 SC 14N baler**, new, Supercut 14 knife chop system, ISOBUS, £32,649 + VAT. Tel: 07831 470379. Dorset. **[HW212]**



**Kverneland 7512 hi-speed wrapper**, only 6,059 bales, £4,900. Tel: 028 37 548971. Co.Tyrone. **[HW241]**



**New Holland BC 5060 baler**, new, hydraulic pickup, hydraulic drawbar, auto lube, road lights, £POA. Tel: 07702 501272. Somerset. **[HW202]**



**John Deere 440 baler**, 2014, on 500 x 22.5, 26K bales, £POA. Tel: 028 37 548971. Co.Tyrone. **[HW242]**



**McHale HS2000 round bale wrapper**, high speed, twin satellite, takes 750mm, plastic, manufactured 2014, bale count 40,000, in good condition, owner driven, £8,100 + VAT. Contact Glyn Morgan. Tel: 01691 780272 after 6pm. Wales/Shropshire border. **[GHW201R]**



**Kuhn 3135 Intelliwrap baler**, 23 knife, film and nett binding, new, £POA. Tel: 028 37 548971. Co.Tyrone. **[HW247]**



**Vicon RV 5216 Supercut 14 baler**, available for demonstration, £POA. Tel: 01493 733211. Norfolk. **[HW225]**



**Kverneland Silawrap round bale wrapper**, used, remote control version, 750mm wrap, 3 point linkage mounted, for static remote wrapping of bales, good working order, good condition, £2,295 + VAT. Tel: 07760 236534. Somerset. **[HW204]**

## CULTIVATION



**Kuhn power harrows**, 2.5, 3, 5 and 6m, new/used in stock, from £1,900. Tel: 028 37 548971. Co.Tyrone. **[HW246]**



**Alpego RK-300 power harrow**, cam clutch, packer roller, Jet-X drill, 1,500ltr hopper, £37,800. Tel: 07831 470379. Dorset. **[HW211]**



**Kuhn HR3003 and Fiona drill**, v. clean, 1 pass, choice, £POA. Tel: 028 37 548971. Co.Tyrone. **[HW234]**



**Alpego DP-600 power harrow**, 6 metres, 24 + 24 tines, 120-270HP, £30,385. Tel: 07831 470379. Dorset. **[HW213]**



**McConnel Rejuvenator harrow**, 6m, spring tine new, £5,750. Tel: 028 37 548971. Co.Tyrone. **[HW245]**

## FEEDING & BEDDING



**Teagle Tomahawk 8550 straw chopper**, dual chop, 2014, trailed, gwo, electric controls, swivel spout, £7,750 + VAT. Tel: 07788 785871. Cumbria. **[HW221]**



**Kidd KD 450 bale shredder**, hyd rear door, electric controls, £15,750. Tel: 07831 470379. Dorset. **[HW214]**



**Teagle Telehawk bale shredder/blower**, new, 1 left, £13,500. Tel: 028 37 548971. Co.Tyrone. **[HW233]**



**Foster S990 silage feeder**, very good condition, 2019, full working order, front conveyor belt, £7,900 + VAT. Tel: 07788 785871. Cumbria. **[HW222]**



**Teagle Tomahawk 8500**, 2012, silage and straw, swivel chute, electric controls, £6,250 + VAT. Tel: 07970 471773. Devon. **[HW216]**

# LOADS OF MACHINERY FOR SALE IN FMJ'S



## FERTILISER SPREADERS



**Amazon ZA-M 1501 spreader**, 2013, OM24-36 discs, holds 4 bags, £4,200, had done 100 acres year. Tel: 07770 692891. **[HW60R]**



**Vicon RotaFlow RO-M spreader**, EPOA. Tel: 01493 733211. Norfolk. **[HW227]**

## LOADERS & ATTACHMENTS



**Browns bale handler**, over the top type, for round or square bales, used, good working order, hydraulic hoses, good condition. Manitou brackets, £995 + VAT. Tel: 07760 236534. Somerset. **[HW208]**



**Albutt buck rake**, 10ft, Hardox tines, good condition. Tel: 07976 702858. Powys. **[HW81R]**

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**Hawk fork**, used, high capacity grass fork, approx 7ft wide, Hardox tines, hydraulic push off, hydraulic hoses & Euro 8 brackets, £2,050 + VAT. Tel: 07760 236534. Somerset. **[HW206]**



**Boom and brackets**, removed from a gen 4 Fendt 312, self-levelling, soft ride, Euro headstock, £6,450 + VAT. Tel: 015395 60833. Kendal. **[GHW111R]**



**Manitou (Whites Handling) telehandler grab**, 2013, 7ft 6in wide, used, good Kverneland tines, twin ram, hydraulic hoses, good tidy grab, Manitou brackets, £2,000 + VAT. Tel: 07760 236534. Somerset. **[HW207]**

## MISCELLANEOUS



**Isuzu 1.9 turbo diesel**, 164hp, 3.5t towing capacity, 6-speed manual transmission, 4WD, diff lock, hill descent, push button start, satellite navigation, DAB radio, £29,995 + VAT. Tel: 015395 60833. Kendal. **[GHW49R]**



**Land Rover 90 Defender**, 2.5 turbo diesel, genuine low miles, excellent runner, ideal for farm or off-road use, no documents, £1,995. Tel: 07817 364945. Derbyshire. **[GHW33R]**



**Land Rover Defender 130 County**, 2495cc, silver good working order, MOT 24/11/22, £13,000 ono. Tel: 01260 224331. Cheshire. **[GHW15R]**



**DAF LF 160 Beavertail**, 12 months MOT, electric winch and tail gate, in good condition, £5,500 + VAT. Tel: 07885 057451 / 07802 802848. Saltash. **[HIW43R]**



**Kioti K9 Mechtron 2400 UTV**, power steering, new, full cab, £17,450. Tel: 07831 470379. Dorset. **[HW215]**

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## MOWERS & TOPPERS



**Viking mower conditioner**, 3.2m, vgc, £3,400. Tel: 01771 653308. Aberdeenshire. **[HIW96R]**



**Vicon disc mower conditioner**, centre mounted, EPOA. Tel: 01493 733211. Norfolk. **[HW224]**



**Kuhn FC313F and FC313 mowers**, 2012, front and rear, EPOA. Tel: 028 37 548971. Co.Tyrone. **[HW238]**



**SIP disc mowers**, mew, plain or with conditioner, mounted or trailed, front versions also available, quick change blades, suspension, unrivalled 3 year warranty, choice of sizes in stock. e.g. Disc Alp 260 2.6m plain mower, £6,795 + VAT. Tel: 07760 236534. Somerset. **[HW209]**



**Joskin rotary topper TR275**, C3, 9' bed, in good working order, please call for more details, £650. Tel: 07956 167510. Lutterworth. **[HIW73R]**



# FARM MACHINERY TRADER



**Tanco M10A rear trailed**, plus M3A front mowers, steel conditioner tines, quick fit blades, active rear steering, LED lights, EPOA. Tel: 07702 501272. Somerset. **[HW203]**



**Massey Ferguson DM265 TL-V mower**, heavy duty disc mower, tractor rear mounted, centre pivot, good ground following, vertical fold, 2.6 metre working width (8ft 6in) five disc, hydro-pneumatic suspension, safety swing protection system, £7,950 + VAT. Tel: 015395 60833. Kendal. **[GHW110R]**



**Conor 2000 tanker**, with Vogelsang dribble bar, 800 x 32, 2016, £16,500. Tel: 028 37 548971. Co.Tyrone. **[HW240]**

**Mashio Barbi 1.6m flail mower**, hydraulic side shift head stock, flails all good, only done minimal light topping jobs, kept clean and dry stored, greased and oiled regularly, 2016 build but was purchased new 2017, £2,400 ono. Tel: 07805 276754. Kings Norton. **[GHW85R]**

## MUCK & SLURRY



**Bunning tanker**, 2,500 gallon, for sale or hire, EPOA. Tel: 01493 733211. Norfolk. **[HW228]**



**Herron 3500 tanker**, with vac and dodo pump, self-filling arm, 2015, £26,900. Tel: 028 37 548971. Co.Tyrone. **[HW232]**



**Bunning Lowlander 120 vertical beaters**, available for hire, EPOA. Tel: 01493 733211. Norfolk. **[HW229]**



**Kverneland DB8 conventional plough**, 5-furrow, semi-mounted, auto reset, hydraulic vari-width and front furrow width, full set of discs and skimmers, very tidy, good metal, £4,250 no VAT. Tel: 07702 504177. Somerset. **[GHW1R]**

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**Kverneland ploughs**, x6 available, 3, 4 and 5 furrow, auto reset, reversible, from £2,500. Tel: 028 37 548971. Co.Tyrone. **[HW243]**



**Kverneland i-Plough**, 5-furrow, 2017, 250 headstock, no 28 bodies, full set discs and maize skims, 85 clearance. Tel: 07710 372273. N. Ireland. **[GHW121R]**



**Lemken DL 120 reversible plough**, 5-furrow, 4 + 1 slatted bodies, good metal, adjustable from 12"-16", one owner, stored inside, £1,500. Tel: 07836 704158. Cornwall. **[GHW77R]**

## RAKES & TEDDERS



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**Enrossi hay turner**, tedder, also rows up, good condition, £2,750 ono plus VAT. Tel: 07860 905520. **[GHW205R]**



**Vicon rotor rake**, EPOA. Tel: 01493 733211. Norfolk. **[HW226]**



**Lely 1020 Profi tedders**, trailed, 2012 and 2015, from £11,900. Tel: 028 37 548971. Co.Tyrone. **[HW244]**



**Claas 3500 liner rake**, 4 rotor, in very nice condition, not your usual, EPOA. Tel: 07976 702858. Powys. **[GHW115R]**



**Kuhn GA 8521 twin rotor rake**, hyd adjustable and hyd driven, £7,900. Tel: 028 37 548971. Co.Tyrone. **[HW235]**

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**Malone 570 tedder**, 4 rotor, 5.7m, 2018, excellent condition, £5,250 + VAT. Tel: 07970 471773. Devon. **[HW217]**



**Kuhn GF 10802T tedder**, trailed, 2015, £14,500. Tel: 028 37 548971. Co.Tyrone. **[HW236]**



**Massey Ferguson RK 421 rake**, single rotor, 4.2m working width, twin axle, quick release arms, 3-pt linkage mounted, £5,950 + VAT. Tel: 015395 60833. Kendal. **[GHW60R]**



**Lely Lotus tedders**, 300, 600 and 770, 2014-2017, EPOA. Tel: 028 37 548971. Co.Tyrone. **[HW239]**



**SIP Spider 555 Pro tedder**, 4 rotor, 2011, excellent condition, £2,850 + VAT. Tel: 07970 471773. Devon. **[HW218]**



**Massey Ferguson TD776X DN grass tedder**, six rotor, 3-point linkage mounted, specially shaped double Lely lotus hook tines, 7.70m working width, under 3m transport width, hydraulic folding, £11,950 + VAT. Tel: 015395 60833. Kendal. **[GHW109R]**

## TRAILERS



**Brian James cargo connect trailer**, 2019, 2.1m wide x 4.5m log, comes with detachable drop sides, tail gate, removable headboard and loading ramps, working lights, brakes, tyres, nice tidy condition, £3,200 + VAT. Tel: 07774 816630. Newark. **[GHP14R]**



**Marshall QM11 silage trailer**, swinging back door, 550/45-22.5 floatation tyres, 8 stud axles, good working order, used for first cut, £5,900 + VAT. Tel: 07788 785871. Cumbria. **[HW223]**



**Bailey CT20 Contract tipper trailer**, 20t, 10/2021, hyd door, sprung drawbar, commercial axles, rear beacon, air and hyd brakes, mudguards and mud flaps, LED lights, EPOA. Tel: 07702 501272. Somerset. **[HW200]**



**Bailey Beateaper trailer**, 20t, 2013, EPOA. Tel: 01493 733211. Norfolk. **[HW230]**



**JPM low loader**, 24 foot, 19t 2018, bale ladder and wedge, hardly used, VGC, £10,500. Tel: 07766 216100. Norfolk. **[HIW59R]**



**JPM multi-purpose trailer**, 11t, 2021, ramps, drop side, £7,700. Tel: 07770 692891. Norfolk. **[HIW58R]**



**West silage trailers**, 10t, super singles, sprung draw bar, choice of 2. Tel: 07976 702858. Powys. **[HIW80R]**



**Krampe Kipper SK750 dump trailer**, as new, 2021, sprung drawbar, ball hitch, front and rear steer, comm axles, air plus hyd brakes, hyd rear door, mudguards, EPOA. Tel: 07702 501272. Somerset. **[HW201]**

## VEGETATION CONTROL



**McConnel PA6065 hedge cutter**, c/w 1.6m head and orbiter bracket, 2014, £13,900. Tel: 028 37 548971. Co.Tyrone. **[HW249]**



**Agrimaster Shark 320 hedger**, to suit smaller tractor, EPOA. Tel: 028 37 548971. Co.Tyrone. **[HW251]**



**Spearhead Twiga 836T Orbital cutter**, cuts LH or RH, £10,900. Tel: 028 37 548971. Co.Tyrone. **[HW252]**

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**Mobile mechanic**, leading machinery dealer P.V. Dobson are looking for an experienced mechanic to work at our Levens, Skipton and Chorley branches. Preferably living in Cumbria, Lancashire or North Yorkshire. The candidate will be experienced working on agricultural machinery, possibly Manitou telehandlers and/or plant. Plus, confident in the use of diagnostic equipment, hydraulic, electrical and engine repairs. The majority of the work will be on-site, starting work from home, but also working in our workshops as required. You will be provided with a fully equipped van and diagnostic equipment, laptop. The candidate is expected to display initiative, responsibility and maturity. To find out more, please contact Nicola Taylor on 015395 60833 or visit [www.pvdbobson.com/jobs](http://www.pvdbobson.com/jobs).

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# World of Farm Machinery

Bedfordshire tractor operator Harry Jones picks his five favourite tractors from Cereals 2022

2



1



**1** Straight inside the entrance was this John Deere 8200 working with a Farmet Verso 8. It's on an N-reg, so around 1995 or 1996. Early models were fitted with the 7.6-litre six-cylinder engine, changed for the 1997 model year, which went to the 8.1. I remember seeing these new and they still are quite a machine. Some days we long for this simplicity and reliability.

**2** A highlight of John Deere's stand was the 8R 410. How things have changed in the last 25 years! More than double the power of the 8200. I drive a 6R, which is nice, but this is just on another level. The cab interior is just luxury.

**3** Hiding near the mechanical weeders was this V-reg JCB Fastrac 3185. It's clearly been well looked after. New tractors are nice, but it's always good to see older tractors in good condition. We owe a lot to these machines for getting us where we are today.

**4** This pair of New Holland T7s put on a good display. The metallic blue paint on the tractor with the plough stood out in the sun and looked smart on the silver wheels. However, I'd have liked the demo plots to be bigger so the tractors could be working all the time.

**5** The FarmDroid is like something from another planet! It was great to see it working, but it did seem quite slow, which got me thinking about output and how many we'd need to replace our tractors. Trying to get done around the weather is hard enough as it is!



3

5



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**Email us your pics**

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**RG655C**  
2014, 4018 Hrs, 220 HP  
Speed: 40Km/h  
36m Booms  
**£95,000.00**



**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, 4468 Hrs, 385 HP  
Speed: 40Km/h  
Track: 30 Track %: 50  
**£77,250.00**



**MT775E**  
2015, 6278 Hrs, 425 HP  
Speed: 40Km/h  
Track: 25 Track %: 75  
**£79,250.00**



**718**  
2021, 690 Hrs, 180 HP  
Tyres: 540/65R30 (100%)  
650/65R42 (100%)  
**£121,250.00**



**720**  
2015, 4824 Hrs, 210 HP  
Tyres: 540/65R30 (65%)  
650/65R42 (70%)  
**£77,500.00**



**724**  
2016, 6780 Hrs, 240 HP  
Tyres: 600/65R28 (30%)  
650/75R38 (40%)  
**£78,000.00**



**828**  
2016, 5804 Hrs, 280 HP  
Tyres: 600/70R30 (95%)  
710/70R42 (100%)  
**£87,950.00**



**828**  
2019, 2700 Hrs, 290 HP  
Tyres: 600/70R30 (60%)  
710/70R42 (60%)  
**£125,000.00**



**MT943**  
2018, 1513 Hrs, 440 HP  
Speed: 40Km/h  
Track: 30 Track %: 90  
**£197,000.00**



**MF 1765 M MP**  
65 HP, ROPS  
Tyres: 9.5-16 AG Tyres  
13.6R28 AG Tyres  
**£27,550.00**



**MF 5709 Global**  
2020, 581 Hrs, 100 HP  
Tyres: 340/85R24 (90%)  
420/85R34 (90%)  
**£45,500.00**



**MF 6715 S EFD6**  
2020, 2300 Hrs, 150 HP  
Tyres: 420/85R28 (70%)  
520/85R38 (70%)  
**£62,950.00**



**MF 7718 EFD6**  
2016, 2400 Hrs,  
Tyres: 480/70 R28 (50%)  
580/70 R38 (50%)  
**£69,950.00**



**MF 7720 S**  
2019, 1059 Hrs, 210 HP  
Tyres: 600/65R28 WA (95%)  
650/65R42 WS (95%)  
**£86,500.00**



**MF 85.245 EXDE**  
2021, 800 Hrs, 245 HP  
Tyres: 600/70R28 (85%)  
650/85R38 (85%)  
**£126,000.00**



**G105A**  
248 Hrs  
Tyres: 460/85R38  
380/85R28  
**£58,950.00**



**N134V**  
2016, 2300 Hrs, 145 HP  
Tyres: 16.9R28 (50%)  
20.8R38 (20%)  
**£49,000.00**



**N174V**  
2017, 2732 Hrs, 175 HP  
Tyres: 540/65R28 (40%)  
650/60R38 (60%)  
**£65,850.00**



**T174EA MR**  
2020, 1520 Hrs, 180 HP  
Tyres: 540/65R28 (90%)  
650/65R42 (95%)  
**£82,500.00**



**T214V ST**  
2020, 543 Hrs, 215 HP  
Tyres: 600/65R28 (100%)  
650/65R42 (100%)  
**£112,000.00**



**T234V ST**  
2020, 482 Hrs, 235 HP  
Tyres: 600/65R28 (100%)  
650/75R38 (100%)  
**£116,500.00**



**MERLO 35.7CS 4WD**  
Year: 2018, 4739 Hrs  
7m Reach, 3500kg lift  
Tyres: 405/24 Mitas (10%)  
**£42,000.00**



**MERLO 42.7**  
Year: 2015, 2851 Hrs  
7m Reach, 4200kg Lift  
405/70-24 (40%)  
**£44,850.00**



**MERLO 42.7 4WD**  
Year: 2017, 4422 Hrs  
7m Reach, 4200kg lift  
Michelin Tyres: (50%)  
**£42,000.00**



**MANITOU MLT 634**  
2014, 4902 Hrs  
6m Reach,  
3400kg Lift  
**£35,000.00**



**MANITOU 630-105V**  
2018, 4100 Hrs  
6m Reach, 3000kg Lift  
Tyres: 460/70 R24 - 30%  
**£49,500.00**



**MANITOU 735-120PS**  
2014, 7200 Hrs, 120HP  
4 Wheel Steer Crab  
Tyres: 460/70R24 - 10%  
**£29,950.00**



**FORD RANGER**  
2019 (69) 2.0 Wildtrack  
Auto Double Cab  
25,890 Miles  
**£33,490.00**



**FORD RANGER**  
2018 (68) 2.2 Limited  
Auto Double Cab  
44,204 Miles  
**£24,290.00**



**MITSUBISHI L200**  
2018 (18) 2.4 Warrior  
Auto Double Cab  
74,917 Miles  
**£18,990.00**



**NISSAN NAVARA**  
2019 (69) 2.3 Connecta  
Manual Double Cab  
35,326 Miles  
**£24,890.00**



**NISSAN NAVARA**  
2017 (66) 2.3 Tekna  
Manual Double Cab  
86,450 Miles  
**£19,490.00 (NO VAT)**



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with Adaptive Intake

**AS STANDARD**



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Chopper Unit

**AS STANDARD**



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3 Heavy-Duty Endless Belts

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- + Larger Rotor
- + Larger Augers
- + Camless Pick Up (Optional)



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