

FARM MACHINERY

JOURNAL

March 2022 // Issue 95

www.farmmachineryjournal.co.uk

FUTURE FUEL

High on hydrogen

How JCB is pioneering a genuinely viable alternative to diesel

SHOULD YOU PURCHASE A **CLASSIC** COMBINE HARVESTER?

PLUS WHY ELECTRIC WON'T WORK



**WE SNEAK
A GO IN
JOHN
DEERE'S
NEW 6R**

**FIRST
DRIVE**



**MANITOU
MLT 630-115
PUT TO WORK**

**FIELD
TEST**

03 >
9 772055 043066
£4.30

MOW IT ALONE

**WHY A SELF-PROPELLED KRONE
BIG M IS THE ULTIMATE MOWER**

MODERN SPRAYERS

**THE TECH THAT CAN IMPROVE
ACCURACY AND SAVE MONEY**

The power of balance



The NEW Amazone UX 8601 Super has landed - with boom widths of up to 42 m and tank capacity of 9,000 litres making it the largest capacity possible on one axle.

The unique chassis concept of integrated drawbar and frame, so weight shifts from the axle onto the tractor rear wheels, keeps the machine legal on the road when fully laden.

ContourControl & SwingStop keep the NEW Super-L3 boom at the target height. The operator station and liquid circuit comes straight from the UX 01 Super with its industry-leading induction bowl and Comfort-Pack plus touchscreen operation.

Ask to see the NEW powerful, perfectly balanced Amazone UX 8601 sprayer for yourself.

Contact your local dealer
or phone us on **01302 755 725**
www.amazone.co.uk



AMAZONE

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, Graeme Kirk, Howard Sherren, Jonathan Theobald, Jonathan Wheeler, Ken Topham, Mick Roberts, Scott Garvey, Simon Henley, Stuart Gibbard

Farm Machinery Journal is published by Sundial Magazines Ltd, Sundial House, 17 Wickham Road, Beckenham, Kent, BR3 5JS

TEL 020 8639 4400 FAX 020 8639 4411

EMAIL info@farmmachineryjournal.co.uk

WEB www.farmmachineryjournal.co.uk

SUBSCRIPTIONS

Farm Machinery Journal subscriptions

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

TEL +44 (0)1371 853634

EMAIL farmmachineryjournal@escosubs.co.uk

NEWSTRADE

Seymour Distribution

2 East Poultry Avenue, London, EC1A 9PT

TEL 020 7429 4000

REPRO

Design & Printing Solutions Ltd

Unit 45C, Joseph Wilson Industrial Estate, Whitstable, Kent CT5 3PS

TEL 01227 770034

PRINTING

Precision Colour Printing Ltd

Haldane, Halesfield 1, Telford, Shropshire TF7 4QQ

COPYRIGHT

Sundial Magazines Ltd 2022. All rights reserved.

Reproduction in whole or in part is forbidden without the express permission of the publishers.

ISSN 2055-043X Sundial Magazines Ltd.

Registered in England no. 4134490.

CONDITIONS FOR ADVERTISING

All advertisements are accepted subject to the publisher's standard conditions of insertion. For a copy of advertising terms & conditions, please write to Paul Cosgrove at Sundial Magazines Ltd, Sundial House, 17 Wickham Road, Beckenham, Kent, BR3 5JS



@FMJmagazine



www.facebook.com/farmmachineryjournal



When you have finished with this magazine please recycle it.



Farm Machinery Journal is available on the second Friday of each month



March 2022
Issue 95

COVER IMAGE
JCB



Welcome

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

John Deere remains the UK's best-selling tractor brand, although its spot at the top has been eaten into by rivals. Data from the Agricultural Engineers Association (AEA) refers to 2020 sales, which, even with Covid disruption taken into account, still gives a good hint of the hierarchy.

John Deere's market share in 2020 was 26.5 per cent with 3157 tractors registered, down from 28.1 per cent in 2019 and 31.9 per cent in 2018. John Deere's loss meant gains for New Holland in second position with 2129 tractors (17.8%), Massey Ferguson in third with 1581 (13.2%), Case in fourth with 1100 (9.2%) and Fendt in fifth with 898 (7.5%). Sixth-placed Kubota also saw a slight increase, recording 784 tractor registrations to take market share to 6.6 per cent, while Valtra in seventh registered 654 (5.5%). Claas in eighth saw its market share slide to 3.8 per cent with 449 registrations. Same Deutz-Fahr also declined, with 208 to put it in ninth at 1.7 per cent. JCB in tenth recorded 187 tractor registrations for a share of 1.6 per cent. McCormick's 103 registrations means its market share is just 0.9 per cent.

2020 was hit by factory closures, supply chain issues and logistics delays, and as a result new tractor registrations fell to 10,380 from 12,040 in 2019. Figures we can see for last year suggest 2021 saw 11,935 units registered, with market share data to be released in 2023.

We compared these numbers to previous years and the 2007 figures stood out. That year 17,089 tractors were registered – 5000 John Deeres, 2809 New Hollands and 2766 MFs, figures they would all love to see today.

Peter Skilton, Editor



CONTENTS



86



77



41



23

Front Link

7 NEWS

The top machinery stories this month

14 BIG PICTURE

A new **Case IH Puma 175 CVX** takes on tree clearance with a Prinoth mulcher

17 FIELD TEST

The latest **Manitou MLT 630** goes to work on a Lancashire dairy farm

23 FIRST IMPRESSION

FMJ joins a Scottish demonstration of two new **Agrifac** self-propelled sprayers

29 FIRST IMPRESSION

JCB Chairman Lord Bamford presents the **JCB hydrogen strategy**

35 FIRST IMPRESSION

Behind the wheel of the first new **John Deere 6R 185** to land in the UK

Features

41 FOCUS ON...

Why **trailed fertiliser spreaders** are becoming more popular on British farms

45 MODERN FARMING

The latest **sprayer tech** helping to improve application accuracy and efficacy

50 RUNNING REPORT

Few choose a self-propelled mower but this **Krone BiG M 450** has proved a hit

55 RUNNING REPORT

The **Kuhn i-Bio+** has gained a loyal following. These operators explain why

58 OPERATOR STATION

Dubbed the 'Carbon Edition', this **John Deere 6155R** sports a striking wrap

61 OPINION

How farmers can benefit from an online resource that helps locate hidden underground pipes and cables

63 OPERATOR PROFILE

A Suffolk farmer explains why a **John Deere 8RX** is exceeding expectations

65 PICK-UP, 4X4 & ATV NEWS

Rally-inspired **Hilux**, more sales for the **Isuzu D-Max** and the new **VW Amarok**

66 WORKING VEHICLE

With sales soaring, here's what the mid-range **Isuzu D-Max DL20** has to offer

Buying

71 USED BUYING GUIDE

What to look for when purchasing a second-hand **Deutz-Fahr 7250** tractor

Technical

77 SPRAYER SERVICE

Keep sprayers running this season and avoid breakdowns with 18 expert tips for routine maintenance and servicing

83 WORKSHOP

Tools, parts, upgrades & top tips to keep your tractors and machinery working

Rear Link

84 MODEL ZONE

The latest scale models that won't look out of place in any miniature fleet

86 WORKING CLASSICS

Why a farm sold its **New Holland** combine and bought an older model instead

92 GAME CHANGERS

The **Massey Ferguson 135** is an icon with many still in regular use on farms today

106 READERS' PHOTOS

Send in your photos of farm machinery to see them printed in **FMJ!**





17



50



71



66



35

NEVER
MISS AN ISSUE
- AND SAVE
MONEY!
SEE PAGE 98
AND SUBSCRIBE
TODAY!



COVER STORY

29



 **HORSCH**

#FUTUREGROUND

PREPARE YOUR SOIL FOR RELIABLE YIELDS
AND A HEALTHIER WORLD.

Our high-precision crop care technology provides targeted protection of the crops resulting in healthy and consistent yields. HORSCH technology helps you to quickly adapt to changing conditions and at the same time ensures the competitiveness of your agricultural business. [HORSCH.COM](https://www.horsch.com)

TOGETHER FOR A HEALTHY AGRICULTURE

NEWSDESK

The latest machinery developments, launches and updates



John Deere's autonomous 8R is not a concept and will go on sale in America this year



Driverless 8R to go into production

During a press conference at the Consumer Electronics Show in Las Vegas in January,

John Deere revealed a fully autonomous tractor based on its 8R that's ready for large-scale production. It's not a concept, but instead a fully working machine that will be available for purchase by North American farmers later this year.

The 8R410 looks very similar in appearance to a conventional tractor but is equipped with additional technology for controlling and monitoring the tractor. It has six pairs of stereo cameras, which enable 360-degree obstacle detection and the calculation of distance. Images captured by the cameras are passed through a deep neural network that classifies each pixel in approximately

100 milliseconds and determines if the machine continues to move or stops, depending on if an obstacle is detected.

The autonomous tractor also continuously checks its position relative to a geofence, ensuring it is operating where it is supposed to, and is within less than 2.5cm accuracy.

To use the autonomous tractor, farmers only need to transport the machine to a field and configure it for autonomous operation. Using John Deere Operations Center Mobile, they can swipe from left to right to start the machine. While the machine is working the farmer can leave the field to focus on other tasks, while monitoring the machine's status from their mobile device.

John Deere Operations Center Mobile provides access to live video, images, data

and metrics, and allows a farmer to adjust tractor speed, working depth, check fuel level and see the tractor's progress in the field. In the event of any issues, farmers will be notified remotely and can make adjustments to optimise the performance of the machine.

Currently, the technology for the 8R410 is available in combination with a special John Deere chisel plow. A limited number of tractors will be delivered to North American customers this year. In the coming years, John Deere will work on the availability of the technology for further machines and attachments. A launch in Europe is currently not planned, as safety regulations currently do not allow the use of autonomous vehicles.

ALL-ELECTRIC BOBCAT SKID-STEER LAUNCHED

Also at CES 22, Bobcat unveiled its new all-electric T7X compact track loader, the first machine of its kind to be fully electric. The T7X has been developed for the North American market initially but testing and customer feedback are planned for Europe.

The T7X is powered by a 62kW lithium-ion battery with electric actuation and propulsion, making it quieter with high-performance torque and more powerful than any diesel track loader, all while eliminating carbon emissions. Work time is four hours continuous or one day with intermittent use.

The traditional hydraulics have been replaced by an electrical drive system consisting of electric cylinders and electric drive motors, which enable instant power and peak torque at every operating speed.





Kubota introduces M6-001 Utility

Kubota has launched a more affordable, five-model M6-001 Utility tractor range as the successor to the MGX models. The M6-001 Utility spans 104 to 143hp and meets EU Stage V emissions.

Short-wheelbase (2.54m) models include the M6-101U and M6-111U, which both use a 3.8-litre Kubota V3800 four-cylinder engine. Maximum power outputs are 104hp and 111hp, and maximum torque figures are 346Nm and 379Nm respectively. These two models weigh 4.3t, have a lift capacity of 5t on the Cat III rear linkage and a 71-litre-per-minute hydraulic system.

Long-wheelbase (2.68m) M6-121U, M6-131U and M6-141U models use Kubota's 6.1-litre V6108 four-cylinder engine. Power outputs are 123hp, 133hp and 143hp, and maximum torque figures are 503Nm, 544Nm and 586Nm respectively. These three larger models weigh 4.8 tonnes, have a rear linkage capacity of 6.1t and 77-litre hydraulics.

All M6-001 Utility models get a 40kph semi-powershift transmission, which uses eight powershifts in three mechanical ranges to provide a 24x24 gearbox with auto-shifting in each range. The option of a creeper range increases the choice of ratios to 32x32.

Operator comfort is provided by an air-suspension seat in the same cab frame shared with M6-002 and M7003 models, while front axle suspension is available as an option, as are a wide sunroof and two loaders. Two mechanically operated spool valves are fitted as standard and two additional spools are optional. PTO equipment comprises a two-speed 540/1000 as standard, with a 540 Eco available as an option. All models can be equipped with an optional front linkage with 2.6t lift capacity and 1000rpm front PTO.

Prices start from £53,300 for the 104hp M6-101U. A range of Kubota Care warranty packages are available.

JCB EXTENDS LOADALL RANGE WITH NEW 538-70

JCB has launched the Loadall 538-70, a 7m machine that slots between the current 532-70 and 542-70 models with 3800kg maximum lift capacity and 7.01m of lift height.

At 3000kg to 3800kg, lift performance is particularly strong in the 4-6m loading-at-height zone critical for bulk loading of grain into trucks and silage into diet feeders, while 2500 to 2750kg capacity is available at full height. The 140-litres-per-minute load-sensing hydraulics include gravity regeneration of oil for the retract and lower services to bring the boom down rapidly.

Four different transmissions are available, as well as three power outputs and three standard feature and specification levels, including the 109hp Agri, 130hp Agri Super and 150hp Agri Xtra. Standard kit includes auto wheel alignment when switching between the three steering modes, a reversing cooling fan and JCB LiveLink telematics. Boom suspension is standard on all but the Agri version where it is an option.



WWW.MANITOU.COM

HIGH SPEC LOW RATE

Available on
All MLT models
3 year 3,000 hour
warranty*



**1% flat rate available in 50 monthly payments
on max balance of £50,000**

Limited offer for business users only, terms & conditions apply*

*Terms and Conditions: Available for business purposes only, subject to acceptance and affordability checks. United Kingdom and ROI only. Applicants must be 18 or over. Available on new models specified only, and valid for units delivered to the end customer between 01-01-2022 and 31-03-2022. Purchase must be completed by March 31st 2022. The finance products available under this promotion are Hire Purchase and Finance Lease. For Hire Purchase, full VAT is due on signing. An option-to purchase fee of £100 (plus VAT) will be collected with the final payment. You will own the machine when all payments have been made. For Finance Lease, VAT is due with each rental payment, return conditions apply and you will not own the equipment at the end of the agreement. A documentation fee of £100 (plus VAT) will be collected with the first rental. Alternative finance products are available, terms and conditions apply. The offer is based on a 5 + 45 monthly profile where the sum of 5 payments are due in advance, followed by 45 monthly payments, and is subject to a maximum balance to finance of £50,000. The offer is only available on the new models specified. Images are for illustrative purposes only and specifications may vary. Finance provided by Manitou Finance Limited, Northern Cross, Basingstoke, RG21 4HL. Registered in England No. 2308212

FOR MORE DETAILS TALK TO OUR TEAM TODAY
T: 0345 226 7382 E: ENQUIRIES@MANITOU-FINANCE.COM

50 YEARS
MANITOU
UNITED KINGDOM 1972 - 2022

Tobroco-Giant to build Doosan loaders

Doosan has signed an agreement with Tobroco-Giant, which will manufacture compact wheel loader models, finished in Doosan liveries and sold under the Doosan name through the brand's European dealer network.

Doosan will introduce the first models to be supplied under the new agreement in the weight category from 3500 to 5000kg this year. Overall, the new partnership covers a total of five models, which will be distributed across all of Europe, and a range of attachments to accompany the machines is due to be announced soon.



CUMMINS UK PLANT HITS ENGINE MILESTONE

The Cummins factory in Darlington has manufactured its 1.5 millionth Mid-Range engine. The site produced 66,000 engines in 2021 and employs around 1500 people in engine assembly, exhaust after-treatment manufacture, technical operations and business support functions.

The factory opened in 1965, originally building the Small Vee family of V6 and V8 diesel engines. In 1985 production switched to the Mid-Range engines following an upgrade costing £13.5 million. These engines are the B and C Series products, spanning a range of 75 to 430hp, and power a wide range of vehicles and machines.

The 1.5 millionth engine is destined for Hyundai Construction Equipment in South Korea, the factory supplying customers in over 50 countries.



FLEXIBLE HORSCH GIVES MOUNTING OPTIONS

The new Horsch 5m and 6m Cultro TC models can be front- and rear-mounted for added flexibility. The Cultro TC is a double knife roller that produces an intensive crushing effect at up to 20kph with a low power requirement. The 5m and 6m models fold to 3m transport widths and are also available with a two-bar harrow. They can be combined with other machines, for example, as a front attachment without a packer and with the disc harrow Joker CT. The Cultro TC is also available as a 3m front/rear mounted model, rear-mounted 9m model and a trailed 12m model.



RED DIESEL BANNED FOR NON-FARMING EVENTS

While agriculture will continue to be able to use red diesel (gas oil), the definition of 'agricultural use' is being tightened. Sectors such as construction will no longer be able to use red diesel as of 1 April 2022, however vehicles and machinery used in agriculture, horticulture and forestry are exempt. Tighter rules mean operators switching between agriculture and construction will need to flush the tanks of machines such as excavators and fill with DERV (white diesel) instead.

The same rules will apply to road runs and ploughing matches, which will need to use white diesel. As a result, organisers are concerned attendance at fund-raising charity events will decline.

MORE TRACTION — ALWAYS

TRAXION OPTIMALL

MORE INFORMATION:

WWW.VREDESTEIN.CO.UK/TRAXIONOPTIMALL



VREDESTEIN TRAXION OPTIMALL

- ✓ Specific fuel consumption
- ✓ Area treated per hour
- ✓ Kappa/slip ratio

DLG Test Report 6800

VREDESTEIN

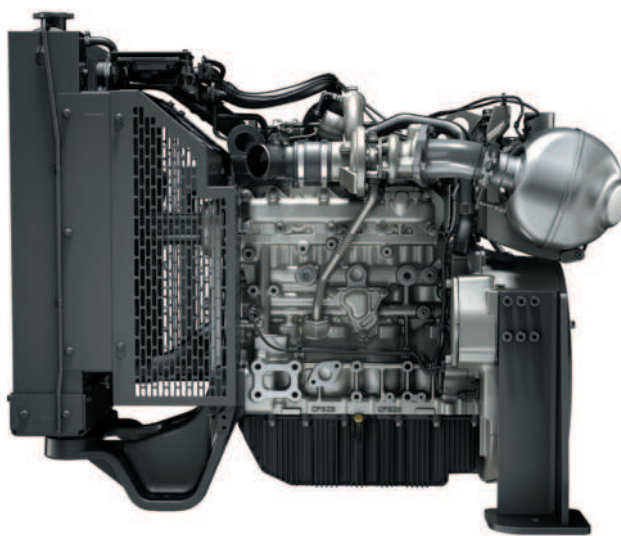
TYRES

Perkins introduces new engines

Perkins is expanding its current Industrial Open Power Unit (IOPU) offering with the introduction of two new 2.8- and 3.6-litre models.

The new units, part of the popular Perkins 904 Series family, have been designed to provide machinery manufacturers with plug-and-play power solutions that meet the latest emissions standards.

The turbocharged 2.8-litre delivers up to 55kW



and 300Nm of torque at 1600rpm, while the larger and more powerful 3.6-litre turbocharged after-cooled offering has a maximum output of 100kW and 550Nm of torque at 1500rpm.

DISCOUNTS ON KUHN SPRAYER TECH



Kuhn is offering significant incentives to farmers looking to embrace more precision-led spraying methods. Both the Deltis and Altis mounted models and Lexis and Metris trailed sprayers will now be offered with GPS section control, boom assist and five other options with discounts of up to £5000. Further options include the new Autospray droplet control feature, which enables adjustment of the droplet size from the cab, automated filling and rinsing, Boom Assist automatic boom height control, nozzle by nozzle shut-off, automated steering axles and working lights. Farmers interested are advised to contact their local Kuhn dealer.

LAMMA CONFIRMS NEW 2022 DATES

The LAMMA Show will take place on 4 and 5 May 2022 at the NEC, Birmingham. The event was postponed in January in response to the evolving COVID-19 situation. All plans for the 40th anniversary edition are carried over to the spring edition. Organisers say there are no changes to the floorplan or show features as a result of the date change. Visitor registration remains open at lammashow.com and there is no need to register again if you have already done so.



VOTING OPEN FOR FARM MACHINE 2022

Readers of *Farm Machinery Journal* can now vote online in the Audience Choice category of the Farm Machine 2022 awards. Your selection will be based on a shortlist of innovative machines. Visit farmmachine.eu to view the shortlist, cast your vote and for more information. Voting closes on 27 February 2022 and the winner will be announced on 2 March 2022.



NEWSINBRIEF

CNH Industrial offers apprentice course

Writtle University College (WUC) in Essex and CNH Industrial have joined to offer the CNH Land-based Service Engineering Technician Apprenticeship programme from September 2022. Apprentices will benefit from tutoring at Writtle, close to CNH's head office in Basildon.



Forestry and Arb shows merge

APF 2022 is teaming up with The Arb Show to stage the largest forestry and Arb show ever held in the UK at Ragley Estate, Warwickshire, on 22 to 24 September 2022.



Harper Adams student wins Claas Scholarship

Molly Robinson is the first female student to win the Claas Scholarship, which will contribute to education costs and provide placements in a UK Claas dealer and at the headquarters in Germany.



Case IH appoints SAMCO in Ireland

Based in Adare, County Limerick, SAMCO will sell Case IH tractors, harvesters and telehandlers, as well as servicing and supplying parts. A second depot is planned for Tralee, County Kerry.



PRECISION SPRAYING

Technology options offer



SAVE UP TO £5000*



Precision spraying just got more affordable!

Take advantage of our money-saving offer on precision technology when buying a new mounted or trailed sprayer.

*Contact your KUHN Dealer for more information or visit our website for details: www.kuhn.co.uk

Offer closes 31/03/2022

be strong, be **KUHN**

www.kuhn.co.uk





PUMA IN THE TREES

In what is quite a different winter task than we're used to seeing, Shropshire-based contractor Ed Jones is pictured giving his Case IH Puma 175 CVX a good work-out mulching down old root stock for a forestry nursery. E.J Agriculture, as Ed trades, is to all intents and purposes an agricultural contractor as well as working in this niche sector. The conditions were quite wet between the rows and Ed was finding some soft spots but generally was able to keep his feet dry.

New in January 2021, the Stage V Puma was powering a 2.5m Prinoth mulcher. At times it was asking for all 224hp the Case has to offer to chew through the dense growth of the trees that had reached the end of their productive life after being harvested annually for cuttings over 10 to 12 years.

Ed generally makes a reverse pass to get the bulk down, then a forward run to decimate the remains. An excavator comes through to rake the deep roots out and the process starts again with fresh saplings.

IMAGE KEN TOPHAM



The on farm trailer brake safety test

Merit Inspection Solutions



Safety Taken Seriously

Ensure your peace of mind before you start spring work with the only test that can be done on your farm and which:

- Uses full specification rolling road equipment
- Enables testing of each axle and each wheel across each axle
- Tests both hydraulic and air braking systems independently
- Takes just 45 minutes
- Provides an accurate percentage brake efficiency test report
- Enables quick and efficient retesting

“

I wanted a proper test of our trailer brakes, rather than just a visual inspection. A test that gave me readings on each wheel, identifying failings, and that was done safely with the trailer stationary and stable. That's saved us money, avoiding unnecessary parts and labour where it's not required.”

Colin McGregor, McGregor Farms.

To book a day on your farm or to share a day with neighbours contact Charlotte on 07590 230620 or C.Glaysher-Jones@meritinspections.co.uk

Dairy demo

The updated Manitou MLT 630-115 V is the latest incarnation of the French manufacturer's high-spec, mid-sized telehandler. *FMJ* put one to the test in Lancashire with dairy farmer Andrew Coar

WORDS AND IMAGES SIMON HENLEY

Manitou introduced the MLT 630 back in 2016 when it arrived as a replacement for the popular MLT 629 rear-engine model. Underneath it shares the same chassis as its stablemate the MLT 730, which uses a longer boom to achieve a maximum lift height of 7.0m. The MLT 630 on test here features a 2.69m wheelbase, stands 2.34m tall and measures just 2.13m wide. It offers a turning radius of just 3.68m and tips the scales at a shade over 7.0t. Maximum lift capacity is 3.0t and the maximum lifting height is 6.1m.

We don't usually start a field test by revealing the stats of a new machine, but the vital statistics of the Manitou MLT 630 are important for this

particular evaluation. Our test this month takes us to Lancashire, where we joined LandPower TV on a dairy farm near Preston owned by Alan Coar and his son Andrew. The Coar family use a Merlo TF33.7 on their farm, which is the second lime-green Italian handler they have owned. Their current Merlo arrived on the farm just a few months ago so it was decided this might be the perfect opportunity for an informal comparison with the Manitou MLT 630-115 V.

On paper, the two machines share very similar specs. They both use a 115hp Deutz 3.6-litre Stage V engine coupled to a hydrostatic gearbox, and they both share very similar dimensions. The only significant difference is the Merlo has a 7.0m lift height, which, if we were being really pedantic, actually places it on par with the aforementioned Manitou MLT 730. ▶

"It's very manoeuvrable, which made it easy to handle in tight spaces"



Right inset: Optional JSM Auto Power monitors joystick movement and hydraulic load to automatically control the engine rpm. Available only on hydrostatic models with flow sharing, it costs £1250

Right: Driving position offers plenty of legroom for taller drivers and places controls within easy reach

Far right: Cab interior is well constructed with a high level of ergonomic refinement

► Working together

Having established both machines are pretty darn similar, the question now is how well do they compare in real world conditions? To find out, our host farmer Andrew Coar used the Manitou alongside his Merlo for daily tasks around the farm over the course of several days.

“The step design really does help when you’re climbing in and out all day”

First, we need to establish why the Coar family specifically purchased the Merlo TF33.7. The answer, according to Andrew, is because it is a relatively narrow handler that can comfortably fit inside the cubicle sheds and narrow feed passages on the farm. It is also a highly agile machine that can thread its way round stanchions in cattle yards and fit under a low-hanging lean-to.

The Merlo uses a hydrostatic transmission, which Andrew considers a prerequisite for any yard-based telehandler. It is also well balanced and capable of stacking big bales on trailers in the summer and loading the farm’s diet feeder all winter. The Merlo is also reportedly a dab hand in dealing with a dairy farmer’s never-ending quest for shifting muck and manure.

Prior to purchasing their Merlo, the Coar family had several different handlers on demo, but they didn’t have the opportunity to try out a new Manitou MLT630-115V. Having now used the new French-built handler alongside their Merlo for the best part of a week, we returned to Andrew’s farm to ask what he thought.

FMJ: What were your first thoughts about the MLT 630?

Andrew Coar (AC): On first impression, it’s not a bad looking machine and it’s well put together. I was actually quite surprised at how quickly I got used to it. It’s the same width as the Merlo so there was no fuss getting around our buildings. It’s also very manoeuvrable, which made it easy to handle in tight spaces.

An important factor for me was that this model has the two-speed hydrostatic gearbox option. A hydrostatic is essential for yard work and anyone who’s not done so needs to try one. The Manitou hydrostatic performs much like the Merlo, which made it easier to switch from one machine to the other.

FMJ: Were there any features on the Manitou that you particularly liked?

AC: This Manitou has an optional feature called JSM Auto Power, which basically uses joystick movement to automatically control the engine revs while you’re loading. The more effort required to lift or operate the hydraulic system the more engine power the system applies. When this is activated the foot throttle operates as a travel pedal so it only controls the vehicle speed.

Ironically, our Merlo is equipped with a very similar feature, but I had never bothered with it. Since I’ve seen how well it worked on the Manitou I’ve turned it on and started using it in daily tasks. It’s actually a useful feature, which works really well for certain jobs.



Above: Full panoramic windscreen provides excellent forward and overhead vision. Triple window wiper set-up is excellent for keeping the entire front window free of rain and debris



Left inset: Dairy farmer Andrew Coar hosted this month’s test, as FMJ joined LandPower TV in Lancashire for an evaluation of the recently updated Manitou MLT 630-115 V Elite

Right: The Manitou made light work of loading the feeder wagon, with good visibility all round

Another thing I like is the pressure dump system for the auxiliary hydraulics. There's an external button located on the outside of the machine by the left-hand front indicator unit. When you press the button, as soon as the pressure in the hydraulic pipes has dropped the hazard warning lights flash so you know you can remove the connectors.

FMJ: How did you get on with the Manitou headstock when fitting/removing attachments?

AC: The Manitou headstock is very robust and you can clearly see when the locking pins are engaged. I like that. The Merlo uses a single-pin locking device on the headstock, which is underneath the carriage. You have to lift the boom to make sure the pin has locked in.

There are two ways to isolate the locking pins once an attachment is fitted: you can either use a switch in the cab to prevent accidentally unlocking the attachment or you can use the lever on the headstock valve block. I tended to jump out of the cab and switch over the valve block manually, then I knew it was done.

I like the positioning of the auxiliary connectors on the headstock. They are mounted so they face outwards, which makes it easier to push on the hydraulic pipes or pull them off. They're also nicely accessible.

FMJ: The MLT 630 is the smallest Manitou with a full-size cab. How does it compare with the Merlo cab?

AC: In terms of overall accessibility, there's not much between the two

machines. On the Merlo you have a split door design, which allows both the top and bottom sections to be latched back in a fully open position. On the Manitou you have a full-size door that cannot be latched back. It must be closed when you're driving.

Initially I wasn't keen on this, but when you're forced to work with the door shut you notice the cab is quieter and it gets less dirt inside. The Manitou also has an electric door window, which I thought was a nice touch. Inside the cab you sit quite high and there's plenty of room, so you don't feel cramped in, which you don't want when you're in a cab because all you want to do is get out.

The Manitou cut-out step design is a very good feature. The cab floor is quite high up and the step design doesn't look like it would make

TECHSPECS

Manitou MLT 630-115 V Elite

Engine Deutz TCD 3.6 L4 3.6-litre, 4-cyl Stage V

Power 116hp

Torque 460Nm @ 1600rpm

Transmission Two-speed hydrostatic (16kph, 40kph)

Hyd pump 106L/min (250bar)

Lift capacity 3.0t

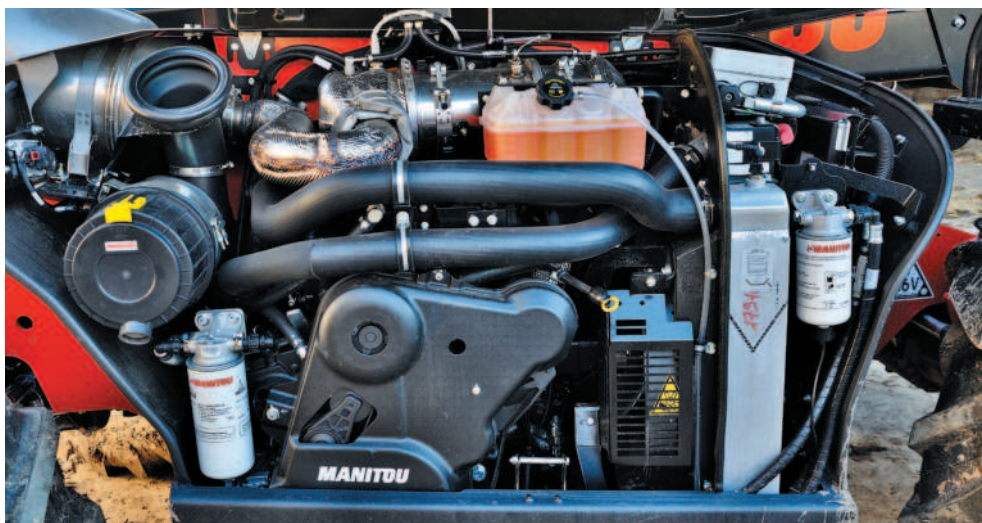
Max lift height 6.1m

Wheelbase 2.69m

Unladen weight 6960kg

Price £93,069 (MRP)





► much difference, but it really does help when you're climbing in and out of the cab all day.

Forward visibility is very good. The panoramic windscreen has three window wipers, which all

Above: Deutz Stage V engine produces 15hp more than Stage IV unit in the previous model. Transmissions include a two-speed hydrostatic or four-speed powershift

overlap one another. They do a really good job of keeping all the window free of rain and debris, from ground level to right over your head.

Visibility to the offside over the bonnet is also very good, and I

noticed there isn't the blind spot you get in some telehandler cabs when you're looking over your right shoulder. Having said that, I did find a blind spot at the front. At a certain work height I couldn't see the offside of the bucket or grab over the top of the boom.

In terms of ventilation, the Manitou system is very effective and the controls are conveniently placed next to the steering wheel. There's a lot of glass in this cab but it didn't steam-up even when we were working in sleet and snow.

FMJ: The MLT 630 on test is a top-spec Elite model. Did you get a chance to try out any of the optional features?

AC: This model has both the reversing camera and the offside visibility camera. This is very useful, because it just gives you that additional degree of confidence in confined spaces





Left: This MLT 630 features the optional flow-sharing distributor (valve body) that directs oil flow evenly between the services being operated during multi-function boom operations

Below inset: The Manitou cut-out step design doesn't look like it would make much difference, but according to Andrew Coar it really makes a difference when you're in and out of the cab all day



when you're up against a barrier or wall because you can see along the offside of the machine when you can't see your mirrors.

When I was working in the buildings I changed the screen setting so the image from the side camera was permanently on display. It stays like this until you select reverse, then the screen image automatically switches to the reversing camera. The LED lighting package literally turns night into day. We even turned them on during the daytime and they made the daylight brighter.

"You'd be hard pushed to find fault with the Manitou"

The Manitou is equipped with boom suspension, which our Merlo doesn't have. It's a nice feature if you're doing a lot of travelling or road work, but we're not, so I didn't really see any benefit while just using the machine around the yard.

FMJ: How did you rate the hydraulic performance of the Manitou?

AC: The hydraulics are very responsive and easy to control, with just the right amount of speed for this size of handler. The JSM joystick is like trying to use a computer mouse when you first try it, but works well when you get used to it. I actually found the positioning of the scrolls made it easier to combine operating

functions than a conventional joystick.

The Manitou has three working modes, including pallet, suspended and bucket modes. The default mode is pallet, which gives plenty of controllability but not as much lift power. I found this out when I was loading muck and I couldn't lift the grab. Pressing the bucket mode button enabled it to get on with the job, but you have to remember to select bucket mode because it does switch itself back to the default mode when you jump out of the cab or stop the engine.

FMJ: How would you sum up your experience with the MLT 630-115 V?

AC: You'd be hard pushed to find fault with the Manitou, without splitting hairs. This machine has fulfilled all my expectations. I really like this hydrostatic version. It's smooth,

quiet, it's got the performance and the standard of fit and finish is very good. You can see they've not cut any corners.

If you're in the market for a 3.0t/6.0m machine then the Manitou is definitely worth a look. Would I personally buy one? My answer would be never say never. The choice between the Merlo we own and the Manitou tested here literally comes down to the colour of the paint and your relationship with your local dealer.

FMJ

Right: The Coar family's four-month-old Merlo TF33.7 is the second lime-green handler they have owned. It was chosen for its relatively narrow width, agility and hydrostatic transmission





App based farm safety software launched

Safety Revolution is delighted to announce the launch of a new farm safety software application based on its hugely successful and widely used farm and estate safety management service.

Designed for farm and estate businesses to provide, flexible solutions to suit the smallest through to the largest businesses. You can trial our free version or alternatively go straight into building your system from just £29 per month with no fixed period contract and the option to cancel at any time. Managers can operate the software from their desktop computer with each team member accessing the system via a simple app on their phone or tablet.

Information can be shared easily and quickly with every exchange and action recorded to enable the system to automatically accumulate the information and evidence you require to show that you are dealing with safety management proactively and professionally and that you're engaging the whole team in the process.

The service is supported by a 24/7 telephone helpline and reinforced by access to regionally based, experienced farm safety consultants who can help you progress and build your system at the pace that suits you. If you have a larger team or multiple departments within your business, you can adapt the system to share information and allocate tasks exactly as you wish. The system is entirely cloud based so you can operate it without a single piece of paper. However, if you prefer the comfort of a hardcopy or like to file certain documents then you can print all or part of the system at any time - no strings attached.

Features:

- Unlimited user access
- Ability to upload site plans/Maps
- Safe Working Practices
- Risk Assessments
- H&S policy statement
- Accident and near miss reporting
- Access to virtual filing cabinet
- View reports of completed checklists
- Access to MeritAgCheck through the checklists area

We have over the last eighteen years built a reputation for delivering practical, and pragmatic advice and for supporting clients to help them deliver strong and positive safety culture. This software enables you to access that expertise in a flexible and affordable way and when you feel it's right for your business.



**Safety Revolution,
delivering peace of mind.**

“Sign up here https://dashboard.safetyrevolution.co.uk/users/sign_in or visit our website www.safetyrevolution.co.uk/ for more information.”

Sprayers on tour

FMJ joined Agrifac's Scottish demonstration tour to see the Condor V and Endurance II self-propelled sprayers with AiCPlus, an integrated artificial intelligence technology that interprets what it sees for intelligent spraying

WORDS AND IMAGES DAVID WYLIE

Agrifac's demonstration tour kicked off at Ethiebeaton farm near Dundee, where farmers and contractors could see and test drive the Condor V and the fully-loaded 8000-litre Endurance II with AiCPlus technology. With improved production practices, mechanisation and precision farming, Agrifac is said to be on a mission to help farmers and contractors increase yield on less productive land where there are huge yield gaps between current and potential production levels.

On hand to explain more about the latest Agrifac self-propelled sprayers were sales manager Chris Potter, northern sales manager Alan Stewart and Craig and Emma Scott, owners of CT Scott Ltd, Agrifac's sprayer service support agent covering the north and central belt of Scotland.

The two 36m-wide booms on the demo Condor V and Endurance II share many key spray technology components that are designed by

Agrifac. For example the J-boom is said to offer a stable and robust boom design in working widths from 24m out to as far as 54m on the Endurance II. The J-boom is attached to a BalancePlus rear frame structure that helps to keep spraying at the correct ride height and is connected to Agrifac's unique and patented StabiloPlus undercarriage. The latter is designed to provide a smooth ride, prevent the spray boom from swaying, ensure chemicals are distributed evenly and distribute the weight evenly across all four wheels to minimise ground pressure.



Above: Steering can be selected as four-wheel, two-wheel or crab

Below: A 36m-wide boom featured on the demo machines working in Scotland

The basis of the StabiloPlus undercarriage was laid over 30 years ago and was specifically developed for self-propelled sprayers, as a machine with high ground clearance and evenly distributed weight across all four wheels needs such a system. The air-suspension system and height control are designed to guarantee good stability across rolling and undulating terrain.

The Condor's track width can be hydraulically adjusted by up to 75cm, while 150-225cm and 225-300cm are also available. The bigger Condor Endurance track can vary from 190 to 460cm. The standard track width adjustment on all of the models is 100cm. StabiloPlus is also designed to ensure the best weight distribution ▶

"The air-suspension system and height control are designed to guarantee good stability"





Left inset: A rear-view camera system is fitted as standard

Below: A large 8000-litre tank features on the Endurance II



► for optimal traction and the lowest possible ground pressure in every situation.

These three technical features mean the spray boom does not sway, helping to ensure that chemicals or liquid fertiliser are evenly distributed, resulting in higher yields. Also, the sprayers are designed to comfortably handle a maximum road speed of 50kph between fields. Six sensors

on the boom offer a wide viewing angle to provide reliable and precise measurement of the crop, which is designed to enable perfect spraying quality because the boom stays at the right, pre-set height across varied terrain.

Cummins power

The 11t Condor V is powered by a 288hp Stage V Cummins six-cylinder engine with AdBlue after-treatment, which drives the hydraulic pumps for the Linde hydrostatic drive motors that produce a field speed from

Above: In the cab of the Endurance II

Above right: EcoTronicPlus in the Condor Endurance II has a 405hp Stage V Cummins engine to provide hydraulic pressure to the four Bosch Rexroth drive motors.

Below: Both models feature great access to the engine and pumps

0-12kph in low speed or a higher 0-36kph field speed. The bigger 13t, 8000-litre capacity Condor Endurance II has a 405hp Stage V Cummins engine to provide hydraulic pressure to the four Bosch Rexroth drive motors.

Both machines use Agrifac's GreenFlowPlus pump system, which has a constant flow and self-cleaning pressure filter system, claimed to guarantee the optimal use of water and chemicals. The compact pump system sprays 99.99 per cent of the liquid, and the constant spray pressure ensures that the right amount is always sprayed. In addition, the full boom circulation ensures that no deposits and spray triangles are created. The application rate will always be constant, even with rapid changes in spraying width. It's claimed that no liquid remains in the tank when spraying is finished.

Agrifac says its spraying system has a unique pneumatic pressure regulator that guarantees an accurate

TECHSPECS

Agrifac self-propelled sprayers

Model	Condor V	Condor Endurance II
Starting weight	9300kg	13,000kg
Engine power	288hp	405hp
Spray boom width	24 - 48m	24 - 54m
Tyre widths	380 - 710mm	380 - 750mm
Tank capacity	5000 litres	8000 litres
Turning circle	450cm (exterior, 640cm)	
Top speed	50kph	
Steering	4-wheel/2-wheel/crab	
Suspension	Air	
Section division	6 nozzles, 3 nozzles or per nozzle	



"GreenFlowPlus is said to guarantee the optimal use of water and chemicals"



Above and below: With FastFoldPlus, the spray boom is folded and unfolded easier and faster. This 36m boom can be unfolded in 20 seconds



spray result. Because the pressure regulator can react very quickly, for example, when spraying with variable spraying widths, as is the case with automatic section control, the litres per hectare are highly accurate. The high-capacity self-cleaning pressure filter prevents the pressure from dropping. Combined with the Condor's standard 25mm-diameter stainless steel pipes and pressure regulator, this guarantees an optimal distribution of the spray liquid – even at high application rates.

For very accurate spraying, Agrifac's StrictSprayPlus calculates the speed and the desired spray amount for each nozzle. The values are used to determine how much each individual nozzle should spray. The flow speed is controlled by changing the time that the fast-switching nozzle (100 times per second max) opens and closes. Variable frequency and the ability to change the open and close time for each nozzle individually

Above: From left: Craig and Emma Scott of CT Scott Ltd, Agrifac sales manager Chris Potter and Alan Stewart, northern sales manager

keeps the number of switches per second as low as possible and as high as necessary for good coverage and a precise spray. The system also has turn compensation during spraying. In the outside of the turn, the nozzles have to spray further than in the inside of a turn in order to apply the same amount consistently.

Caught on camera

The new AiCPlus camera system with integrated artificial intelligence responds to what the camera observes for individual plant spray capability. It is said to be designed

by farmers, helping to guarantee

that it makes the same decisions a farmer would make. The intelligent AiCPlus cameras are mounted every three metres on the boom and the system processes and analyses the crop in real time. The desired amounts can be applied immediately with DynamicDosePlus without the need for offline and time-consuming actions.

As an example, in the Netherlands the system is used to detect certain weeds in a field such as broad-leaved dock. The camera detects the dock and the system sprays only the area the weed grows in. A characteristic of this type of weed is that its colour changes throughout the season and can even have up to 60,000 seeds ▶

Below: Agrifac's Scottish demo tour kicked off at Ethiebeaton farm near Dundee



► per plant. These seeds can be active for 60 years, which is why this type of weed is difficult to eradicate.

With AiCPlus, the specific nozzles open only when the cameras detect this type of weed. This prevents spraying a crop with chemicals it doesn't need and makes sure that weeds that are good for the land, such as clover, can thrive. In this application it was also said to have saved 90 per cent of the chemicals.

Both sprayers use the highly respected Claas Vista cab. The Condor uses the EcoTronicPlus system to control all aspects of spraying, giving users all the information they need during spraying and ensuring that most functions are carried out automatically. The system has a very straightforward touch-screen that displays exactly what the machine is doing and the machine's main processes and indicators are visible at a glance. Current liquid flows are displayed as graphics and even in bright and direct sunlight the screen is easy to read and operate. The colour screen also has a day/night setting.

Clever controls

Agrifac has integrated the functions that are most used during spraying into the joystick and the armrest so that all of the important functions are within easy reach. However, EcoTronicPlus in the Endurance II model has a brand new, fully integrated armrest and joystick for ease of use and is aimed at increasing productivity. It comes with only one massive screen for managing both spraying and GPS data.

Agrifac's My Agrifac digital portal offers different users a variety of services that make an important



Above: The Condor V fitted with a 5000-litre tank, Strict Spray and Strict Height technologies



Right: The Condor V cab and control screens



Above: GreenFlowPlus is a very compact pump system with short pipes and electrically operated valves



Above right: Condor V chemical filling is done at ground level

contribution to increasing business effectiveness. A personalised dashboard enables individual users to find the latest news, announcements and the parts store. In just a few clicks it allows owners to follow their machine's performance in real time. All relevant information is placed in a central location so that service requests can also be easily handled and scheduled. This platform is easily accessible via the internet.

The machines can also be remotely accessed for trouble-shooting and have been designed for the vast majority of fault diagnostics to be viewed on the in-cab screen, not a specialist technician's laptop, so help is only a phone call away. *FMJ*

"All of the important functions are within easy reach"



Below inset: AiCPlus identifies individual plants and applies a specifically-tailored product rate on the move

HIFI FILTER

DENSO



SCHAEFFLER



Burgaflex



ALL YOUR TRUSTED BRANDS IN ONE PLACE

SEARCH 50,000 AIR CONDITIONING PARTS AT WWW.APAIRLTD.COM

**NEXT DAY
DELIVERY
TO UK
MAINLAND**

AP
AIR EUROPE LTD
Conditioned to provide quality parts



FAN CLUTCHES for
Fendt, Massey Ferguson,
New Holland, John Deere,
Case IH and many more



@APairLtd



@APAIRLtd



AP Air Europe Ltd

A LONG WAY TOGETHER



AGRIMAX FORCE

No matter how challenging your needs, AGRIMAX FORCE is your best ally when it comes to soil tillage and haulage applications with high-power tractors. Thanks to its IF Technology, this radial tyre can carry heavy loads with a lower inflation pressure than a standard tyre, thus reducing soil compaction and providing excellent traction. AGRIMAX FORCE also boasts reinforced tyre bead, which helps lengthen the life of the tyre, ensure great performance even at high speeds and reduce fuel consumption.

AGRIMAX FORCE is BKT's response in terms of both productivity and resistance for high-power tractors.



IMPORTER FOR THE UK

Kirkby
TYRES
Tyre wholesale redefined

Tel: +44 0151 728 4171

bkt_enquiries@kirkbytyres.co.uk

www.kirkbytyres.co.uk

BKT

GROWING TOGETHER



bkt-tires.com

Right and below:
The hydrogen team
had just six months
to develop the first
prototype of a JCB
hydrogen engine.
The engine was
unveiled to Lord
Bamford on 7
December 2020



Clean and green

The JCB hydrogen engine development programme is leading the quest to develop an affordable alternative to diesel without compromising power or performance. *FMJ* visited JCB Power Systems to find out more

WORDS AND IMAGES SIMON HENLEY IMAGES JCB/SIMON HENLEY

The onset of an agricultural compliance for zero carbon emissions has been approaching an impasse for some time. We've all heard the news and seen the proposed target figures, but the fact remains there is an almost untarnished reliance on oil for global food production.

Here in Britain, the government, the conservationists, the activists and the media are constantly reminding the agricultural industry of the responsibilities that will ultimately befall the

nation's farmers. Yet the pressure on UK farmers and contractors to meet these increasingly stringent environmental considerations remains an indiscernible nightmare.

The shift to carbon-neutral farming is currently littered with a combination of complicated government policies, financially driven private enterprise schemes, misguided good intentions and blatant hypocrisy. Arguably the biggest problem facing agriculture today is what to use as an alternative to diesel.

Many of the proposals for carbon-free farming offer no practical

"Encouraging carbon-friendly farming is all well and good but what is going to power tractors?"



► solutions to the problem of what should replace the agricultural compression ignition engine as the primary source of power. Encouraging carbon-friendly farming practices such as direct drilling and mechanical weeding, using autonomous tractor technology with robotic implements and direct-link telematics are all well and good, but what is going to power the tractors of the future?

Hydrogen fuel

Following *FMJ*'s evaluation of the JCB Loadall 525-60E electric telehandler (*FMJ*, Jan 22), we were invited to attend a demonstration at JCB in Staffordshire hosted by Lord Anthony Bamford. The British press has been packed with stories and reviews discussing the JCB hydrogen fuel development programme, behind which Lord Bamford has been a driving force from day one.

"Batteries work where there is a low energy demand for a zero-emissions vehicle capable of lighter duty applications," explains Lord Bamford. "JCB has invested heavily in battery

technology and there are now seven models in our compact electric line-up.

"The issue with batteries occurs when you have more operating time than charging time. Batteries don't work where weight or charging times are sensitive. Additionally, the chemical elements used in battery production are controlled commodities, so they are continually increasing in value.

"Solid state batteries are not yet in production and to date JCB cannot find a battery manufacturer that will sign a long-term supply agreement. Batteries have their place, but we have to find a replacement for diesel and hydrogen fuel is the answer."

In July 2020 Lord Bamford hosted a meeting with a team of JCB engineers, many of whom had been involved in developing the world's fastest tractor just a few years ago. This time the purpose of the meeting was to propose the development of an engine that could use hydrogen as a fuel, and the deadline was just six months.

Fuel cells

JCB has already made some serious advances in the development of hydrogen fuel cell technology. A hydrogen fuel cell is a range-extender, which charges batteries. But there is a downside. Fuel cell technology is



Above: Lord Bamford (right) and Agustin Martin of Toyota (GB) pictured with JCB's new hydrogen-fuelled 3CX and the Toyota Mirai hydrogen-fuelled car that has joined JCB's fleet

Left: JCB is working to develop lubricants with stronger additive retention properties in the presence of water. Colouring the oil is another option, as it is difficult to see the oil level on the dipstick

Right inset: Refuelling involves connecting to a storage vessel. JCB's aim is to provide enough fuel storage on the machine for one working day

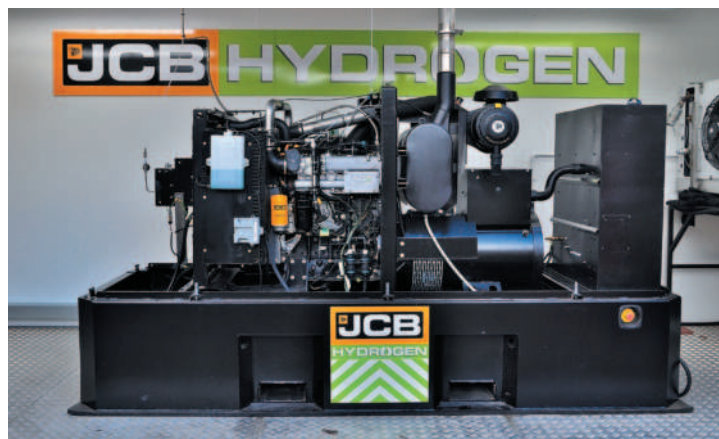
forbiddingly expensive and requires an intricate network of cooling packs and DC converters. It is both temperature and dirt sensitive, quickly losing efficiency if the system membrane is contaminated. In short, while JCB has proved it can work by fitting this type of system into a 20t excavator, it is not a cost-effective way of reducing carbon emissions.

"The adoption of any new technology relies on its affordability," continues Lord Bamford. "Modern technology is enabling the efficient use of hydrogen as a zero-emissions fuel in an internal combustion engine, without compromising power, torque or operational convenience.

"Diesel is likely to be with us for quite some time, possibly for the next 20 years. What we must do in the



The production costs for a hydrogen engine are approximately 10 per cent greater than those for a diesel engine



meantime is professionally and affordably manage the transition between diesel and hydrogen.

So how has JCB done it? Let's start with the engine, which is a standard four-cylinder JCB DieselMax 448 unit. The cylinder block, the crankshaft and bearings are all stock diesel parts.

The cylinder head is also similar to the diesel engine, however the pistons, the air induction and fuel injection systems are unique to the hydrogen engine.

One of the biggest challenges facing JCB engineers has been mixing the hydrogen with air so it will efficiently burn. By mass, hydrogen has three times the energy density of diesel but it needs

Above: JCB has several prototypes under evaluation and testing is ongoing. its hydrogen engines could be in production by September 2022

to be compressed under pressure to provide enough density to work effectively as a fuel. Hydrogen is made up from small molecules, which move extremely quickly. Released hydrogen will travel upwards of 9mm per second, which is around 20mph. If you could see the gas, blink and it would be gone.

A hydrogen engine, like a CNG or petrol motor, requires a spark ignition system to burn the fuel. Once injected into a combustion chamber there is a period of just 20-30 milliseconds to ▶



"Technology is enabling the efficient use of hydrogen as a zero-emissions fuel"



► compress the fuel before firing or the hydrogen becomes erratic and begins to wander, potentially sticking to the cylinder walls.

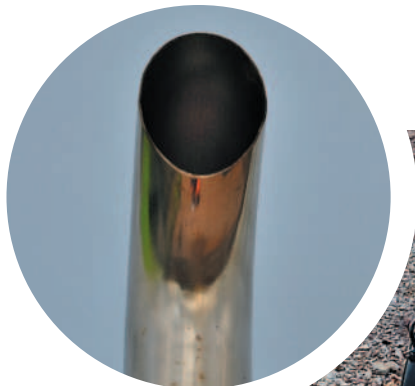
Bowl profiles

By using a combination of computer modelling and extensive testing, JCB conducted 130 studies on the bowl profiles of piston design. This was done to establish the precise metallurgic combination for the pistons and the most efficient pattern for swirling and twirling the gas inside the compression chamber prior to ignition.

Initial prototypes pre-mixed the hydrogen with the air before injection into the cylinder. Later designs inject the hydrogen directly into the cylinder during the compression stroke. The ideal fuel-to-air ratio is regulated at one-part hydrogen to 100 parts of air.

The short window for successfully combusting the fuel-air mixture in the cylinder has required the use of advanced variable-geometry turbo-charging techniques. Because the fuel mix is so lean, even with high boost pressures the combustion temperature of the hydrogen engine is slightly lower than a diesel, while the ejection heat temperature remains the same.

The by-product of hydrogen combustion is water vapour. A trail of steam permeating from the exhaust stack is pretty much the only thing



“It took the same time to fill the 3CX with hydrogen as it would with diesel”

entering the atmosphere. But even this needs careful consideration.

A steam management system has been incorporated into the exhaust system to keep water away from the engine. Additionally, JCB is working closely with oil suppliers to develop lubricants with stronger additive retention properties and which prevent emulsification in the presence of water.

Machines in action

JCB has developed several prototype hydrogen vehicles, including a 3CX backhoe loader and a Loadall 542-70. There are also rumours pertaining to a Fastrac, although this is not confirmed. The vehicle *FMJ* saw

Above and inset: The muted exhaust sound of the hydrogen engine is similar to that of a petrol unit. At work the turbocharger wastegate on this JCB 3CX can be distinctly heard when boost pressure is dumped

Above right: Lord Bamford has been the inspiration behind the JCB hydrogen engine programme. All JCB hydrogen engines are identified by a logo bearing the initials AB (Anthony Bamford) and H2 (hydrogen)

was the 3CX backhoe loader, which replaces its diesel tank with five Type-3 hydrogen tanks.

The hydrogen tanks each contain 1kg of gas, which is stored at 350bar. Each tank features a 3mm aluminium liner wrapped inside 10mm of carbon fibre to prevent the gas dispersing through the tank casings. Hydrogen can apparently escape through steel.

Refuelling involves connecting the fuel tank to a storage vessel known as a carbon cell tank. This is essentially a large still full of horizontally arranged cylinders with a maximum capacity of 700kg. Separate fill tanks with an electric pump boost the gas pressure to 450bar when filling the vehicle using a simple locking connector to attach the fuel pipe.

There are actually two fuel pipes, one being a purge line to return unwanted gas back to the storage vessel. In short, you can't overfill the



tank and it took around the same time to fill the 3CX with hydrogen as it would with diesel.

Sourcing hydrogen

Currently, most hydrogen is captured by reforming carbon-based fuels using carbon capture technology and is referred to as blue hydrogen. The alternative method is to split water into oxygen and hydrogen using electrolysis. This is green hydrogen.



Why batteries are not the answer

When it comes to tractors, battery power is not the answer. There are many reasons why it's not suitable.

Despite huge advances in battery technology, the immediate problem is electric vehicles continually need recharging. Hybrid systems are more efficient, but do not meet the requirement for zero carbon emissions.

Modern lithium-ion batteries have decreased significantly in price during the past decade thanks to advances in battery production, but they remain expensive to produce as raw material prices increase.

Batteries require the mining of metals, which have limited availability on earth. These include lithium, cobalt, nickel, manganese and

graphite. Mining remains an industry that relies on the use of fossil fuels. Many of the materials used for battery production have a carbon footprint.

Despite offering advantages in power and torque delivery, batteries are notoriously heavy, adding significant weight to a vehicle. A new BMW i3 passenger car weighs 2241kg, which is identical to a four-wheel drive Toyota Land Cruiser diesel. The BMW battery accounts for 25 per cent of the car's total weight.

Expired batteries present an end-of-life pollution problem, which is currently estimated to far out-strip the future demand for recycling them. Recycling elements from batteries such as

lithium, which is toxic, highly reactive and extremely dangerous, should only be undertaken by specialist salvage companies.

Cobalt is currently the only battery material that can be profitably recycled. Due to the cost and rarity of this metal, battery manufacturers are being encouraged to eliminate it from future battery designs.

Lithium-ion batteries that are ruptured or exposed to excessive heat during an accident are also extremely dangerous. Damage can result in a violent chemical reaction called a thermal runaway, leading to fire or an explosion and the generation of lethal toxic gases, including carbon monoxide and hydrogen cyanide.

Today JCB has more than 100 people working on its hydrogen engine programme. The hydrogen-powered Loadall 542-70 is the latest JCB vehicle currently under evaluation



Above: Prime Minister Boris Johnson refuels JCB's prototype hydrogen-powered backhoe loader as the company announced its £100m investment in hydrogen engine production

A high-pressure common rail fuel injection system pressurises fuel to 2000bar (29,000psi) when it's injected into the cylinders. To put that into perspective, high-pressure petrol injection systems operate at 200bar, while direct injection systems for hydrogen engines can operate at pressures up to 300bar.

The bottom line is fossil fuels are ultimately the world's biggest enemy. Today, the entire globe relies on diesel for agriculture, for construction, for road haulage, for ocean shipping, for public transportation and so on.

If there is even a chance of achieving net-zero carbon emissions on a global scale, the first thing we need to do is find a sustainable fuel to replace diesel. The hydrogen-powered JCB engine is without doubt a huge step forward in the right direction.

Left inset: JCB's hydrogen engine won one of the oldest and most prestigious awards in British automotive engineering. Lord Bamford was presented with the Royal Automobile Club's Dewar Trophy for the company's development of a hydrogen fuel motor

The electrolysis of sodium chloride solution (brine), which is used to produce chlorine gas, also produces hydrogen as a by-product. Green hydrogen is currently four times more expensive to produce than blue hydrogen, however with investments in new technology it is expected these costs will halve by 2030.

There's a myth about hydrogen, which relates to its use in nuclear bombs and its role in airship disasters

like the Hindenburg. In reality, while it is highly combustible, in normal atmospheric conditions with low oxygen concentrations hydrogen is far less dangerous than petrol.

Diesel as a fuel is safer still, but modern diesel fuel systems work under tremendous pressures.



WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal,
providing you various content:
brand new books, trending movies,
fresh magazines, hot games,
recent software, latest music releases.

Unlimited satisfaction one low price

Cheap constant access to piping hot media

Protect your downloadings from Big brother

Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages

Brand new content

One site



AVXLIVE.icu

AvaxHome - Your End Place

We have everything for all of your needs. Just open <https://avxlive.icu>



GPS RECEIVER TRACKING AT LAST! LOCATION REPORTING FOR YOUR GPS RECEIVER.

Deter thieves and keep downtime to a minimum using solutions from Vantage ASC, available for both new and old systems!

**Let us help you fight rural
crime.**

vantage[®]
ENGLAND & WALES

powered by

ASC

Vantage-ag.uk | 01480 861824



Storming off the line

FMJ joined LandPower TV at John Deere's HQ in Nottinghamshire for an exclusive first drive of the new mid-frame 6R185, including a staggering speed trial

WORDS AND IMAGES **SIMON HENLEY**

Opportunities to take a close look at something brand new in the agricultural machinery industry don't come along very often these days. The invitation to join LandPower TV to review the new John Deere 6R models was dropped in our lap at the last minute, so naturally we grabbed it with both hands.

The journey to John Deere at Langar unfortunately fell on one of the foggiest days of the year so far. Despite being frozen to the bone and struggling to see, let alone take photos, in a thick mist, our spirits were far

from dampened as we spent several hours getting to know the tractors.

Making their UK debut here are the large-frame 6R215 model, a small-frame, four-cylinder 6R140 equipped with a John Deere 643R loader and the much-anticipated, all-new 6R185.

We should start by stating that mechanically the new 6R models retain the engines used by their predecessors. That means they are using either the well-proven 6.8-litre PowrTech PVS six-cylinder engine or the four-cylinder 4.5-litre PowrTech PSS unit.

Stronger driveline

What is different is that John Deere has beefed up the driveline systems throughout the range. The PTO systems have been upgraded and there's now the option of IPM (Intelligent Power Management) boost for the 6Rs' hydraulic system, which adds up to 40hp of engine boost automatically (at any speed) during periods of high-demand hydraulic operation.

Our last test of the John Deere 6155R (FMJ, Nov 21) was ultimately our goodbye to a tractor that had become the best-selling John Deere across Europe, and one that is now a well-sorted, highly-refined and very likeable machine. ▶

TECHSPECS

John Deere 6R185

Engine
DPS PowrTech
PVS 6.8-litre,
6-cyl Stage V

Rated power 185hp

Max power 234hp
(with IPM)

Torque 941Nm @
1600rpm

Transmission
AutoPwr (ZF
Eccom IVT)

Hydraulics 114L/min,
(155L/min option)

Wheelbase 2.7m

Weight 7.9t
(unladen)

Price
£165,605 (MRP)

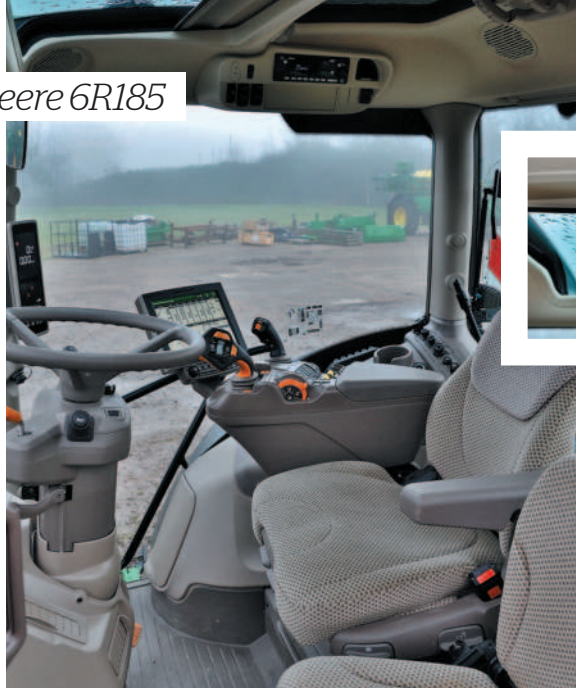
"What John Deere has done is develop a mid-sized powerhouse"



► Having heard the 6R would be updated in 2022, we predicted the new models would adopt many features already integrated into the 7R and 8R models. As it turns out, our predictions were pretty close to the mark and the new 14-model 6R range encompasses many of the changes we anticipated.

The appearance of the new models follows the BMW-crafted styling cues of the previously launched 7R and 8R models. This flag-design styling introduces a new low-profile cab roof and the option of either two wide-opening full-frame doors or the standard five-post cab frame with a B-pillar hinged nearside door.

The biggest news to come out of the launch of the new 6R is the introduction of two high-power models. They include the 6R150, which is now the most powerful four-cylinder small-frame tractor, and the 6R185, which succeeds the previous 6155R model as the most powerful mid-frame six-cylinder tractor in the 6R line-up.



Left: The updated XXL ComfortView cab features a revised interior with a Gen4 Command Centre display monitor as standard. Large panoramic roof window (inset) is optional



6155R on steroids

Since the 6R185 was the only model we had time to test drive, we will primarily focus our attention on this tractor. The easiest way to describe the new 6R185 is to think of it as a 6155R on steroids.

The new model stands on the mid-frame 2.7m wheelbase. It can lift 4.0t on the front linkage, 8.1t on the



Above: Conventional steering console with integrated dials/gauges has been replaced by a corner post primary display unit mounted on the A-pillar (inset)

“The 6R185 launches off the line like an F14 fighter jet from an aircraft carrier”





rear linkage and has a maximum payload of 3.5t. More importantly, it tips the scales at an unladen weight of just 7.9t.

Under its restyled bonnet, the new 6R185 employs a warmed-over version of the 6.8-litre PowrTech PVS, which is rated at 185hp. Maximum power is 204hp, but when IPM kicks in that figure leaps to 234hp.

With this kind of available power in a mid-frame chassis the 6R185 boasts a power-to-weight ratio of 33.7kg per hp. To make a comparison, at the time of its launch in 2016, the XL-frame John Deere 6250R (300hp max) boasted a class-leading power-to-weight ratio of 31kg per hp.

A rating of 35kg per hp is generally considered the unofficial benchmark for 'contractor' machines, which are tractors specifically developed for multiple applications including extensive road and PTO work. In short, what John Deere has done with the 6R185 is to develop a mid-sized powerhouse based around its best-selling 155hp model.

In terms of transmission options, the 6R185 is only available in AutoPwr spec, the well-proven ZF Eccom IVT unit providing top speeds of either 40kph or 50kph. The AutoPwr gearbox, which comes with John Deere's excellent CommandPro joystick control system, has apparently been selected as the most suitable all-round transmission for this type of tractor application.

The same but different

The updated XXL ComfortView cab features a revised interior, which replaces the conventional dash console with a new A-pillar corner post display. The driver's seat control console remains a comfortably

Above: New 6R driveline has been beefed up throughout the range. Impressive steering lock makes the 6R185 very manoeuvrable. The front axle retains John Deere's long-serving TLS system

Left: John Deere claims the 6R185 has unmatched acceleration and they aren't kidding. In a timed run the 6R185 accelerated from 0 to 50kph in 10 seconds



John Deere 6R140

John Deere UK has yet to receive one of the all-new 6R150 models, which now stands as the most powerful four-cylinder 6R model, however we did have a quick look at the new 6R140. Dimensionally the 6R140 and 6R150 are identical. It's only under the bonnet where things differ. The 6R140 produces 166hp (max with IPM) while the 6R150 churns out 177hp (max with IPM), giving it a power-to-weight ratio of 36.7kg per hp.

Designed for versatility and manoeuvrability, the 6R140 demonstration unit featured John Deere's CommandQuad Plus transmission. It can also be specified with JD's venerable AutoQuad gearbox or AutoPwr IVT - the 6R150 is available with AutoPwr only.

The 6140R pictured here is equipped with the John Deere 643R loader, which features dynamic weighing technology that can be set to measure and record the exact weights of material or objects being handled. The loader boom also features return-to-position and level-to-horizon.

Above: This 6R140 is rated at 140hp (166hp max with IPM). It stands on a 2.5m wheelbase, weighs 6.5t and is rated to carry an impressive 4.0t payload

Right: Mounted on the 6R140 tractor, the John Deere 643R loader seen here features dynamic weighing technology, with return-to-position and Level-to-horizon control



familiar sight and you get the Gen4 Command Centre display monitor as standard.

The 6R has always been a nice place to sit and now it's even better. Forward visibility is excellent and to keep it that way in poor weather John Deere has introduced a panoramic windscreen wiper that integrates the washer jets for quicker and more effective dirt dispersal. Options include an impressively

large panoramic roof window and an electrically heated rear window.

John Deere's CommandPro joystick controls the AutoPwr box, and a quick test drive of the 6R185 revealed the engine's punch is delivered seamlessly throughout the entire speed range. With three aggression settings for the transmission selected using a button on the joystick, in minimum you can literally glide away from a standstill like a limousine. ▶

► But that's not this tractor's party piece. John Deere claims the 6R185 has unmatched acceleration and they're not kidding. Set up for maximum aggression, the 6R185 launches off the line like an F14 fighter jet from an aircraft carrier flight deck.

Using either the CommandPro joystick or the throttle pedal to control the tractor's speed, we timed the 6R185 accelerating from a dead stop to 50kph (32mph) in 10 seconds flat. On a second run it stormed to a top speed of 56kph (35mph) in just 12 seconds, with the engine settling to around 1840rpm once maximum velocity had been achieved.

Obviously, we had no load in tow, but you don't expect a tractor to accelerate that fast in such a short distance. You can actually feel the acceleration easing you back into the seat. Check out the full video review on LandPowerTV.com and you'll see what we mean.

As we expected, the 6R185 behaved commendably at speed. The front axle Triple Link Suspension (TLS) may have been inherited from the old 6R but it soaks up the bumps at high speed with great effect. The steering too is very good, providing excellent directional

control even when the tractor is pitching around on undulating road surfaces. We were also surprised how quiet the new 6R is.

Forward visibility is excellent thanks to the removal of the steering console. Yes, the bonnet is marginally longer and wider than the previous mid-frame 6155R, but it doesn't impede the view of the front wheels and, furthermore, the new windscreen wiper is a well overdue upgrade that works extremely well.

Worthy replacement

There is no denying the importance of the new 6R range, not only in the UK but also in Europe. Our very brief glimpse at these tractors was enough for us to acknowledge that the changes John Deere has made are subtle enough to have improved the tractors without removing any of their long-standing 6R heritage.

With a price of £165,605 (MRP), the 6R185 is listed at £23,000 more than the new 6R155, and about £7500 less than the slightly more powerful large-frame 6R195. But it's what the new model brings to the table that should attract potential buyers.

John Deere has found a slot in the marketplace for a versatile, mid-sized



Above: Latest 6R range introduces a new low-profile cab roof and the option of either wide-opening full-frame doors (pictured) or the standard five-post cab frame with a B-pillar hinged nearside door

high-performance tractor with a high level of specification. This is a niche that actually has very few like-for-like competitors in this horsepower sector.

At some point in the future we will put the 6R185 through its paces and evaluate it properly. In the meantime, let's go out on a limb by adding this: from what we've seen so far, the John Deere 6R185 is already a very strong candidate for the next Tractor of The Year. **EMJ**

"John Deere has found a slot for a lightweight, high-performance tractor"



Below: The 6R215 retains the power rating of the previous 6215R. Styling replicates the lines of the latest 7R and 8R models with new mirrors and improved lighting

**THE WORLD'S FASTEST
SINGLE-ARM WRAPPER**

**EASYWRAP
150**



**FULLY AUTOMATIC CONTROLS,
FROM COLLECTING TO UNLOADING
THE BALE, FOR SIMPLE OPERATOR USE.**



**SCAN HERE TO LEARN
MORE ABOUT THE
KRONE EASYWRAP 150**

Dales Agri Sales Agency

THE SPREADER SPECIALISTS



The Sole UK Distributors of Agri-Spread Trailed Lime and Fertiliser Spreaders
A range of models are available from 3.5 to 16 tonne



- Capable of spreading a wide range of materials including lime, fertilizer, fibrophos, sand, salt and poultry waste.
- Hydraulic control of the spinners and drop point adjustment ensure accurate spreading up to 36m depending on the type of material.
- Options include Variable Rate Control, ISOBUS connection and weigh cells.
- All spreaders come complete with user-friendly test kits, allowing continuous testing of spread patterns, thus ensuring an even spread and ultimately a more cost-effective one.
- The results from these test kits can be checked visually or through our online test results service.

Charlie Halliday 07780 928560

Robert Taylor 07967 808285

www.dalesagrisalesagency.co.uk

sales.dalesagri@btconnect.com

KRM

Make every kilo count!

With today's high input costs, accuracy and evenness of spread have never been so important.

KRM spreaders are bristling with features to increase accuracy and reduce waste: Double, Double overlap for evenness of spread; Weigh Cell control for accuracy of application rate; Dynamic Section Control for ultimate accuracy in irregular shaped fields; Trend headland system for maximum headland yield and GPS automatic headland on/off with Tempo Tracker for seamless ins and outs.

It all adds up to a **BIG** saving!

Choose KRM for a spreader that WORKS!



Find out more at:
krm-ltd.co.uk 01423-324221





Variable rate systems are the biggest factor in most decisions

Capacity on wheels

Mounted spreaders have become increasingly popular, yet there remains a strong market for high-capacity trailed machines capable of covering vast areas without logistical challenges

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

Fertiliser spreaders have become highly sophisticated machines in recent years. As tractor sizes have increased, mounted spreaders have become more popular, but the demand for trailed machines hasn't diminished. Section control and variable rate options are now as accessible via ISObus as on the mounted versions, with the result that these capacity monsters can in some cases be much more versatile.

So why would a buyer consider a trailed machine these days? While they can be up to three times more expensive, put simply they are output machines, ideal for large farms or contractors that want to cover a lot of acres when conditions permit. Operations that have outlying land where one operator working unsupported can cover many acres without additional haulage infrastructure is also a benefit. There are a number of factors to consider when looking at these machines: disc height, capacity, feed system and whether you can utilise them for other commodity spreading.

The variable rate systems now available are probably going to be the biggest factor in most decisions and integrating a machine into mapping systems should be straightforward. Whether section control is necessary will depend on the crop and field sizes you're working with, but boundary

Above: TG Contracting of Norfolk spreading lime with a Gustrower GDK 8.000 supplied by Ryetec

Below: Many users balance the additional outlay of a trailed spreader with its high capacity and ability to cover large areas quickly

control measures will be valued by most owners these days.

Versatile options

The ability to spread different materials is another factor to consider. Not only lime and salt, but future-proofing towards a time when other pellet materials can be broadcast as supplements or replacements to traditional chemical fertilisers.

Rob Foxall of SCS Spreader and Sprayer Testing says most of the trailed offerings have the same spreading element as their mounted counterparts, so accuracy shouldn't be an issue, they are simply built for capacity. "There are a couple of machines on the market that were conceived as high-output trailed spreaders, so if output is a factor it's worth looking at the detail of what they can deliver. With machines that can spread lime



→ and fertiliser, making sure
→ they are set up correctly for both and maintaining them to a level so changing components is easy will save time and commodities."

Doing a tray test per batch of fertiliser has become more important than ever. As prices are currently very high, spreading accurately is crucial, however wide variations in prill and granule quality are also affecting how accurately they can be spread. SCS has seen wide disparities in the coefficient of variation in cheaper fertilisers that have come from further east in the Euro Block. SCS offers tray testing at £250 plus VAT, which with current commodity prices is a drop in the ocean.

KRM Bredal F-Series

KRM's offering in the trailed sector is from Bredal. KRM imports the Danish machines, which are conceived as a trailed unit to offer output and capacity. The Bredal F-Series includes two machines - the F8 has a capacity of 5700 litres and the F10 at 7600 litres. Both can be increased by around 2000 litres with hopper extensions.

Connectivity is ISOBus only, however if you are running tractors without this function there is a standalone solution from Bredal, who offer an ISOBus screen from Muller that primarily controls the spreader, but can accept a GPS antenna and offer a track guidance function. Variable rate and section control can be enabled in the standalone head unit. The Bredal should work with any ISOBus head unit, standalone or tractor specific.

At the business end, the Bredal has two feed belts and dosing units feeding two discs, which work from 12 to 36 metres. Variable rate and section control are built into the

TECHSPEC
Bredal F-Series
Models F8, F10
Spread Prilled fertiliser and pellet material
Sizes 5.7 & 6.6m³ (hopper extensions available)
Standard spread width 12-36m
Control ISOBus only
Steering axle Optional
Weighing Optional



Left: Bredal spreaders use ISOBus for control but Muller screens can be fitted in tractors that aren't compatible

Above: KRM imports the full range of Bredal spreaders to the UK, including the trailed F-Series

mechanical side of the machine. If you want this functionality in the field then the head unit has to be enabled for both. If enabled, the Bredal can spread headlands either left- or right-handed, which is achieved by slowing the feed belt, changing the delivery position and slowing the disc on the side where half width is needed. A similar method is employed in actuating the 12 sections that the total width is divided into in an incremental way.

Rytec Gustrower

The German-built Gustrower, imported by Rytec, is a do-all

Below: A twin-axle Gustrower GDK 9.000 fitted with an optional self-loading crane

Below left: This Gustrower GDK 8.000 is fitted with Rytec's optional WindJammer booms

TECHSPEC
Gustrower GDK and GDB
Models Six
Spreads Prilled fertiliser, organic matter and lime (with disc change)
Sizes 5, 6, 7, 8, 10m³ (hopper extensions available)
Standard spread width Up to 36m
Control Computer, ISOBus optional
Steering Optional via drawbar
Weighing N/A

trailed machine, able to spread anything from fertiliser to chicken litter with the right equipment. There are six trailed options from five to 10m³, five of which have a scraper chain bed under the GDK designation and one GDB model with a rubber belt option for different material. Optional extras range from vegetable bed applicators to boom spreading. Side extensions are available for all models, adding up to 6m³ of capacity to the GDK 10,000 model.

Technology is as heavy as you want. ISOBus is optional, powered by a TeeJet interface, while a computer with automatic field calibration is standard. It can work with GPS and variable rate inputs and also has capacity for N sensors. If you happen to run older tractors it may be a solution as the Gustrower has onboard hydraulics, which are PTO powered so the machine doesn't need a high-flow hydraulic feed.



Spreading features are broad, from high accuracy fertiliser at widths of 36m (with an option of 42m discs) or, by changing to a lime disc, 18m, with application rates of 40 to 16,000kg per hectare. The spreading element is largely mechanical adjustment with a manual border control mechanism, hydraulic being optional. Spread width is configured by altering the drop point of material on to the discs, which is a manual job but doesn't require tools. Despite the Gustrower being able to spread a variety of material, the company claims 1-2 per cent accuracy on target rate.

Amazone

Amazone UK offers two large capacity machines in the ZG-TS variant. They are pure-bred fertiliser spreaders, while there is a more versatile model in the ZG-B. The ZG-TS comes in two sizes - 7500 litres and 10,000 litres. Both feature a single belt feed system into two small dosing hoppers at the rear of the machine, which will thrive on a quality prill diet. A filling aid weighs off a desired quantity, switching work lights on when it reaches target weight.

The interface is sophisticated, being a fully ISOBus controlled machine that can run on a stand-alone screen or tractor specific head unit. Machine calibration can also be done through a smart phone app.



Above: The ZG-TS can offer variable spread widths, agitation, internal hopper lighting, a mobile or digital calibration kit and camera systems

Above right: The option of a steering axle gives true track following with a steering angle of up to 28 degrees

Headland control is another feature of the precision capabilities



Below: Three models in the Sulky XT range give hopper capacities of 7200, 9500 or 13,000 litres

Argus Twin is an add-on, which monitors the spread pattern and can work with the wind control system, although the latter isn't necessary for spread pattern monitoring.

The ZG-TS is a precision farming tool that should satisfy the most demanding data-driven system.

At the back end the ZG-TS has plenty going on. It can spread from 15m to 54m and there are actuators and agitators galore. The Amazone controls the border spread by

manipulating the vanes on the discs, giving the boundary side a shorter vane and so a shorter throw. The ZG-TS is also capable of variable rate and has 128 sections on the Profis Pro model. Headland control compensates for under spreading when turning in and out of bouts.

Sulky

Sulky has a comprehensive range of trailed spreaders. The XT prefix applies to all, while an H designation refers to more specialised, high-capacity units. The XT100, XT130 and XT160 come in 7200, 9500 and 13,000-litre capacities and spread from 18 to 50m. They are single-belt spreaders with a bed that is inclined toward the rear to reduce weight shifting as the machine empties.

Sulky's XT range offer spreading widths up to 50m for granules



TECHSPEC

Amazone ZG-TS

Models ZG-TS 7501 and ZG-TS 10001

Spreads Prilled fertiliser and pellet material

Sizes 7500 and 10,000 litres

Standard spread width 15 to 54m

Control ISOBus only

Steering Optional

Weighing Standard on Profis Pro

The Sulky can spread a variety of prilled and powdered material, requiring a disc change depending on the job.

Interacting with the spreader can be done in two ways - either a machine-specific console for calibration and spreading settings or an ISOBus option where a stand-alone screen is available if you don't have a head unit in the tractor. ISOBus enables variable rate and section control, with six economy sections and curved spreading pattern. Sulky claims a 15 per cent saving on fertiliser through overlap and headland spreading accuracy. Set-up can be done with a mobile app that has over 1600 manufacturer specific bulk density presets.

The bed belt is mechanically driven on the three smaller XT models, a self-aligning unit feeding an Epsilon spreading disc arrangement. These are a two-vane disc, which control the borders and spread width by altering the drop point of the granules on to the discs, giving three throw distances per side adding up to six sections. A pair of robust 700mm discs are available for higher spreading volumes over a narrower working width for commodities with sub-optimal spreading coefficient. *FMJ*

TECHSPEC

Sulky XT

Models Three: XT100, XT130, XT160

Spreads Prilled fertiliser, organic matter and lime (with disc change)

Sizes 7200, 9500, 13,000 litres

Standard spread width 18 to 50m

Control Computer, ISOBus optional

Steering N/A

Weighing N/A

Merse Agriculture

Main dealer for **BARGAM**
Agriculture Machinery



Want to travel when
and where other
sprayers can't?

For a demo of a mechanical
drive machine, contact
Merse Agriculture for the
NEW updated Bargam
Grimpeur range

BARGAM
Agriculture

Quality • Performance • Precision

01361 408532

 www.bargam.co.uk



uk.vicon.eu

 [@ukvicon](https://www.facebook.com/ukvicon)



Think different, ***think ahead***

The Vicon ProfiLine is just that little bit different to what you would expect. By thinking differently, Vicon offers solutions on spreaders, triple disc mowers, four-rotor rakes and FastBale non-stop baler-wrappers that make grass harvesting efficient, fun and successful.

Call your local dealer for more information



My way of Farming!

Advanced application

WORDS
MICK ROBERTS
IMAGES
MANUFACTURERS/
MICK ROBERTS

Investing in the latest sprayer technology will improve application accuracy and efficacy. It also helps protect operators and the environment, save money and hopefully prevent restrictions on the use of some important pesticides

Crop protection products are under intense scrutiny and pressure. Many important active ingredients have been banned or withdrawn and many others are facing the same fate. In the EU the plan is to reduce the use of pesticides by 50 per cent by 2030.

To counter this onslaught, sprayer manufacturers are responding by developing technology to increase precision. These developments improve accuracy by cutting drift, targeting products more precisely or cutting overlaps to ensure every drop counts.

At the same time the latest technology helps reduce environmental and operator exposure, which may help persuade regulators products are safe. For farmers, higher accuracy should result in better crop protection leading to providing higher levels of control, reducing resistance risks, active ingredient savings and, ultimately, increased profit.

Many of the latest developments are now widely available as options but, manufacturers report, they are viewed as almost obligatory by operators and buyers. Most high-capacity self-propelled machines, they add, usually now come fully loaded.

Pulse width modulation

Currently pulse width modulation (PWM) sits at the top of the sprayer technology tree. At up to £1000 per metre of boom width, it's not a cheap option, but one that is becoming increasingly popular. Systems from Capstan Ag, Raven and TeeJet are available as OEM fitments to a range of machines, while Agrifac, Amazone and John Deere supply their own versions.

Improve accuracy by cutting drift, targeting more precisely or cutting overlaps

Normally the only way to change the flow rate on a sprayer is for the rate controller to adjust the pressure. But this will create smaller droplets as the speed increases and larger ones if the machine slows down. This is because to double the flow rate the pressure has to increase by four times.

By turning nozzles on and off up to 100 times a second, PWM always maintains the right application rate regardless of speed. Importantly, at the same time it also preserves the correct droplet size, which maintains the efficacy and reduces drift, which is caused by pressure increasing as speeds go up.



Above: Products can be added with this closed transfer system (CTS) without having to open containers

This picture: A wide range of technology is now available to help increase spray application accuracy





It also provides 'turn compensation'. This controls nozzle output along the boom to reduce or even eliminate the over- and under-dosing caused by the inside of the boom hardly moving, while the outer end whips round when cornering. It does this by measuring the different speeds for nozzles along the boom and adjusting their output to match.

A big drawback of the system, however, is that most popular low drift, air-inclusion (AI) nozzles don't work with PWM. This is because they rely on a venturi effect to draw in air and the constant on/off switching doesn't allow time for this to establish.

TeeJet does already supply a number of drift reducing nozzles, some that still use AI, which do work with PWM and it recently introduced its new AccuPulse TwinJet nozzle. Billericay Farm Services' Pulzar nozzles are also designed specifically for use with PWM. Other existing pre-orifice nozzles are suitable because while they help to cut drift, with larger droplets, they do not use a venturi. PWM nozzle choice is quickly increasing now more systems are out on UK farms.



Top: Solenoid valves in pulse width modulation systems (above) turn the flow on/off up to 100 times a second, which alters flow to match variations in speed while pressure remains constant

The most cost-effective aid to improving accuracy is auto-section control

Individual nozzle control
While PWM will work with boom sections, most, if not all systems in use in the UK come with individual nozzle control. This brings with it a big increase in precision to a single nozzle spacing - 50cm or even 25cm.

Users report this produces savings in chemical and fertiliser of four to five per cent above auto-section control from further reducing overlaps, with the same results from single nozzle control without the additional cost of PWM. Further savings come from targeting treatments to specific areas as well as variable rate fertiliser applications.

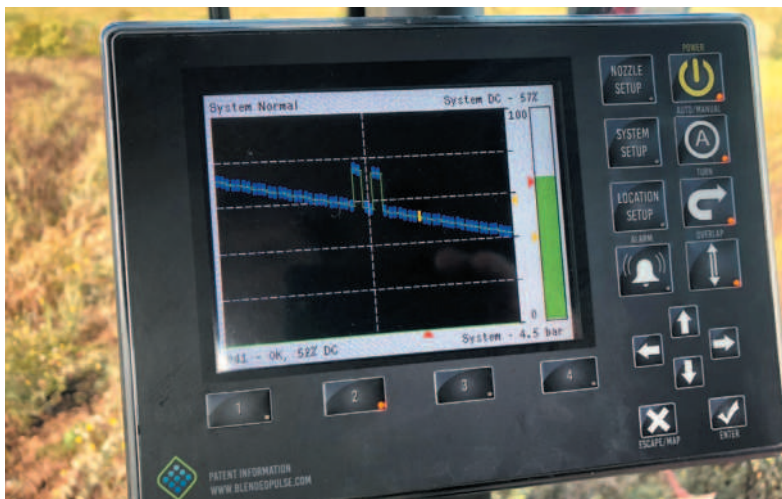
Quad nozzle control
Quad nozzles are an alternative option for maintaining output and droplet spectrum and can now also offer turn compensation. While not quite as precise as PWM, the system costs significantly less and can be used with existing nozzles, including AI low drift types.

Altek International supplies systems to a range of manufacturers and for retro-fitting, while quad nozzles are also an option from, among others, Fendt, Horsch and Amazone.

Automatic control switches between nozzles to maintain the spray quality to match forward speed changes. It does this by knowing each of the four nozzles' operating range and if the pressure rises or falls out of the

Below: PWM systems can also regulate the flow to compensate for turns

Below right: Depending on nozzle spacing, individual nozzle control can cut overlaps to less than 25cm





25cm nozzle spacing

Narrower, 25cm spacings are not a new development. While not common, companies such as Berthoud have been offering it as an option using 80-degree nozzles for decades. It was Horsch, however, that really brought the technique back into the spotlight.

The 25cm spacing allows booms to work at lower heights, while still maintaining the correct fan overlap and this helps control drift. That's because if you double the boom height drift increases by ten times. So it makes sense to keep the boom down, resulting in more costly chemical hitting the target and not drifting away.

Operating booms low, however, requires the height and stability control that is usually delivered only by high-spec auto-levelling systems, otherwise any gains from using closer nozzle spacings will be lost to lack of fan overlap, drift and the very real chance of the boom hitting the crop or ground. This is why, relying on its boom levelling system, Horsch advocates using 25cm spacings and an

operating height of 30cm above the target - rather than the 50cm recommended for 50cm spacing and 110-degree nozzles. Add in individual nozzle control and precision rises further.

25cm nozzle spacing is now available from a



limit it selects a larger or smaller version. In some cases it will switch on two at the same time. Users say that apart from the lower cost and straightforward operation, the big benefit is they can continue to use their existing nozzles, particularly those required to comply with LERAPS.

Last year Altek International, working in conjunction with Lykketronic, took the system one step further, providing turn compensation with quad or twin nozzles. Called Smart C Spray 124, the system uses GPS and software to sense the different speeds along the boom and automatically changes nozzle output to suit. The system adjusts flow by automatically switching between nozzles or using a combination of all four - a process that takes a fraction of a second.

Below: Turn compensation using quad nozzles is now on offer from Altek International



JAMES ANDREWS

Twin nozzle operation

For those looking for lower cost, straightforward nozzle switching is Hypro's Duo React, also offered as TwinSelect by John Deere. Essentially it replaces twin lines with two outlets on a single spray line, with space for a four-way turret and a single nozzle. Operators can select the nozzles in either outlet or use both at the same time. From its launch in 2014 it quickly gained popularity mainly as a cost effective, quick and easy way to cope with LERAP requirements. It is commonly used with a low-drift nozzle in the single holder and switches to this when needed and back to the main spray nozzles. Similarly, fitting a dribble bar in the single outlet makes it easier to swap between spraying and fertiliser applications.



Above inset: Quad nozzle control systems automatically select different nozzles or combinations to maintain the flow rate and correct droplet size



Above right: DuoReact provides two outlets on a single spray line to switch between nozzles or select both at the same time

Auto-section control

Possibly the most cost effective and common aid to improving accuracy is auto-section control. Most first-time users report their crop areas significantly shrinking with its ability to cut overlaps, using GPS positioning, proven to save at least five to eight per cent on chemical and fertiliser bills.

While most booms come with 3m or 4m sections, ordering machines with different configurations can increase accuracy for little extra cost. A typical higher precision set-up sees 1m-wide (or even single nozzle 50cm) sections on the outer tips, moving to 2m and 3m-wide as they get closer to the centre.

Right: Auto-section control uses GPS positioning to switch off boom sections to prevent overlapping



Right: Working booms closer to the target - down to 30cm - requires automatic boom levelling to prevent it hitting the ground or crop

Below: Closer, 25cm nozzle spacings enable booms to be operated at lower heights, which helps cut drift



Right: Automatic boom levelling eases the workload on operators and improves application accuracy



Nozzles can have the biggest impact on the efficacy of the application



range of manufacturers, John Deere being the latest to join - offering it as an option on its new M900 and R900 trailed sprayers.

Automatic boom levelling

Few higher-spec sprayers come without auto-boom levelling and it's an option that's seldom refused. While the ease of operation and comfort are probably the main reasons it's so popular, boom stability is proved to improve accuracy and cut drift.

While 50cm is the ideal operating height for 110-degree nozzles set at 50cm spacings, in real life it's really difficult to maintain this setting at all times. Although most operators are never going to let the boom height double and increase drift ten times, it's not uncommon to see them bounce up and down and even an extra 30cm above the crop causes six times more drift.

The systems, well proven for many years, use sensors on the boom to measure the distance and relay signals to controllers to automatically make adjustments. Norac is by far the most widely used supplier in the UK, offering systems that are often then 'customised' or fine-tuned by sprayer manufacturers to suit their booms.

The choice starts with simple two sensor systems to provide up/down and whole boom levelling. Adding sensors (up to five or more) increases precision, providing variable geometry levelling of each side as well as even adjusting outer sections to follow ground contours up and down valley sides.

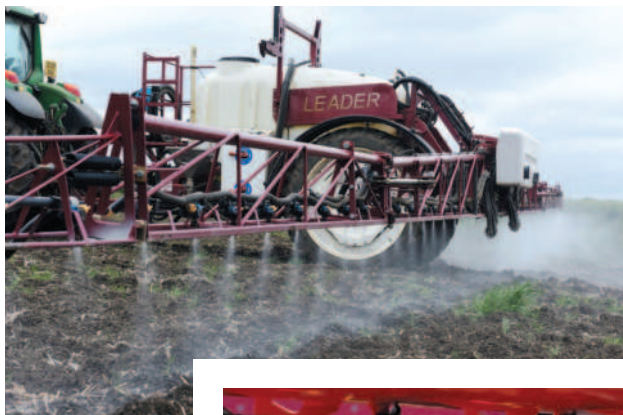
Nozzle technology

Nozzles are the simplest, least cost components on a sprayer, but the one item that can have the biggest impact on the efficacy of the application. Worn and damaged nozzles still account for a large number of NSTS test fails,

particularly concerning as the test permits them to be worn by up to 10 per cent. They should be regularly jug tested, checked and changed to maintain accuracy. Wear not only affects the flow rate but the worn outer edges of the outlet also disrupt the pattern.

Most recent developments have been focused on drift reduction - to 70 to 90 per cent DRT compared with standard flat fan nozzles. These, often air induction nozzles not only make larger droplets, but also produce far fewer 'fines' - the proportion of the spray most likely to drift.

EMJ



Left: Drift reduction nozzles (on the left) create larger droplets, with few fines that are less prone to drifting compared with the standard flat-fans

Below: Latest Syngenta 3D Ninety nozzle is designed to cut drift by 90 per cent compared with a flat fan



ISOBUS Sprayer Controller



The Raven ISOBUS flow controlled application comes as standard with sixteen sections



The RCM also has the capability of controlling the Raven HAWKEYE PWM nozzle system. A single nozzle or section control is available, reducing overlaps on the headland.

By controlling the flow and droplet size HAWKEYE increases the speed variation of any one nozzle size up to four times. This reduces the selection of nozzles required considerably.



The droplet size can be changed on the move to accommodate for changes in weather or crop conditions.

Turn compensation also comes as standard

5 Raven Sidekick Injection pumps can also be added. This allows the precision application of pesticides and reduces waste and washing.



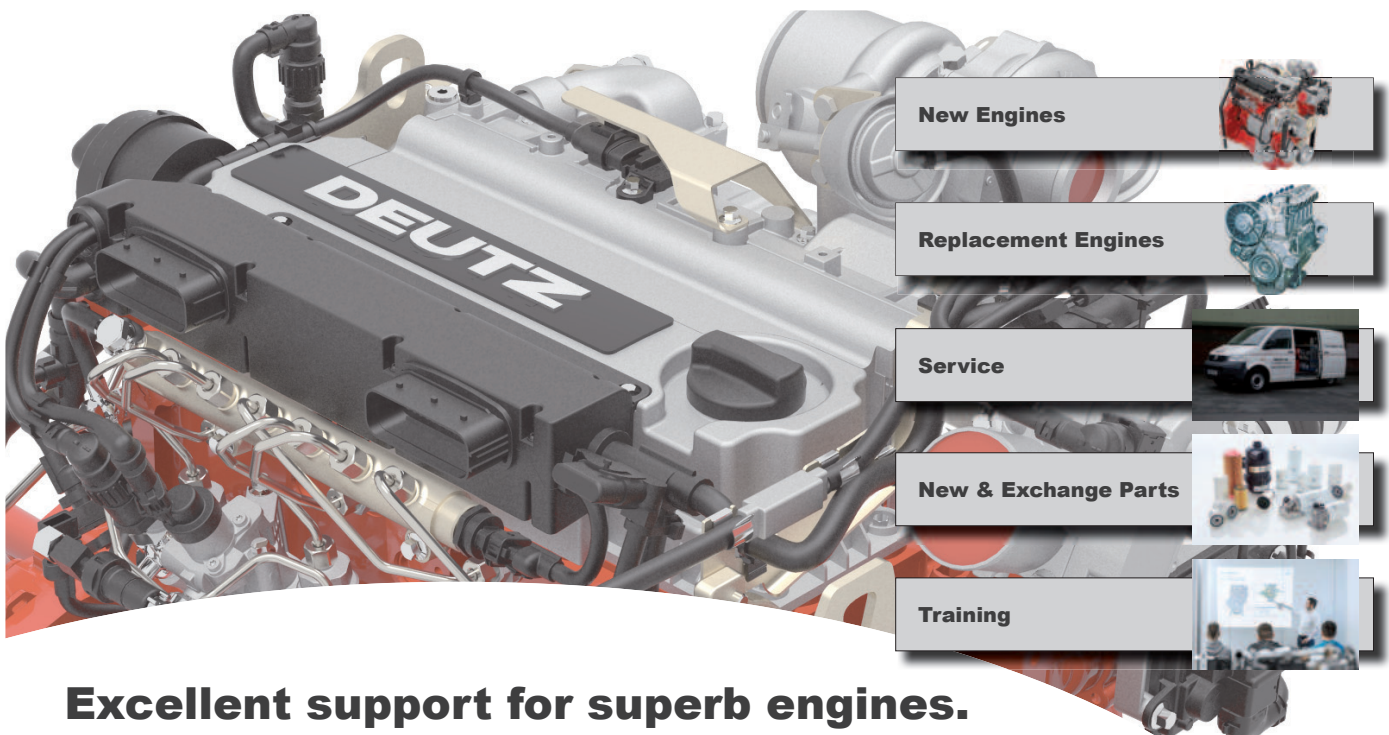
For more information please contact

T: 01572 823123 **M:** 07801 454777

E: info@jsindustries.co.uk

RAVEN

J&S
Industries Ltd.



New Engines

Replacement Engines

Service

New & Exchange Parts

Training

Excellent support for superb engines.

DEUTZ UK

08700 10 24 10

admin.uk@deutz.com

www.deutzuk.co.uk



MACHINE
KRONE BIG M 450

Long shot

Krone's BiG M is not a common sight, but AJ Long chose the self-propelled route many years ago. After running an ex-demo BiG M 420 in 2015, they are blown away by the evolution of their 2020 machine

WORDS AND IMAGES KEN TOPHAM

Right: The V tines are a common sight on Krone mowers, leaving a pleasing swath for following machines

Below right: Now with rear suspension, the Krone has a massive amount of clearance underneath

Far right: The terrain was fairly friendly here but the typical landscape of the area features steeper fields

Below: Josh Long is son of AJ Long founder Andrew and operator of the BiG M

AJ Long Contractors is based on the border of North Yorkshire and Lancashire in an area of grass valleys and hills as far as the eye can see. The firm runs two Class Jaguar 970s, which have a big appetite so keeping ahead is a challenge, even when some customers mow their own grass.

2015 was the Longs' first foray into the BiG M format with a 420 equipped with groupers. Despite the odd shortfall it still knocked down acres like nothing else. After five seasons the 420 was upgraded to a BiG M 450. So far they can't believe the difference. For the first season Josh Long was the main pilot, but we met Calum Smalley two days into his BiG M operating career, who offered an interesting perspective.

Mowing second-cut grass on some relatively flat land for a beef farmer, Calum had been used to mowing with a set of triples and a tractor, but he took to the BiG M very quickly. "It's a very easy machine to drive, the view of the mowers is much better than from a tractor, and it's much easier to turn," he explains. "You have to remember not to do so much of a swing on the headlands because it can turn so tight. I'm still learning, but it's an easy machine to adapt to."

Josh gives not only an operator view, but also looks at it from an owner's perspective. "The 420 we had was good but had limits," he

Profile

**AJ Long
Contractors**

Machine 2020 Krone
BiG M 450

Purchased 2020

Used for
Two seasons

Location Skipton,
North Yorkshire



"I'm still learning, but it's an easy machine to adapt to"

Above right: At 9.9m working width, the 450 can easily cover 20-25 acres per hour, more in the right fields

Above inset: The screen is the same as a BiG X, albeit a less cluttered interface. The BiG M shows performance and mower bed settings



comments. "It wasn't great on hills and the traction was limited but the 450 is different, it will go most places you'd want to mow, the wheels are bigger, and it handles much more confidently. The traction control works very well. We use it in mode 2, which is more aggressive and will spin a wheel if you push it hard. In mode 1 it will be very gentle and keeps it going on steeper banks.

"The ride is better too; the new

machine has rear suspension as well as front so it's much smoother," he continues. The primary function of front suspension is to raise the front of the machine to accommodate turning over large swaths, while also allowing it to travel on the road at a reduced height. It also provides some operator comfort.

Familiar mowers

The 9.9m of mowing elements haven't



The cab is spacious and both operators report excellent visibility to the mowers and crop

Top right: With the radiators away from the action they stay clean. The rotary screen keeps any light material out

Above right: The BIG M has tapered roller bearings for the discs and increased thickness of the bed skins

changed dramatically from the previous model. The 420 had groupers on the outer mowers, but they weren't utilised beyond pulling crop from under trees and around posts. As an additional £18,000 on the price tag they weren't deemed to be worth it.

Much of the grass harvested is tedded out, but when it is dry enough not to need tedding the crops tend to be lighter and a four-rotor rake pulling

in 12.5m makes the job more efficient. The addition of a hydraulic break-back on the outer beds is welcomed, Josh explaining that the old answer was a tie rod that would bend. "We used to carry a spare," he says, "just in case you hit something, but the new one resets itself. It's a great improvement."

Adjusting the angle and down pressure on the mowing beds from the cab is quick and easy, with the

option to save settings on a memory button. "If you're mowing a lodged crop, you can angle the beds to get under the crop and save that setting, and on the opposite bout have it running in a less aggressive position to avoid stones and scalping etc," he explains.

With easy adjustment, Josh reckons the BiG M wears fewer blades than a triple outfit. "You'll tend to adjust the machine to the



Above: New to the BiG M, operator Calum Smalley found it easy to adapt to mowing with a self-propelled machine



Above: The 'front linkage' features tilt and side-to-side movement



Above right: The swathing doors were wide open, leaving just enough space between rows to see a clear edge for the next bout

This picture: Transport width is 3m and the machine lowers to reduce height below 4m

Right: The BiG M features the same SafeCut disc protection as the tractor-mounted machines



Tech specs

Krone BiG M 450

Engine Liebherr D946, 12-litre, 6-cyl

Power 449hp at 1650rpm

Transmission Hydrostatic via wheel motors

Top speed Working 25kph, transport 40kph

Steering angle 53 degrees

Mowing width 9.9m

Fuel tank 780 litres

AdBlue tank 80 litres

Transport width 3m

Length 8.45m

Height 4m

Weight 15.5t

► conditions more often so you're not causing excess wear," he explains, although sheer output is where he says this machine wins out. "You just spend more time mowing. With a triple system you spend a lot of time turning and cutting out the half-moons that you leave on corners. Unless you turn very tight the Krone doesn't do that. The front mower steers, which prevents a lot of that. You can have it linked to the steering to do it automatically but we've found that it works better on manual for corners and hillsides."

Although the BiG M looks a big machine, in the field it handles very well. Josh explains that he would often do two headland bouts on smaller fields and that was enough to turn, where you'll need three bouts to leave enough room for a tractor to turn. "The BiG M turns more smoothly too; the wheel motors give really good traction and steering lock, and it doesn't scrub headlands like a tractor either, unless you really throw it around".

New power

On an average day the Krone can comfortably drop 200 acres, 300 on a long day, comfortably operating at 20-25 acres per hour. One of the

biggest areas of improvement noticed on the 450 is the Liebherr engine. The 449hp comes at 1650rpm, which Josh says gives an average two litres of diesel per acre across the season, where the old machine would use 3.5 litres most of the time. The 450 will de-rate to 354hp if the machine doesn't need all of the power, which on a long day means it often ends with a quarter of a tank of diesel remaining.

The work rate has also been improved by increasing forward speed in the field. The new machine is limited to 25kph, where the previous one topped out at 18kph, so in lighter crops it wasn't working at optimal capacity but still using more fuel than the 450 in a heavier crop. The Longs run their conditioners at 700rpm with the hoods at the wider end of their adjustment. Power and fuel consumption are greatly

Above right inset: The lever features group and individual controls as well as memory buttons that can store position and pressure settings

Above right: Storage is respectable. Tools and spare sets of blades leave space for any extras. A pull-out step aids access to the cooling pack

Right: The skids on the BiG M are wider than tractor-mounted mowers. Adjustable ground pressure on the fly should see more acres before replacement



impacted if running conditioners at 1000rpm, but Josh says the V-tines are very effective and present the swath well for drying and following equipment.

The daily chores are pretty easy thanks to an auto-lube system, with only a few manual grease points at longer intervals. The cooling pack is far away from the action, unlike a tractor, so it stays cleaner, although one issue is having to leave one mower bed down to be able to open the engine bay and dip the engine oil.

The cab comes from the previous generation forager line, although the door opens the opposite way as the steps go up from the front. Both Josh and Calum say it's pleasant and comfortable, with good visibility to the side mowers due to the slim corner posts. The controls are simply arranged on the multi-function lever

and each mower controlled from a dedicated button or lifted and lowered as a timed group. The screen displays main functions and gives monitoring information.

The BiG M is a significant outlay, but for AJ Long, who cut 5500 acres in a season, it does what they feel no other machine could. The average tractor power in their fleet is 200hp, so they'd need a larger-framed tractor with 300hp to compete in width alone, and even then it wouldn't compare with output. Add this to the limited versatility of a tractor that size for the rest of the year in a grassland area and the BiG M does make sense. Clocking 250 hours a season, Josh reckons the BiG M and a good driver can do the work of two triple set-ups, which makes the capital outlay plus skilled operators add up in favour of the Krone.

FMJ



Above inset: A decent lighting package is standard, with well-placed lamps around the machine. LEDs can be specified

This picture: In work position the BiG M can lift all mowing elements well clear of the headland

"The wheel motors give really good traction, and it doesn't scrub like a tractor"



Slurry Spread the Best Way

FOLLOW THE LEADERS



Find Your Nearest Dealer at: slurrykat.com/dealerlocator
NORTH ENGLAND & SCOTLAND - ANDY HAYHURST: 07837 274 719
SOUTH ENGLAND & WALES - ADAM THOMAS: 07376 549 609



SlurryKat

Inspire

Introducing Inspire 1200C/S



Full control in 8 sections! This is a key feature of the new 12 metre seed drill Inspire 1200C/S. Väderstad Inspire 1200C/S is built to combine capacity with sound agronomics.

Visit vaderstad.com to learn more.



VÄDERSTAD

Where farming starts



MACHINE
KUHN i-Bio+

Double decade

The Kuhn i-Bio+ has been in production for 20 years. *FMJ* spoke to two users to find out why they prefer the compact, lightweight design, coupled with a twin-reeled film binding and wrapping system

IMAGES KUHN FARM MACHINERY

"We almost reached 5000 bales and would not have managed that without the i-Bio+"

The unique twin-reel film binding and Kuhn's Intelliwrap system have enabled Euros to increase his output without compromising on silage quality



Above: Euros Puw purchased his first Kuhn i-Bio+ in 2020 as his workload increased

Below: Euros has a very good relationship with local dealer AgriPro Services, who supplied the i-Bio+

With a trend towards cutting more silage for bales in Wales, Euros Puw, a farmer and contractor near Bala, purchased his first i-Bio+ in 2020 to help manage his increasing workload. "Baling demand has increased since we started out in 1984. We used to bale a maximum of 50 acres on the larger farms but now that has increased to more than 150 in some cases. We almost reached 5000 bales this year and we would not have managed that without the new i-Bio+," he says.

The i-Bio+ is also ISObus compatible with multiple in-cab controlled functions. "It was the perfect fit and complements the capability and capacity we have been able to achieve with our other Kuhn balers."

Euros Puw uses a Kuhn FB 3135 film binding solo baler but needed

another machine to cover more acres and increase his output. "We had John Deere balers before the FB 3135, but we have been so impressed by the film binding because it offers a greater level of protection. The high-capacity reel, drop floor and the unique pick-up drive disengage to deal with blockages are also great features for us. We were also trying to find another similar machine that could manage the smaller fields quickly and efficiently."

Euros wanted a smaller machine because the conditions often led to him operating on softer ground, so the lighter i-Bio+ offered the opportunity to minimise compaction. "We often work in 2.5- to three-acre fields and the ground can be heavy, so it is better to pull the 3.7t i-Bio+ than a nine or 10t combination baler.

It is also easier to manoeuvre into tight corners."

High demand

Mr Puw operates in a short window, as many farmers require only one cut each year. This demand and the often-wet conditions in Wales mean he has to work efficiently to cover the ground. Each season he bales

Profile

Euros Puw
Machine 2020 Kuhn i-Bio+
Purchased 2020
Used for Two seasons
Location Bala, Wales



Tech specs

Kuhn i-Bio+

Bale dimensions (w x h, cm) 122x125

Pick-up intake width 230cm

Tine bars 5

Binding net system/net + twin reel film binding

Intake Integral roller with double tines and group selection

Bale formation 18 PowerTrack rollers

Wrapping Integrated high-speed wrapper ring

Wrapper speed Six layers in 18 seconds

Min power requirement 109hp

Weight 3700-4500kg



► between 600 and 650 acres, producing 4500 to 5000 bales. "To manage this level of demand we needed a baler that we could just grab and go with. The i-Bio+ is the perfect machine to bale in small fields quickly," he explains.

With the i-Bio+ he can manage 30 bales an hour and often does 300 in a day. The FB 3135 is capable of 450

to 500 and he also wraps a further 300 bales following behind a neighbour's baler. This enables him and his team to bale and wrap 1100 bales per day in the right conditions. "The i-Bio+ can manage more than a quarter of a total day's work and that makes a big difference if that day is the only dry one in the week," he says.

Kuhn offered five years' interest-

free finance on the i-Bio+, which helped with his decision-making. "It is a cost-effective machine that filled the gap we needed, and we have been really impressed with the speed and quality of bales. It has certainly increased our capacity, which means we will feel more confident about taking on further acres next season," he concludes.

A Kuhn FB 3135 film binding solo baler was the machine that led Euros Puw's switch from John Deere balers



"The i-Bio+ was perfect for the workload, the land and customer expectations"



A twin-reel film binding and wrapping system has made the i-Bio+ popular with farmers and contractors

Above left: The twin-reel film binding system provides a consistent bale, saves cost on plastic and can be operated quickly by one man

Below right: David Mitchell (left), pictured with his uncle Fred, has been loyal to the i-Bio+ for many years

Working in Northern Ireland

"My uncle Fred had six i-Bio+ balers from 2002 to 2020. He was 85 and still out baling until eight weeks before he sadly passed," says David Mitchell, a contractor from Northern Ireland. Nephew and uncle would often compete to see who could make the most bales. "We would have an i-Bio+ each and together we would manage up to 700 bales between us in a day. For a small, affordable baler I think doing around 30 bales an hour is pretty good."

David Mitchell, who has also used a Kuhn FB 2135 solo baler, now uses two i-Bio+ balers because of the time and manpower savings. "I used to buy my uncle's old i-Bio+. He would keep his for two years from new so when I bought it the condition was excellent. I remember being out with the FB 2135 and watching him doing as many bales as us, but he was on his own."

The film and net binding system on the front and an efficient Intelliwrap wrapping system on the back gave Fred a baler that is easy to tow and operate. By only using one tractor he was helping to reduce soil compaction and there

was no need for a heavier, more powerful tractor to pull the compact i-Bio+. "He would change his i-Bio+ machines every two years because he wanted the benefit of the warranty and the peace of mind. As his customer numbers began to shrink he found that the i-Bio+ was perfect for the workload, the land and his customers' expectations," explains David.

Profile

David Mitchell

Machine 2018 Kuhn i-Bio+

Purchased 2020

Used for Two seasons

Location Northern Ireland



Left: Family photos show David's uncle Fred at work with an early version of the i-Bio+

Right: An i-Bio+ at work behind a Same Silver in Northern Ireland in the early 2000s



David now operates two i-Bio+ models in order to commit less manpower to baling and wrapping. "We offer silage, slurry and spraying services so the more productive each man and tractor can be, the better. The i-Bio+ is an economical machine. It is fast to pick up and take to a job, compact to manoeuvre through gates and into tricky fields, good on sloping land and easy to use."

Film flexibility

The price of plastic has increased for David this year. However, with the flexibility to choose film or net binding, in combination with Kuhn's Intelliwrap system, gives him complete control of the binding and wrapping process. He has been able to make operational savings by selecting the number of film layers and by adjusting the film overlap. "To be able to select the wrap and make an instant saving is a big benefit, and we can do it on the day because loading the spools is so quick and easy."

In the often-wet Northern Ireland climate David can be forced to bale in less than perfect conditions. "The i-Bio+ is great for when there is a wet patch in a field or for reaching tricky corners. Having a lighter tractor helps to reduce compaction and the lower overall weight makes both easier to manoeuvre."

Each i-Bio+ machine is making approximately 7500 bales per year. "We can use the film binding system or bind with netting if that's what customers prefer. This means we can bale silage, hay or straw. We can also select the number of film layers and adjust the amount of film overlap at the push of a button. It is a great baler and each new model just keeps getting better, so I can see us using them for many more years," he concludes. **EMJ**

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 James Leighton has customised his John Deere 6155R to suit his needs during long stints at the controls

WORDS AND IMAGES **KEN TOPHAM**

James Leighton of D.W. & L.F. Leighton & Son has a John Deere like no other. The Whitchurch-based beef farming and contracting business has been running a 6155R since 2018 and it's definitely a head turner. The carbon colour on the panels is a vinyl wrap, carried out by Autoshine and Tinting Ltd from Telford during the pre-delivery stage at Rea Valleys Tractors, where the 6155R was an ex-demo unit. The result is smart, with the bonus of a protected original paint job underneath.

Other outside embellishments are largely lighting. The 6155R was already equipped with LED work lights but James requested two extras - one on the steps and one mounted on the offside toolbox.

James contracts out to a forage harvester team and after getting fed up with grass and maize building up on top of the SCV block and making its way under the cab, he and a friend designed a sheet made of PVC with a weighted edge to fit their 6Rs.

Be safe, be seen

James has fitted some high-level rear lights after an RTA, in which he was rear-ended by a car while transporting an implement. A pair of three-function LED strips fit nicely above the work lights. He also made a roof bar with Britax marker lights to aid visibility. Mudflap extensions have been added at the front to reduce flinging muck, while CDC train horns and Agri Guard mirror protectors finish the exterior with the obligatory Michelin men.

Inside, James has kept things simple with a set of textile seat covers, a W.D. Agri Plates floor mat and some Fold Agri seat-base shelf brackets. The monitor bracket was already installed but James bought a John Deere-branded RAM Mount kit from Farol's ebay store, along with the leather steering wheel. A TTi CB and a Gear Keeper finish the practicalities in the cab.



Below: Time spent working in New Zealand has inspired some of James Leighton's upgrades

Machine 2018 John Deere 6155R
Operator James Leighton
Location Whitchurch, Shropshire

KEY UPGRADES

- Autoshine and Tinting vinyl wrap approx. £1000, autoshineandtinting.co.uk
- Agri Guards mirror protectors £160, agriguards.co.uk
- Feel Alive stickers From £3.99, feelaliveagri.co.uk
- Floor mat £140, W.D. Agri Plates on Facebook
- Seat covers £200, carseatcoversdirect.com
- CDC Train Horn £89, truckstuff.co.uk
- RAM Mount kit £240, Farol Ltd on eBay
- TTi TCB-55 CB Radio £65, radioworld.co.uk
- Fold Agri LED Shelf Organiser £80, foldagri.com

James keeps the inside of the cab spotless. A WD Agri Plates mat is a nice personalised option and is easier to clean than a carpet





Cab up close

1 James uses a John Deere mat to catch dirt on entry, and a custom W.D Agri Plates mat under the pedals.

2 The 6Rs seem to be short on drinks holders so James has added two. The Fold Agri LED Shelf Organiser is a handy addition too.

3 Chrome cleaning and finishing products seem popular in agriculture. Their rack is a handy option for organising bottles.

4 Most people who use Gear Keepers saw them in use abroad. James worked in New Zealand and caught on to their usefulness, seen here in use with the TTI CB radio to stop the receiver falling to the floor.

5 The textile seat covers are a nice alternative for those who don't like the leatherette John Deere option, with a bit less sliding around on these ones.

6 A John Deere leather steering wheel gives a bit of comfort on the longest days.

7 Debris no longer gathers on top of the SCV block and under the cab thanks to this weighted PVC sheet that James made with a friend.

8 An airline plumbed into the air horns is useful for the cab and will reach to the cooling pack for blowing down dust.

9 TTI CBs are popular and reasonably priced, and users report good range and low interference.

10 CDC train horns point outwards to minimise the dirt that gets inside.

11 Guards are essential to give the mirrors a chance of survival against branches.

12 A lack of storage is solved by this Harbrook Engineering box on the side of the cab.



The 6155R had been Rea Valley Tractors' demonstrator so was already fitted with plenty of extras



GDFS

GAVIN DIXON FINANCE SOLUTIONS LTD



Gavin Dixon Finance Solutions Ltd – your Local Business to Business Finance Specialist

If your business is looking to increase productivity but worried that it may have an effect on your cash flow, then maybe finance is the way forward.

If your business needs a new or used asset, **GDFS** will make sure that your business aspirations are met.

At **GDFS** we offer a range of products that suit Your business requirements such as:

- **HIRE PURCHASE**
- **FINANCE LEASE**
- **OPERATING LEASE**
- **COMMERCIAL LOAN**

We will find the right solution to meet your individual requirements.

Some of the assets we are able to finance:

- | | | |
|---------------------------|--------------------------------|-------------------------------------|
| • Cars | • Vans | • Lorries (HGVs) |
| • Tractors | • Trailers | • Agricultural Machinery |
| • Combines | • Excavators | • Dumpers |
| • Coaches | • Buses & Minibuses | • Horse Boxes & Trailers |
| • Stone Crushers | • Machine Tools | • Lathes |
| • Garage Equipment | • Print Machinery | • and more |

If you do need to raise some cash using unencumbered assets as security, we offer **REFINANCE** too.

Contact GDFS and get a quote on

Tel: 01308 480248 or Email: enquiries@gdfinancesolutions.co.uk



Gavin Dixon Finance Solutions Limited is an appointed representative of Rural Finance Limited.
Rural Finance Limited is authorised and regulated by the Financial Conduct Authority.



01308 480248

www.gdfinancesolutions.co.uk

enquiries@gdfinancesolutions.co.uk

Richard Broome

Record-breaking year for safe digging in the UK



Operators are taking the right steps to avoid the negative consequences that come from hitting an underground asset such as electric cables and gas pipes using an online safe digging resource

The UK's safe digging industry is seeing its best performance to date, leading to fewer injuries and the implications that come with hitting an underground asset, such as a water pipe or electricity cable.

LinesearchbeforeUdig (LSBUD), the UK's leading online safe digging resource, welcomed more than 3.4m searches for underground pipes and cables through its central system in 2021. This figure is up 13 per cent on 2020.

In order to approach the 3.5m milestone the portal has received a search enquiry every two seconds during the average working day. This is more often than we blink, which is just phenomenal. These searches precede all sorts of activity, such as farmers checking before replacing fences and excavation workers keeping safe digging in mind before digging up a road to install broadband and electricity cables or water and gas pipes.

Clearly, operators from all sectors are taking the right steps to avoid the negative consequences that come from hitting an underground asset, chiefly health and safety disasters, plus significant financial and brand implications. It's such brilliant news that the majority of people involved in digging work are taking note of the fact that this can all be avoided through asset searching.

Richard Broome is managing director of LSBUD, a free to use online search service that any individual can use to check their works against over 100 asset owners' utility assets, including underground and overhead pipelines and cables in the electricity, gas, high-pressure fuel/oil, heating, water and fibre optic networks. For more information about LSBUD, visit <http://www.lsbud.co.uk/>

Right: Searching before you dig keeps you and those working nearby safe while protecting all-important infrastructure from damage

We want to thank every farmer, construction, highways, telecoms, water, gas and electricity worker that searches before they dig. They're keeping themselves and those working nearby safe while protecting all-important infrastructure from unnecessary damage. It is also great to see more home owners and consumers performing a search. Out of the 3000 new registrations we are now receiving every month, domestic customers are actually one of the fastest growing groups.

We're also seeing more and more decision-makers appreciating the importance of data sharing through making their networks visible on our platform. They are able to benefit from the 'safety of the herd' effect - the more asset owners

who share their information through one central portal, the more enquiries they receive, while keeping everyone safe.

When you consider all of this, it's laughable that the UK Government's new National Underground Register (NUAR) is attempting to portray the safe digging industry as a disjointed community that needs Government intervention. The evidence wholeheartedly rejects this. It's therefore immensely disappointing to see the Geospatial Commission ploughing millions of pounds of taxpayers' money into a 'solution' that will in fact only be able to help a small minority of LSBUD's users. The important thing is that industry continues its momentum with LSBUD to take safe digging in the UK to the next level.

FMJ

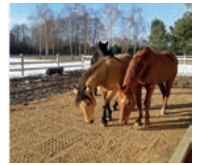
“Avoid health and safety disasters, plus significant financial and brand implications”

THE ULTIMATE MUD SOLUTION INSTANT HARDSTANDING, ANYWHERE

THOUSANDS OF
HAPPY CUSTOMERS



100% RECYCLED, PLAYGROUND
CERTIFIED MATERIAL



PROTECTS THE GROUND, LETTING
VEGETATION GROW THROUGH, FOR
A TOTALLY NATURAL LOOK

TEMPORARY OR PERMANENT, CAN BE
REPOSITIONED AGAIN AND AGAIN



CREATE SOLID PATHWAYS, GATEWAYS,
YARDS OR LOAFING AREAS, QUICKLY &
EASILY, LAID STRAIGHT ON THE MUD



CAN WITHSTAND 60+ TONNES OF
COMPRESSION. INERT, STABLE & COVERED BY
A 20 YEAR MANUFACTURER'S WARRANTY

MUDCONTROL

THE PROVEN SOLUTION - DON'T BURY YOUR INVESTMENT



FOR REVIEWS & TESTIMONIALS, FIND US ON FACEBOOK & YOUTUBE

WWW.MUDCONTROL.CO.UK

SALES@MUDCONTROL.CO.UK / TEL: 01536 669630

CHROME
north west ltd

NO NONSENSE AUTOMOTIVE CLEANING PRODUCTS

it might not change your world,
but it will make it a little easier..
..we know this because we make it.

500ml... 1L... 5L... 20L... 200L... 1000L...



Everything you need from wheel to screen, contact a member of our family team.

In Store | Online | Truck Stops | Motorway Services | Garage Forecourts



chromeCP.com

Chrome (Northwest) Ltd, Unit 2 Norton Way, Moss Lane Trading Estate, Sandbach. CW11 3YT

10 QUESTIONS WITH...



Will Hitchcock spends his time between a John Deere 8RX 410 and 6155R on a family farm and for contracting in Suffolk

IMAGES WILL HITCHCOCK

FMJ: What was the first tractor you operated?

Will Hitchcock: A 1987 John Deere 3040, which was a fantastic, lightweight and simple tractor, ideal for drilling sugar beet the old-school way before we got into guidance and section control.

Below: The 8RX clocked over 1700 hours in its first year, including with a custom beet chaser trailer



Above: 8RX duties include ploughing, drilling wheat behind beet and pulling the sugar beet chaser

Right: Ted the Jack Russell is a valued member of the team - when he's awake



“Prove yourself on simpler jobs, earn some good references and take the time to improve”

FMJ: What is your current tractor?

WH: I split my time between a John Deere 8RX 410, which performs all of our cultivations, and a John Deere 6155R for spraying and fertilising. The 8RX works nine months of the year and in its first year clocked 1700 hours.

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

WH: Without a doubt the 8RX. Its ability to float across the ground is unbeatable. For a tracked machine road comfort is superb and the cab is a great place to spend long days.

FMJ: What's your best and worst day?

WH: The best days are lifting sugar beet on the home farm. The whole family is involved shifting over 1000t a day. There's something very special about this team effort. The worst days are when the weather forecast lies!

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

WH: My Jack Russell terrier Ted. Working alone for days on end takes



its toll but my four-legged companion never fails to provide some amusement and he tries his best to be a good listener. The only trouble is I have to share my lunch!

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

WH: Makita cordless impact wrench. It makes changing metal much quicker and effortless on a hot summer day. There's little it won't touch and you can be assured nuts are kept tight.

FMJ: What development in farming has transformed your job?

WH: Guidance and telematics. We have used Greenstar guidance for nearly 15 years and the advances in that time are huge. Drilling and spraying are now fully dependent on the technology. I also rely on MyJohnDeere for record keeping as well as machine tracking and costings.

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

WH: A John Deere 7530 AutoPowr. We owned two and shouldn't have sold them. They had a hard life on beet trailers but power-to-weight was second to none and they pulled like a train.

FMJ: What's playing in the cab?

WH: Majority of the time it's Radio 2; it's easy listening and has a good mix of topics.

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

WH: Patience is key. Never expect to be operating the biggest kit straight away. Prove yourself on simpler jobs, earn some good references and take the time to improve as an operator by booking on to industry-recognised courses. Finally, always remember there is no 'I' in team.

FMJ

JCB Auction Number 70

Live Internet and Onsite Bidding

Sale to be held on: Tuesday 29th March 2022, 9:00am prompt

Machines to be sold at 1pm



On Exclusive Instructions from: J C Bamford Excavators Ltd - all machines wholly owned by JCB
Excellent selection of 43 x JCB Machines (including 30 x Ex-Demonstration)

No Buyers Premium! Full Catalogue Online March 2022! Live Internet Bidding!

To include: 43 x Machines inc. 17 x Excavators,
10 x Wheeled Loading Shovels, 7 x Fastracs,
2 x Telehandlers, 2 x Dumpers, 1 x Backhoe Loader,
1 x Roller, 1 x Skid Steer Loader, 1 x Forklift and
1 x Workmax Utility Vehicle

8 x Inoperable Machine Units
(for dismantling purposes only)

250 x Lots of JCB Spares, Parts and Accessories

20 x Vauxhall Insignia's,

7 x Montracon Curtain Sided Trailers



Location: J C Bamford Excavators Quarry, Cauldon Lowe, Staffordshire, ST10 3HA

Viewing: Strictly by appointment on 25th and 28th March 2022, 9am - 4pm

For all JCB enquiries contact | +44 (0)1242 241111 | jcb@amsauctions.co.uk

www.amsauctions.co.uk



EURO AUCTIONS

UPCOMING LEEDS, UK AUCTION 9TH - 12TH MARCH @ 8.00AM

WE CAN HELP TURN YOUR EQUIPMENT INTO CASH!

WHY CHOOSE US?

- ☒ Quick Payment
- ☒ Competitive Rates
- ☒ Expert Experience

- ☒ Worldwide Buyers
- ☒ Global Advertising
- ☒ Logistics Service



LOW RANGE

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

Toyota launches rally-inspired Hilux



Despite its sporty stance, the GR Sport is still capable of hauling a 1t payload and can tow 3.5t



light surrounds. The 17in alloy wheels have a contrast black and machined finish and are fitted with all-terrain tyres. In the cabin are new sports front seats in a combination of black leather and synthetic suede with red perforations and contrast stitching. The comprehensive equipment specification is based on the Hilux Invincible.

Orders are open now ahead of the new Hilux GR Sport arriving at Toyota retailers this summer. The commercial vehicle on-the-road price (not including VAT) is £37,551; the standard on-the-road price is £44,995.

Toyota has released details of its new Hilux GR Sport, which has been inspired by the company's participation in the Dakar Rally with its Toyota Gazoo Racing team.

A key feature of the Hilux is its upgraded suspension system, which introduces new monotube shock absorbers and new front springs. The monotube design creates a larger piston area to give better damping performance, with faster response and better heat dissipation. The front coil springs have been stiffened and both they and the new shocks are painted red. The upgrades are said to deliver significant improvements in handling and comfort.

The GR Sport is powered by a 2.8-litre engine, which delivers 201hp and 500Nm of torque, matched to a six-speed automatic transmission. Exclusively a Double Cab version, the GR Sport can take a payload of one tonne and tow braked trailers up to 3.5 tonnes.

Enhanced styling includes a black front grille reminiscent of the Hilux of the early 1980s, while the front is enhanced by new, larger front fog

D-MAX BOOSTS SALES FOR ISUZU

Isuzu UK recorded 3688 sales of the D-Max pick-up at the close of 2021, an increase of 16.9 per cent over 2020, which ended with 3154 units. December provided a strong finish to the year for the brand with 320 sales of the Isuzu D-Max in the month, an increase of 70.2 per cent over the previous December.

Overall, the pick-up market in the UK ended 2021 19 per cent up on the previous year with 42,488 units registered in the segment across all manufacturers, according to the latest figures published by the SMMT.



Above inset: A large portrait screen would appear to follow the form of Ford's new Ranger

VOLKSWAGEN HINTS AT NEXT-GEN AMAROK

Volkswagen Commercial Vehicles has released some official impressions of what the new Amarok might look like, including the interior. The new Amarok is being built in collaboration with Ford and will share the same platform as the new Ranger, both of which will be built at Ford's South Africa factory and go on sale later this year.

While technical details are still scarce, the sketches show that the Amarok will have distinct Volkswagen DNA as opposed to simply being a rebadged Ranger. This includes full-width front grille and wide wheelarches. Inside, the Amarok would appear to offer different switchgear to the Ranger, which has already been officially launched, but does utilise the same portrait main screen in the centre of the dash.



20 is plenty

Sitting between the high-spec V-Cross and the entry-level Utility models is Isuzu's D-Max DL20, but is it the perfect combination of function and form? *FMJ* put one to the test to find out

WORDS **PETER SKILTON** IMAGES **KEN TOPHAM**

The second-generation Isuzu D-Max was launched last year. A brief stint behind the wheel suggested it was a giant step forward for the brand despite using the same 1.9-litre engine and a strengthened version of the chassis of its predecessor. Throw in a new interior, updated exterior styling and a bewildering assortment of safety features and the conclusion was that the Isuzu would be a desirable bit of kit for anyone in the market for a pick-up.

Fortuitously for Isuzu, the new D-Max landed at a time when other big rivals like

Mitsubishi and Nissan were pulling out of the UK, while the likes of VW, Mercedes-Benz and Fiat had already gone. That almost instantly put Isuzu in the number three spot of the market behind Ford and Toyota before the latest pick-up had even reached the forecourts. Yet despite such favourable conditions, the Isuzu still had to convince buyers that it was up to the job.

True to its roots, the D-Max has remained a workhorse at heart. While the range-topping V-Cross lifestyle variants are swankier than ever, the range still offers the most basic Utility versions aimed solely at putting in a hard day's work. The Business

range, as Isuzu calls it, gives the choice of single, extended or double cabs, and there's even a two-wheel drive option. Despite its utility spec, with vinyl flooring, steel wheels and tough black plastic bumpers, you still get automatic headlights and windscreen wipers, speed-sensitive steering and a DAB radio. Isuzu's Advanced Driver Assist Systems (ADAS) are also standard, but we'll come to them later.

Somewhere in the middle of the Utility and V-Cross models sit the all-purpose DL20 and DL40 models. DL signifies the presence of a rear diff-lock, while 20 and 40 implies a hierarchy. Erring on the side of utility, the

“True to its roots, the D-Max has remained a workhorse at heart”

Left: The loadbed is easy to load by hand, with a handy damper on the tailgate to make it easy to open and close

Below: The loadbed is just shy of 1.5m long and 1.53m wide. Tie-downs are sufficient, but more low down would be welcome



Left: Low-range transmission and hill descent control assure confidence over steep terrain



Above right: Under the bonnet is the same 1.9-litre diesel engine as before, with 162hp and 360Nm of torque

Right: AdBlue is required to meet emissions regulations. 14-litre tank is filled next to the diesel filler



DL20 driven here still offers a considerable number of features for your money.

Trailing on power

While there are plenty of options in terms of body and spec, there is only one engine option in the D-Max. Again, it's carried over from before. Power is up slightly at 164hp, but it's still shy of the Ford Ranger and Toyota Hilux, both of which offer variants that stretch over 200hp. Torque in the

1.9-litre is down though - from 400 to 360Nm.

Despite this the D-Max retains its 3.5t towing capacity, although the omission of a towbar on the test vehicle meant this couldn't be evaluated. Instead, the loadbed was filled with a pallet of 20-litre AdBlue containers, which was easy enough to load with a telehandler and then tie down with some well-placed lashing points, something other pick-ups have been marked down on in previous tests.

With weight in the back the Isuzu does pull well though, the manual transmission in this model helping to manage the delivery of power. Shifts are smooth and the lever feels more positive to use than before. Isuzu says it's adjusted the shift action and there's certainly little to complain about. A six-speed auto is also available from the DL20 up. We've yet to try this properly but given that it's the same Aisin unit as in the Hilux we'd expect it to be fine in the D-Max.

Stretch the Isuzu's legs and it'll work its way up to motorway speeds with little drama, then sit there quietly and calmly. In fact, the manual transmission gets to 62mph 0.3 seconds quicker than the automatic, but it's still a leisurely 12.7 seconds. Despite this, on one three-hour M1 stint the D-Max performed admirably, although you may find yourself shifting between fifth and sixth for overtakes and longer climbs.

The D-Max's trump card is played when it comes to speed limits. Each model comes in under 2040kg, so the double-cab DL20 can travel at the same speed as cars on single and dual carriageways, where rivals are forced to sit at the lower van limits.

Right: Cloth seats are heated and offer plenty of adjustment. Interior is durable and cleans up easily

Below: Diff lock and hill descent are activated using buttons by the gear lever, as are heated seats





Left: Rear seats fold up to provide a surprising amount of storage behind the front seats

Above: Road manners are far improved over the previous generation D-Max, but more power wouldn't hurt

Far left: A 4.2in display on all models gives all the usual information, plus ADAS functions



Left: Rear bumper has an integrated step that makes it easier to access the load area and houses rear parking sensors

“It's the first pick-up to receive a five-star Euro NCAP rating”

➔ Refined ride

➔ The DL20 is an easy pick-up to live with on a daily basis. Upgrades to the suspension have resulted in a more refined ride, which is mostly evident on farm tracks and unmaintained lanes. Vibrations through the body feel subdued, with less creaking and rattling in the cab. This is also aided by new chassis cab mounts designed to absorb more noise, vibration and harshness. When the surface is smoother the suspension does a good job of managing body roll, making the D-Max composed and stable through bends. Leaf springs still adorn the rear, and like many they're better with a bit of weight on top of them, but you don't feel the kind of skipping and bouncing that empty pick-ups of the past are guilty of.

As well as the physical updates to make

the D-Max more composed on the road, Isuzu has also introduced a raft of safety features. The ADAS package is standard on all models and double-cab models get eight airbags. As a result, it's the first pick-up to receive a five-star Euro NCAP rating, scoring particularly high in child occupant tests. It's all very reassuring, but in truth the ADAS didn't always prove the easiest to live with.

Front stereo cameras at the top of the windscreen monitor the road ahead, assisting the traffic sign recognition, speed limiter and autonomous braking. None of these caused any issues, yet the forward collision warning seemed overly zealous in its attempt to prevent accidents. This wouldn't be a problem if there were a genuine risk of an accident, however most interventions were as a result of driving to the road conditions.

On motorways, for example, you would leave a gap between the car in front only for another motorist to pull into it, setting off a loud audible beep. Glide towards traffic without using the brake pedal and it thinks you're going to crash - alert again. Congested stop-start traffic on motorways proved the

worst but the situation also occurred through towns.

The lane-keeping assist is equally interfering. On motorways it might be considered helpful if your attention drifts, but on an empty road late at night, for example, it's reluctant to let you leave your lane unless you indicate. Few people have time to indicate around pot holes or dead animals, but seemingly it was the only way to stop the Isuzu driving straight over them.

More useful are the blind spot monitor and the rear traffic alert, while the cruise control on manual versions doesn't offer the adaptive function that reacts to traffic, which might be a good thing given the vehicle's sensitivity to other road users. The cruise control was in fact easy to use, with clear controls that quickly adjust the speed when required. The only issue is that maintaining your speed as other vehicles move around you and using your own perception of what's going on isn't always in line with the collision warning's opinion.

The D-Max redeemed itself quickly when we turned off the tarmac and descended a steep and uneven farm track on the edge of

REAL-WORLD TEST FIGURES

Miles **542.3**

Fuel added **66.72 litres**

Displayed economy **37.2mpg**

Calculated economy **36.9mpg**



Above: The 'All-Purpose' DL20 features body-coloured bumpers, grey grille and 18in alloy wheels

Left: 18-in alloy wheels are shod with Dunlop Grand Trek tyres that offer surprising grip off-road

Right: Under-seat storage is useful, as are fold-up seat bases so you don't have to store dirty cargo where people will sit



TECH SPECS

Isuzu D-Max DL20

Engine 1.9-litre, 4-cylinder diesel **Transmission** Six-speed manual (auto optional) **Four-wheel drive** Yes **Low-range?** Yes **Power** 162bhp
Torque 360Nm @ 2000-2500rpm **Max speed** 112mph **0-62mph** 12.7 seconds **Claimed combined economy** 33.6mpg
Max payload 1120kg **Towing capacity** 3500kg **Ground clearance** 235mm **Warranty** 5 years or 125,000 miles
Dimensions (LxWxH, m) 5.27x1.87x1.79 **Price as tested** £26,759 plus VAT

the Peak District. Selecting four-wheel drive can be done while moving, switching modes quickly. For most terrain high range was fine, although when we came to climbing the same track low range offered much more control and allowed the rear diff lock to be engaged using the button by the gear lever. Again, it selected quickly, although it's worth mentioning that it can only be used in 4L and engaged at speeds below 5mph. It will automatically switch off above 19mph.

With the diff lock engaged the D-Max scrambled up the loose, rocky ascent with ease, maintaining forward progress even beyond its full suspension articulation and with one rear wheel off the ground. It's an incredibly useful aid that gives the confidence to venture beyond what the standard tyres would appear capable of.

The downside is that having the diff lock

engaged prevents certain functions from working. On the one hand it disables traction control so a bootful of throttle isn't hampered by a computer, but it does disable the hill descent control and hill start assist. It's something to remember before you press the hill descent button multiple times and wonder why it's not working!

Sitting comfortably

Inside, the DL20 is far more sophisticated than previous Isuzus. The cloth seats are comfortable and are heated in the front, with enough adjustment for taller drivers. The seat cushions use a foam that dissipates vibrations and the lumbar support is adjustable. The longer wheelbase of the new D-Max has given more space in the cabin. This benefits rear passengers who get more shoulder room and more reclined seats.

The b-pillar is further forward too meaning larger doors that open wider. What's clever about the rear seats is that they are not fixed. The bases fold up to reveal useful under-seat storage, and they can be secured in this position. This proved useful for keeping the seats clean when we were forced to load the rear seats with cargo.

Isuzu's reputation for robust working pick-ups hasn't been damaged by introducing a more refined D-Max. The DL20 offers a decent blend of utility capabilities with a level of refinement that will please most users, yet it's the top-spec V-Cross that has been selling best since the launch. Isuzu's sales increased 16.9 per cent in 2021. And while having fewer rivals was always going to help, the quality of the D-Max is no doubt bringing more buyers through the doors.

FMJ



Deutz-Fahr 5120 GS, 116 hp, 40 x 40 transmission, c/w loader £59,229



NEW Deutz-Fahr 7250 TTV HD, 247 hp, HD transmission, front and rear ISO Bus trailer
ABS SR20 receiver 60 KPH road speed..... £156,758



Dieci Agri Star 40.7 Evo2 Michelin Bibload 460/70-24
ind tyres £69,500



Deutz-Fahr 5125, 126 hp, 40 x 40 powershift transmission,
SDD quick steer, loader ready £59,115



Ex Demo, Deutz-Fahr 7250 TTV, Full spec £135,000



Deutz-Fahr 6145.4, 4 cylinder, 145 hp, 54F x27
R transmission £76,500



Deutz-Fahr 5120 G GS, 116 hp, 40F X 40R gears, Creeper box,
Air Con, loader ready £55,229



Rolland V2-160 rear discharge spreader,
slurry gate £10,750



Deutz-Fahr 6155 power shift, 2018,
3,650 hours £52,000



Same Virtus 140 139 hp front and cab suspension,
120 ltr pump..... £69,330



New Kioti K9 Mechtron 2400, power steering, full cab .. £17,450



New Vicon RV 5216 SC 14N baler, Supercut 14 knife chop
system, ISOBUS £32,649 + VAT



Alpego DP-600 power harrow, 6 metres, 24 + 24 tines,
120-270 HP £30,385



Kidd KD 450 bale shredder Hyd rear door
Electrics controls £15,750

Desirable Deutz

The 7-Series from Deutz-Fahr may not have sold in huge numbers in the UK but that doesn't mean you should cross them off your shortlist. Here's what to look for in a used machine

WORDS HOWARD SHERREN IMAGES HOWARD SHERREN/SDF



The introduction of the first Agrottron dates as far back as 1996, when the original concept

shocked the farming community. With various updates and improvements, the Agrottron received Mk2 and Mk3 versions, before increasing in power and gaining a stepless transmission. The larger models evolved and eventually the L730 Series flagship arrived, pushing the 200hp barrier with stepless transmissions.

Originally launched in 2011, the

Below: The 6.0-litre Deutz engines give up to 25hp boost in transport and PTO operations

7-Series TTV range comprised three models: 7210, 7230 and 7250. The last two were most popular with UK buyers as the company tackled the 200-300hp stepless transmission sector with a Deutz engine, ZF gearbox and subtle cab interior. In 2017 the range received its Tier 5 update before a complete shake-up in 2021 with a number of product improvements.

The flagship 7250 TTV is undoubtedly the most popular model with a power of roughly 250hp, boosting to a maximum of

263hp from a Deutz TCD 6.1 engine. The TTV continuously variable transmission is the only gearbox option, offering speeds up to 60kph.

Last year Deutz introduced the updated 7250 TTV and 7250 TTV HD, which saw the two smaller models dropped and the 7250 offered with greater comfort and the new SDF TTV Compound Transmission. Engine oil replacement intervals were increased to 1000 hours, while the transmission oil increased to 2000 hours.

The engine now offers up to 247hp and a maximum torque of 1072Nm. ▶

"They tackled the 200-300hp CVT sector with a Deutz engine and ZF gearbox"



► The new SDF TTV Compound Transmission ensures the highest acceleration, reaching 60kph at less than 1800rpm (40kph at less than 1200rpm).

Larger diameter rear tyres (2.05m) can be fitted and the payload is increased up to 6.5t, with a gross vehicle weight of 15.5t. This is increased to 16t on the 7250 HD version. The turning circle is also reduced by almost 2m. Up to 210 litres of oil are available on these new tractors and, thanks to the new CleanOil hydraulic system, there is a 90-litre removable oil capacity.

Earlier engine

Most models available on the used market will be the previous generation. They use a 6.1-litre Deutz six-cylinder unit that meets Tier 4 emissions with SCR, plus four valves per cylinder and centrally mounted injectors for efficiency. Maximum power at boost is around 263hp, with standard power around 238hp at 2100rpm. Torque figures are impressive at up to 1009Nm in boost, up from 934Nm at rated speed.

This additional power is available with powered equipment for PTO or road transportation.

The tractors feature a 435-litre fuel tank and a 50-litre AdBlue capacity. A Powercore air filter makes



Deutz-Fahr 7250

Engine Deutz TCD6, 6.0-litre, six-cylinder, turbocharged

Power 263hp

Transmission CVT ZF S-Matic 240, 4 ranges

Top speed 50kph

Hydraulics 160 L/min

Three-point linkage capacity 10,000kg

PTO speeds 540/540E/1000/1000E

Fuel tank capacity 435 litres

Length 4.92m

Wheelbase 2.82m

Weight 9100kg

servicing easy, with service intervals at 500 hours. Sticking to these timings with regular servicing is crucial to longevity so make sure they have taken place. Ensure the fluids are at the right levels and check the exhaust and AdBlue system are functioning correctly with no error codes presented. The Deutz engine should be free from oil leaks but investigate around the turbo or sump and oil cooler pipes. Also check the water pump and radiator for signs of dampness, although this is uncommon.

Choice of one

The 7250 only utilises one transmission, which avoids too much confusion. This continuously variable ZF S-Matic 240 transmits power through four ranges, with three driving modes: auto, pro and manual. Drive is smoothly increased using either the joystick or pedal. One key feature is that the transmission can get to 60kph on some models. Travels speeds of 40 to 50kph are reached between 1357 and 1695rpm, and top speed of 60kph at 1830rpm.

With greater speed comes a need for front and cab suspension, along with true four-wheel braking on high-speed models, with a large disc and calliper on each front hub.

Being external has the advantage of easier maintenance but being exposed to the elements means more regular servicing and the potential for problems. The park brake can be directly activated from the armrest console and acts on the rear brake discs.

For easy adjustment of the track widths, bolt-on bar axles can be fitted that allow dual 650/65R42 rear wheels plus rear wheel weights with a 140kg central plate per side and three further 255kg discs on each wheel, allowing a total of 1810kg of rear ballast.

After a good run and with the oil hot, ensure the transmission changes through the four ranges smoothly

"One key feature is that the transmission can get to 60kph"

with no unusual noises. Try each driving mode to ensure it works as it should and give the brakes a thorough test to ensure the tractor pulls up quickly and in a straight line. Ensure the pedal doesn't sink to the floor and look over the front callipers and discs for wear. Also assess play in

THINGS TO LOOK OUT FOR...

The 6.0-litre Deutz TCD6 engine boasts over 260hp with boost. It is renowned for its fuel efficiency and reliability, with AdBlue issues the predominant problems.

AdBlue and diesel can be accessed from the offside, with a diesel filler also on the nearside. Ensure a thorough run with no problems from the AdBlue side.

The exhaust will eventually need replacing as it is susceptible to rotting. It's worth pricing an exhaust if the damage is worse than this.





steering joints and axle pivots. Ensure the front kingpins have been greased and the hubs show signs of regular servicing.

Optional gear pumps

For the size of the tractor the hydraulic output is limited.

The standard combination includes an independent 44 litres-per-minute steering pump and a 120-litre load-sensing pump. An optional 160-litre unit is available and is fitted in many cases, but it's something you'll need to check. Four double acting spools are fitted as standard, ►

Above: The 7-Series TTV arrived in 2012 as the flagship range. Today it is available only as the 7250 or 7250 HD

DEUTZ FAHR 7-SERIES HISTORY

1995 | Agrottron launched to replace air-cooled models.

1997 | Introduction of front axle suspension.

1999 | Mark 2 Model upgrades including brakes, pre-select shuttle and air conditioning.

2000 | Mark 3 models with new electronic engine management plus a conventional shuttle.

2004 | Facelift models launched with Tier II engines, a new roof and improved heating and ventilation.

2005 | Warranty extended to two years.

2007 | Tier III Agrottrons launched with M- and K-Series models offering four- or six-cylinder variants.

2011 | New 6- and 7-Series launched using a new naming philosophy made up of numbers.

2013 | 7-Series wins Tractor of the Year and Golden Tractor for design awards.

2015 | Warrior model launched with black paint, LED lights, special cab trim and chrome exhaust shield.

2017 | Introduction of Tier V engines and restyling.

2021 | Update of 7-Series tractor range with the launch of 7250 TTVs based on the 280hp 8-Series models.

The 4.5t front linkage and PTO is a popular option on the 7250, especially because of the size of the tractor. Check lift cylinder seals for leaks and pivot pins for wear.



Axle fitment depends on specification. Front-mounted track rods are vulnerable and joints wear. Steering sensors can also fail. 60kph models have front disc brakes.



The rear panel is clearly and logically laid out with air brakes and Power Beyond fittings grouped together. Check the fittings function correctly and don't leak.





THINGS TO LOOK OUT FOR...

The PTO shaft is attached by eight bolts – ensure they are in good shape, spare shafts are with the tractor and there are no signs of oil leaks from the PTO seal.

High-quality Grammer air seats adorn the cab. Plenty of glass means it is bright, but many say the air-con is not up to the job, which leads to fan failure.

► which are proportionally controlled and can be increased to seven if required.

With seven spools, two valves are dedicated to the front linkage. As with previous Deutz models, all the control levers are easily distinguished by colour and can be programmed. All tractors are fitted with push-pull hydraulic couplers to connect the pressurised hydraulic pipes.

Maximum rear lifting capacity is a healthy 10,000kg and EHR electronic management is fitted as standard.

“Bolt-on bar axles can be fitted that allow dual rear wheels and weights”

A rapid soil engagement setting, ride control when transporting equipment, preset lock position, implement height limit and adjustment of the lowering speed are all integrated into the EHR.

The optional front linkage lifting capacity is 4500kg. The PTO offers only three speeds 540E/1000/1000E,

Right: An impressive 10t rear linkage lift capacity is standard on the ZF back end. The linkage is robust. The Dromone pick-up hitch is usually trouble free.

DEUTZ-FAHR 7-SERIES - TYPICAL USED PRICE GUIDE

Model	Year	Hours	Specification	Price
7250 TTV	2013	1040	Front links & PTO, 650/65R42 tyres, mint	£75,000
7250 TTV	2014	4000	Front links, LEDs, 5 spools, 650/65R42	£54,500
7250 TTV	2015	5500	Front links, 5 spools, guidance	£60,000
7250 TTV	2018	2750	Warrior, front links & PTO, 5 spools	£95,000
7250 TTV	2019	1500	Weights, guidance, excellent condition	£108,000
7250 TTV	2021	100	Front links and PTO, guidance	£135,000





Controls are easy to locate in groups. Buttons and switches can fail so check they function, as well as trialling the iMonitor display derived from a TopCon unit.



The leather armrest and seat coverings add a touch of class but aren't as durable as cloth. They're expensive to replace and recovering is often more affordable.



Plastic trim and front fenders give a certain amount of flex but this unit has been repaired before failing again. Price damaged trim into a deal to transform a tractor.

so no 540. These are electro-hydraulically engaged and have proportional valve engagement control. Remote control of the PTO from both rear mudguards comes as standard.

Maxi-Vision

The Deutz cab is dubbed 'Maxi-Vision' and has seen considerable development for greater comfort and higher technology. Deutz boasts about the computerised analysis of airflows, the use of high-quality materials and the spaciousness of the cab to create an inviting and comfortable working environment, which has been toned down

since previous Agrotion models.

The multi-function control lever allows the operator to easily control the main functions for managing implements and buttons are grouped in a practical way and arranged according to the frequency of their use. Like the spool valves, all of the

Below: The Stage V 7250 TTV features updated styling and a significant change to the front end

controls are clearly distinguished and coloured to make the tractor easy to use. A general lighting control panel groups together all of the controls for managing the lights.

The armrest-mounted iMonitor 2 display comes courtesy of TopCon for use as an ISObus controller and GPS screen, where the Agrosky receiver can provide guidance on different levels. The screen is teamed to the work display on the front right-hand pillar of the cab, where transmission, spool valve and PTO settings can be seen, allowing the iMonitor to be used for ISObus and guidance.

Some dealers and users have reported issues with electrics and controls so it is worth checking these carefully. Buttons and switches can fail but are relatively cheap to replace. The iMonitor can also have display and sound issues so check this carefully. Ensure the air conditioning system works and the fan speeds operate correctly. Paintwork is often criticised on the chassis due to poor adhesion, especially to galvanised parts, but this can be quickly and easily rectified.

FMJ





Redrock Slurry Solutions
www.redrockmachinery.com
 Contact your nearest Agent or
 Call: (0044) 028 37552390

- R** Slurry Tankers from 1100 gal to 4500 gal.
- R** High output slurry pumps for mixing ease and speed, pumping from 3000G/min to 4750 G/min.
- R** Dribble Bar and Trailing Shoe systems available in 7.2m, 7.5m, 9m and 12m models.



Tandem Axle Slurry Tanks



Slurry Mixers/Pumps



Single Axle Slurry Tanks

TRACTOR & TELEHANDLER HIRE



New Holland T7.210

DAVISON HIRE BOOK NOW!



JCB 540 -14 & 535-125
Telehandlers

Contact Adrian Shufflebotham
 or Marc Dudley: 01952 915060
Email: sales@davison-forklift.co.uk

DAVISON HIRE
 Yew Tree Farm, A5, Crackley Bank, Shifnal, Telford TF11 8QT

Your trusted go to for over 40 years!

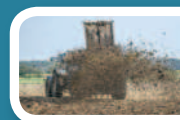


Lowlander® Manure Spreaders

3 Year Warranty | Details available upon request

Twin Vertical Auger
 TVA | 6 – 40 tonnes

Horizontal Beater & Spinning Disc
 HBD | 8 – 40 tonnes



Tel: + 44 (0) 1362 860352
www.gtunning.co.uk

Bunning®
 AGRICULTURAL ENGINEERS

bunning spreaders

Busy and testing spray seasons leave little respite but finding time to check and service sprayers will pay off



Set for spraying

Spring can be a busy and difficult time for sprayer operators and their machines but taking the time to carry out some checks and maintenance can help to prevent breakdowns and downtime

WORDS **MICK ROBERTS** IMAGES **MANUFACTURERS/MICK ROBERTS**

While virtually all sprayers are now tested, usually annually, it is still important to keep on top of routine maintenance and servicing. A small amount of time invested in regular checks could pay big dividends as the season progresses and workloads increase.

Sprayer testers get to know where to look for faults and are often surprised and a bit disappointed to see the same things crop up year on year. During tests they often come across the same faults, time and again, many of which should really have been picked up during operation. There really aren't any excuses for operating machines with damaged or blocked filters, leaks and worn nozzles. These are not only test failures, they will also have an adverse effect on the efficacy of the application.

Pre- and mid-season check-ups and services provide a good opportunity to look at other items that may be overlooked because they are not on the test sheet. Investing some time in servicing the machine, looking for all those little things that need attention could prevent a breakdown.

“Looking for all those little things that need attention could prevent a breakdown”

When spraying days are limited this could mean the difference between getting the last load on or not.

Where to start

A good place to start is to download the Operator Check Sheet found under 'Documents & Links' on the NSTS website: www.nsts.org.uk. All operators should periodically jug test the nozzles to check the output. The NSTS test allows a variance of up to +/- 10 per cent at 3bar. While flow-based auto-rate controllers will still put on the same volume – even through worn nozzles, it's a different story when it comes to spray quality. Damage and wear can cause streaks in the pattern, which will have an adverse effect on the coverage and deposition. If pressure-based systems are left at the same setting they will over-apply and cause you to run out early.

If the output on the controller with a flow-based system appears to change for no apparent reason, check the flow meter. This has paddles supported on a stainless-steel spindle that often wears. Pressure-based systems tend to work or not.

It's suggested that operators buy a couple of extra nozzles when replacing a set. This way you have one for a spare and another new one you can put on a section and compare with the others. Simply time the output from the new one and do the same for the others, while looking at the pattern.

STEP-BY-STEP TOPS TIPS TO HELP



1 While automatic rate controllers will compensate for worn nozzles, they still need jug testing for output, which must not be more than +/- 10% of the target throughput. Buy two extras - a replacement and a comparison for working nozzles.



5 The boom support bushes only turn about 45 to 50 degrees on the pins - which can cause 'flats' to form. Grease in the areas where they don't move will harden, so it's good to clean this out and carefully lubricate the whole area.



9 Worn drip control valves will leak when the machine is switched off and need to be fixed to prevent pollution. The diaphragm and spring in the valve are wearing parts and are cheap and easy to replace.

▶ On mounted machines, look closely at the nozzles that are near the tractor exhaust when the booms are folded. They can be damaged or even melted by the heat. While looking at the nozzles, check the DCV anti-drip valves. If there are any drips, it's a simple and cheap job to change the springs and diaphragms.



2 Wear or damage to nozzles can cause streaks in the pattern, which will have an adverse effect on the coverage and deposition. In an NSTS test one nozzle/section is tested and if it fails the whole set must be replaced.



6 A 30m boom tip turning a corner at normal spraying speeds can accelerate up to 70mph. This is why it is important to check the blocks that are designed to absorb the yaw, because they do wear or harden in work.



10 Check fittings, brackets and bolts used to attach auto-height sensors to the boom - particularly on retro-fit units. If they come loose it causes the system to deliver inaccurate readings, which won't let the boom settle in position.

Prior to working in tall crops it's a good idea to check tank drain taps are properly closed and secured in position with tape or cable ties. This ensures they are not pulled open by tall rape stems, for example. It's also worth wrapping tape round any other protrusions that could catch on the crop.

SAVE TIME ON SPRAYER SERVICES



3 With automatic rate controllers check the litres/min output with new nozzles at 3bar and keep a note of this. Then, when you are working, if you can maintain the same output, but at a lower pressure, it shows the nozzles are worn.



7 Fast turns also put a lot of stress on the break-back joints. If they are worn the tips can flex forwards and backwards, which will cause constant over- and under-dosing as they move at a different speed to the rest of the boom.



11 Filters are the number one reason why sprayers fail an NSTS test. While cleaning dirty filters is an easy fix, they sometimes leak because the O-ring is attacked by chemical, so stock up on spares and fit new ones where necessary.

Many operators carry a selection of spares and other 'get you going' parts so it's a good idea to check these and replace any parts that have been used, as well as thinking about anything that is missing that you think you could have really done with in previous seasons. This could also be tools required to fit the parts you're carrying.



4 Check PTO and other guards for damage and replace if necessary. The PTO works hard and now is a good opportunity to give it a good service by sliding the tubes and greasing the shafts. Also check the UJs for signs of wear.



8 NSTS engineers continue to be amazed by machines presented for testing with leaking hoses. Run the machine at 2bar above the standard working pressure - usually 5bar - to reveal problems not apparent during normal work.



12 Tank lids and seals are often overlooked, and leaks allow liquid to flow out and down the sprayer. There should be a one-way valve in this hole. Check the lid seal and the tank fitting - often a source of leaks.

Every cloud

Poor weather can provide a useful opportunity to tidy up and organise your spray store. Many operators put products into groups and label the shelves for insecticides, herbicides, adjuvants etc, which makes them much easier to find.

STEP-BY-STEP *CONTINUED*



13 Check the pressure in the pulsation compensator on a diaphragm pump, particularly if the nozzle flow pulsates or the pressure gauge flickers. The valve should be set to about half to a third of the spraying pressure.



15 Pressure gauges do wear and show incorrect readings. If the gauge doesn't point to zero when there is no pressure in the system, it is clearly not working properly. This is another common NSTS failure.



17 When was the last time you calibrated your controller? Check the speed reading by timing how long it takes to drive 100m with a half-tank of water at your normal working speed and divide this by 360, e.g. 360/36sec = 10kph.

▶ A stock check will ensure what is in store matches the stock list record and it's also useful to check and note down expiry dates and inform the agronomist so they can be used up in good time. Remember that a stock list should be kept away from the store and be easily accessible in case of fire or other emergencies.



14 With mounted sprayers it's not uncommon for the top link to work loose and if this happens often it will damage the threads and will never tighten. See if it's possible to fit two - one under tension the other in compression.



16 Check along the booms for cracks and damage to the latticework. Steel booms are easy to repair on-farm with a welder. But aluminium boom repairs require specialist skills and equipment, which may need to be brought in.



18 Poor or dirty water is one of the biggest bugbears facing operators. Now could be the time to look into upgrading storage tanks or simply clean out existing ones and make sure the lids are fitted to prevent contamination.

Time spent checking and organising water supplies to be used is never wasted either, including a chance to empty and clean water tanks, flush out any debris, leaves, and so on, and then making sure lids fit tightly and securely. Dirty water is asking for trouble, so if you're tanks look tired it might be time to think about upgrading. **FMJ**



FUELWOOD
FORESTRY & FIREWOOD MACHINERY SPECIALISTS

www.fuelwood.co.uk
01926 484673

@KCASFarmExpo 



FARM EXPO
KENT COUNTY AGRICULTURAL SOCIETY

MACHINERY, SUPPLIES,
AND SERVICES FOR THE
AGRICULTURAL INDUSTRY

2 March 2022
 Kent Showground, Detling,
Maidstone, ME14 5AJ

FREE TO ATTEND

www.kcas.org.uk/farm-expo/
info@kentshowground.co.uk
01622 633057

**Trade Stands,
Seminars, and
Networking
Opportunities**



**REGISTER
FOR FREE**








Richmond
ASSET FINANCE

0113 288 3277 / 07949 490930 (24 hrs)
www.richmondassetfinance.co.uk

**Independent
Agricultural
Finance Brokers**

EST 2009
**Independent, Straight
Talking & Friendly**



Honest & Upfront About Our Products & Services

Machinery & Equipment Finance & Refinance	Commercial Bridging Loan Products
✓ Older Equipment Considered ✓ Deal Sizes £20K - £5M ✓ Hire Purchase or Finance Lease ✓ 24 - 60 Months ✓ CCJs, Defaults, Poor Accounts Considered ✓ Interest Rates From 3.9% Flat * *(Subject to Individual Deal Strength)	✓ Land & Outbuildings, Developments Etc ✓ 3 - 60 Months ✓ Deal Sizes £30K - £5M ✓ Competitive Rates Richmond Asset Finance Ltd is Authorised & Regulated by The Financial Conduct Authority: 723508 Call us on 0113 288 3277 We're easy to deal with - covering England, Wales & Scotland.



A clean product line.

www.bemasweepers.co.uk



bema
SWEEPERS UK & IRELAND

contact@bemasweepers.co.uk

Tel: 07436 272 292



The cult magazine for the farming community

Available **NOW** from selected retailers
Find your local store at seymour.magzene.com
To buy a copy or subscribe tel +44 (0)1371 853631
or visit www.classictractormagazine.co.uk



ELECTRONIC REPAIRS

*Arable, grassland and precision farming
electronic equipment repaired*



DAVID KING ELECTRONICS

Tel: +44(0)1789 731365 www.dkelectronics.co.uk

John Peers
INDEPENDENT COMMERCIAL INSURANCE MANAGER

TRACTOR & FARM MACHINERY INSURANCE

- From single machines to large fleet
- Liability – Road Traffic Act Cover Fire & Theft

Covering machines up to 60 years old

Telephone/Fax: **01978 758226**

www.johnpeers.com Email: john@johnpeers.com

Includes **FREE** year's subscription to *Farm Machinery Journal*
to all new insurance policies arranged

**UMBILICAL PUMPING
EQUIPMENT**

SALES | HIRE | SERVICE
01270 623566 | sales@spreadwise.com

Spreadwise
LIQUID TECHNOLOGY

Logos for **ferret**, **BAUER**, and **FAN SEPARATOR**.

The workshop

Gear, upgrades & top tips to keep your machines running



Philips launches new LED lightbars

New auxiliary lighting has been launched by Lumileds. The Philips Ultinon Drive 5000L series combine bright LEDs with rugged design in road-legal lightbars, which range from 10in to 30in wide. The lightbars provide visibility of around 400m or more depending on model.

The high-lumen LEDs produce a combined spot and floodlight that shines far and wide and the cool 6500 Kelvin colour temperature enhances driver focus without inducing eye-strain. The range-topping UD5050L includes an off-road function that boosts to 4000 lumens.

The lightbars are impact resistant with an unbreakable polycarbonate lens, dust and water resistant, and have robust connectors and stainless-steel mounting brackets. Prices have not yet been announced.

New work boots from Ariat



Ariat has introduced new work boots. The women's Keswick Steel Toe Paddock (pictured below) features premium full-grain waterproof leather, designed to repel water and allow for maximum breathability. A temperature-managing layer also helps to maintain odour control and comfort, while an inset heel

pod protects feet from strain and provides shock absorption.

The men's Groundbreaker Chelsea XTR (pictured above) features an oil- and slip-resisting DuraTread outsole, plus a cushioning insole and protective ExGuards on the toe and heel. The Keswick is priced at £135, while the XTR is £130.



Minimise machinery and pedestrian accidents

TOP TIP

The 'zero accident' objective in the workplace is a major challenge, especially incidents involving pedestrians and machinery. French group Arcure has developed Blaxtair, an intelligent pedestrian proximity detection solution, working with Xwatch Safety Solutions to provide a solution to allow automatic slowing down of a vehicle. The system is made up of three main parts: the stereoscopic camera looks after the area within its field of view, especially in machine blind spots. The processing unit analyses images, recognises and localises people in real time. The on-board screen or LED/buzzer in the cab gives visual and audible alarms if a person is detected in the danger zone. A 'slow-down' action is then performed as an autonomous action by the machine.



Q&A

EXPERT ANSWERS
TO YOUR MACHINERY
PROBLEMS



Q I own a 2013 Case IH Puma 175, which has started making a knocking noise from the front axle that gets worse as the tractor speeds up. What is the problem?

T. Burgess, Hertfordshire

A This is quite common on Case IH tractors with a CNH front axle. The problem relates to the front axle driveshaft support bearings,

which form part of an assembly that allows both the driveshaft and the suspension arm casting to pivot simultaneously as the front axle moves up and down, however the bearings are trapped in an environment that is often wet and contaminated by debris. Continual high-speed work causes the driveshaft to flex and vibrate, which overloads/overheats the bearings. Repair requires the entire axle assembly to be removed to gain access to the suspension casting, which must be removed to access the driveshaft and support bearings. **EMJ**

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 Primor 3570M straw blower and feeder

Universal Hobbies 1:32

Universal Hobbies' metal and plastic straw blower features new decals and has an adjustable drawbar stand, hydraulic pipes, electric cables and safety details detailed. The blower chute swivels and there is a piped ram to set the chute angle and another ram to adjust the feed trough discharge chute.

£27.71 • www.kuhn.com



Built for bales

A single piped ram supports the tailgate and when lowered it reveals the feed rotor and the chain and slat detailing on the floor. The hopper has dark grey side projection guards and accepts bales up to 42mm wide. The blower is provided with the optional dual tailgate control detail.

Case International 1455XL Schuco 1:87

This well-built and detailed 1/87th-scale 1455XL features a black radiator and silver wheels. It has a front weight, fixed rear linkage and hook for towing trailed equipment. The glazed cab features a wiper, driving mirrors and has a black interior with driving seat and steering wheel detail.

£16.99 • www.schuco.de

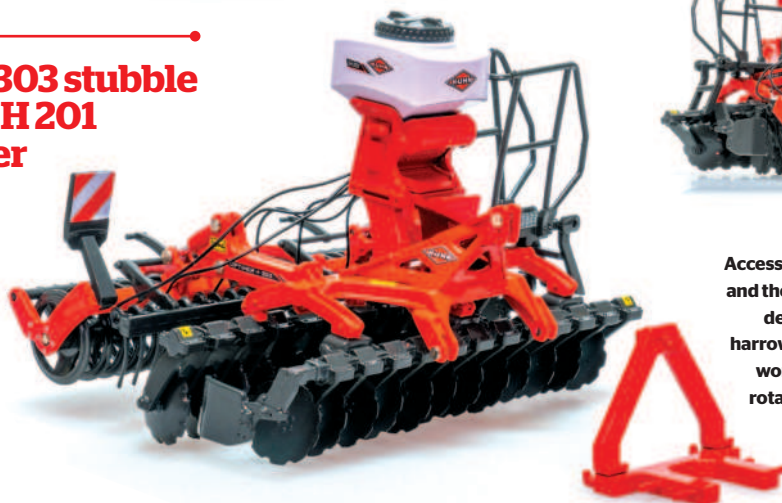


Kuhn Optimer+ 303 stubble cultivator with SH 201 cover crop seeder

Replicagri 1:32

This Kuhn Optimer is equipped with 24 large notched discs, side deflectors, comb harrow, T-ring roller and SH seeding unit. It has a metal frame with smaller parts in plastic and is supplied with an adapter to fit on model tractors with either two- or three-point linkages.

£42.65 • www.kuhn.com



Hopper access

Access steps to the hopper are hinged and the eight distribution pipes to the deflector plates behind the comb harrow are detailed. Two rams offer a working position. The roller freely rotates and there are road warning boards and painted lights.



Krampe Half-Pipe HP20 tandem axle trailer

Wiking 1:32

Wiking's new Krampe trailer has a metal chassis and body. It has a floating drawbar, an adjustable stand and four black hydraulic pipes to connect to a tractor.

£69.95 • www.wiking.de



Tandem axles

There are two yellow wheel chocks on the chassis and the tandem-axle wheels have unbranded tyres. Each side of the tandem axle floats independently. A multi-stage single ram smoothly lifts the body and two rams open the tailgate. On the rear bumper are tail lights and a German-style number plate.



Detailed units

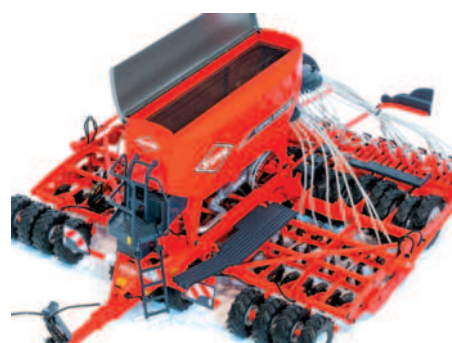
The drill has two metering and two distribution units detailed. Metering units located under the hopper are silver with flexible pipework from each distribution unit to the coulters. The front packer wheels are supported on rams and behind them are two rows of rotating discs. Hinged markers are set to run down the tractor centre line.



Easy access

The access steps are hinged and the platform has a patterned floor and realistic handrails. There is also an access ladder on the hopper and a hinged access platform.

Opening the hopper lid reveals a black hopper screen and two access ladders, however ROS has not provided the hopper with a divider.



Kuhn Espro 6000 RC trailed drill

ROS 1:32

This beautifully engineered and detailed model offers plenty of display options. It has a metal frame with a swinging drawbar for attachment to a tractor's lower links. There is a hinged stand and hydraulic pipes for connecting to a tractor.

The outer sections fold on two rams into the transport position and the drill runs on the rear rollers.

Around £110 (€130)

• www.kuhn.com





Back to basics

Alan Bellamy swapped a 2007 New Holland CX8040 combine for a 2004 New Holland TX66 at the beginning of 2021. *FMJ* discovered why he is such a huge fan of the modern-classic TX

WORDS AND IMAGES DAVID LALEY



For the past 33 years north Nottinghamshire arable farmer Alan Bellamy has run nothing but second-hand New Holland combines, upgrading each year until he ended up with an immaculate 2007 CX8040 fitted with a 20ft header in 2016, which he ran successfully until the end of 2020, harvesting close to 600 acres each year.

However, at the beginning of 2021 his circumstances changed when he lost a significant block of rented land that instantly halved his acreage. This forced Alan to downsize his harvest fleet and bolster his finances by selling one of his three grain

trailers. He replaced the CX8040 combine with a less advanced New Holland TX66 from 2004.

"It was clear that if I was going to continue farming profitably I was going to have to free up some capital by selling the CX8040 and invest in a dependable modern classic I knew well that would last me until I retire," explains Alan, who began farming on his own in 1988 when he was given the opportunity to take over 157 acres of arable land from John Cookson, whom Alan had worked for since he left school. The first combine Alan operated was John's second-hand mid-1960s Claes M89 fitted with an eight-foot cut header.

It was replaced after five seasons by a more modern, low-hours and significantly more powerful 113hp New Holland Clayson 1530 equipped with a 10ft header. After almost a decade operating combine harvesters in the open, Alan was delighted when John swapped the 1530 for a 12ft cut New Holland 8050 that featured a luxury quiet cab.

Changing combines

After taking charge of the farm, Alan part-exchanged the 8050 for a late-1980s New Holland TX32 powered by a 155hp Ford engine and equipped with a 12ft header.



Above inset: The TX66's InfoView monitor provides Alan with all the information he needs to maintain excellent performance

Below inset: Alan Bellamy says a 2004 New Holland TX66 will help maintain profitability following the loss of rented land



Radio, clock, wiper controls and air conditioning vents are located neatly in the roof lining

Above: New Holland's Discovery cab was first introduced on the TX66 in 1993. The major controls are located on a console incorporating electro-hydraulic switches and a multi-function joystick



“To continue farming profitably I was going to have to invest in a dependable classic”



“Just like the other second-hand New Holland combines I'd run, the TX62 was the ideal step up from the TX32 in the same way the TX32 felt like the natural successor to the 8050 in terms of technology and power.”

As Alan's combinable acreage approached 600 by 2016 the TX62 made way for a more powerful 333hp 2007 New Holland CX8040, which came equipped with a 20ft Varifeed header and a 9000-litre capacity grain tank.

“The CX8040 was by far the largest and most

advanced step up I'd made,” notes Alan. “While this was necessary at the time, in truth I never fully got used to all of the electronic gizmos the CX8040 was loaded with compared to the TX62, which I always felt content operating. That's not to say the CX8040 wasn't a good combine, it was superb, and the spacious cab was without doubt the most impressive and relaxing operator's environment I've ever climbed aboard.”

Keep it simple

Alan is the first to admit he's never been a huge fan of computerised control centres or fly-by-wire switches to adjust and operate machinery. It's why you'll find a JCB Fastrac 2170 rubbing shoulders with a Muir Hill 121 and a Leyland 472 in his shed.

“Although the CX8040's IntelliView performance monitoring terminal incorporated lots of excellent features designed to make harvesting easier, it tended to make me feel more anxious, and the same applied to a number of other controls and functions that seemed

It was later swapped for an immaculate 206hp New Holland TX62 fitted with a larger 15ft header and 7200-litre grain tank.

“As soon as I began using the TX62 I immediately felt at home in the more modern and ergonomic Discovery cab,” says Alan. “It was a very well thought-out combine, not overly complicated, and a lot more comfortable to operate than the TX32, which was a brilliant combine in its own right.

Profile

Machine

New Holland TX66

Year 2004

Owner Alan Bellamy

Owned for One year

Hours 1875

Used for One season

Original dealer

Lincolnshire Motors



Above: A telescopic ladder provides easy and safe access to the engine bay

Right: The TX66's integrated straw chopper is equipped with electrically controlled deflectors to alter the direction and spread pattern



Above and above right: The TX66 is still fitted with its original set of Goodyear 800/65 R32 and 16.0/70 R20 tyres



Right: The unloading auger is capable of emptying the 8000-litre grain tank at 72 litres per second



“It was like finding and wearing a pair of old comfy gloves”

► unnecessarily complicated compared to the combines I'd run previously.”

With that in mind Alan went looking for a New Holland TX66 when he discovered he would no longer be harvesting the rented land he farmed. He sourced an immaculate 2004 New Holland TX66 through New Holland dealer Russells' depot at Tuxford prior to his 2021 harvest.

“I never considered replacing the CX8040 with anything else,” says Alan. “I wanted a low-hours TX66 from around 2001 to 2004 with a 20ft header that I could look after myself, and also continue to do a small amount of contracting with for local farmers. It belonged to a long-standing customer who was looking to upgrade and came with a full service history.

Tech specs

New Holland TX66

Engine New Holland 675 TA/CA 7.5-litre, six-cylinder turbocharged
Power 281hp at 2100rpm
Transmission Four-speed hydrostatic
Header width 6.1m (20ft)
Threshing drum diameter 60.6cm
Rasp bars 8
Concave bars 13
Main beater diameter 61cm
Rotary separator diameter 60.5cm
Straw flow beater diameter 31.5cm
Straw walkers 6
Grain tank 8000 litres
Unloading speed 72 litres per second
Front tyres Goodyear 800/65 R32
Rear tyres Goodyear 16.0/70 R20
Weight 10,775kg

Platts-Harris had looked after the combine for a number of years so I knew it had been in good hands and was also a credit to its former owner.

“I knew straight away that this would be the most suitable replacement for the CX8040. It was like finding and wearing a pair of old comfy gloves for the first time in a decade. The controls felt like they fitted my hands perfectly and all of the enjoyable memories of running the TX62 came flooding back. Although not as comfortable as the CX8040's cab, the TX66's suspended seat and control layout is still exceptionally good.”

Popular model

New Holland's Belgian-built TX66 enjoyed a long and prosperous production run that first began in 1993. It was the first model of their new TX60 series to be introduced as the ageing TX30 series was phased out. The last TX66s



Above: The TX66 comes equipped with a decent sized set of steps for safe access to the Discovery cab

Left: The slim steering column can be adjusted infinitely through 40 degrees at the top and the base can be tilted through 15 different positions

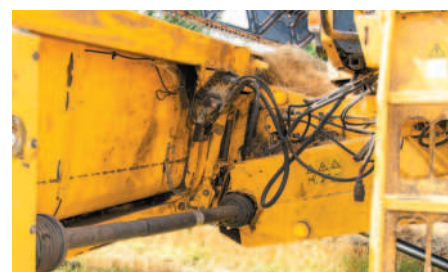
This 2004 New Holland TX66 harvested 575 acres of combinable crops in 2021, an area that will more than halve this year



Left: This large window enables Alan to check the grain tank from the cab as it fills up



Right: The TX66 is fitted with a tow hook for transporting the Mekanag header trailer



Above: A simple hydraulic quick coupler is used to connect and disconnect the 20ft (6.1m) header on the TX66

were manufactured in 2008, seven years after the CX range had been launched.

Crops are transferred to the threshing system via a four-chain elevator equipped with 57 slats. Anti-wrap shields are fitted to the bottom and top shafts, while an additional spring-loaded roller helps feed in long-strawed crops easily. The elevator is also equipped with a hydraulic feeder reverser engaged from the cab.

The threshing system comprises a 60.6cm diameter main drum fitted with eight rasp bars matched to a concave with 101 degrees of wrap angle, which can be adjusted from the cab. Crops are then threshed against a five-blade beater with its own adjustable concave that runs at two thirds the speed of the main drum to reduce grain cracking.

From there New Holland's rotary separator, which has two speed settings, and the straw flow beater complete the remaining separation before guiding crops on to the TX66's six straw walkers. These are constructed with five angled steps to improve distribution and throughput. The system provides a threshing area of 7.72m².

"I've never had any problems with the TX's threshing system," says Alan. "It's a proven design and while it would be nice to have the CX8040's self-levelling sieves occasionally, I haven't suffered any significant losses or drop in performance using the TX66's fixed cleaning shoe," he says.

The TX66's 8000-litre grain tank is equipped with a sensor to warn the operator when the tank is 70 per cent full and a

second when the tank is completely full. The unloading auger can then empty the grain tank at a rate of 72 litres per second, which Alan says is more than adequate for his 14t grain trailers and the distance to the farm.

The 2004 TX66 has now clocked just 1875 hours on the 281hp 7.5-litre, six-cylinder turbocharged New Holland 675TA/CA engine. The original Goodyear 800/65 R32 and 16.0/70 R20 front and rear tyres continue to provide excellent traction.

"Aside from a small overheating issue caused by a slipping belt, which was easily diagnosed, I've been very impressed with the performance of the TX66," Alan concludes. "I look forward to running it until I retire."

FMJ

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 and they could feature in FMJ soon!



OldtimerPlus from now on:

Online Classic World



Check out
the new-look
website

WWW.ONLINECLASSICWORLD.COM



RMG®



ONLINE CLASSIC WORLD

www.onlineclassicworld.com

**BIGGER
STRONGER
TOUGHER**



STEWART

+44 (0) 1467 681418
SALES@STEWART-TRAILERS.CO.UK

WWW.STEWART-TRAILERS.CO.UK



**HOME
DELIVERY!**

**Celebrating the world
of vintage farm
machinery**



Available **NOW** from selected retailers
Find your local store at seymour.magzene.com

To buy a copy or subscribe and get home delivery please call
+ (0)44 1371 853636 or visit www.heritagetractormagazine.co.uk

IN THE NEXT ISSUE OF **FARM MACHINERY** **JOURNAL**

APRIL
ISSUE
ON SALE
MAR 11



FIRST IMPRESSION

**AT WORK WITH ONE OF THE FIRST GÖWEIL
G1-F125 KOMBI BALERS IN THE UK**



**IN NORFOLK FOR THE FIRST
PUBLIC OUTING OF VERVAET'S
NEW ROLLERBED HARVESTER**



**UP CLOSE WITH A BESPOKE 2021
NEW HOLLAND FR650 FORAGER
COMMISSIONED FOR WILLOW**

**PLUS... A PAIR OF VICON ROUND BALERS HIT YORKSHIRE ●
SPECIAL EDITION FORD RANGER TESTED ON- AND OFF-ROAD
● LEMKEN AND KUHN DRILLS REVIEWED AND MUCH MORE!***

**MAKE SURE YOU NEVER MISS A COPY OF FARM MACHINERY JOURNAL
BY SUBSCRIBING SEE PAGE 98 FOR MORE DETAILS**

*CONTENTS SUBJECT TO CHANGE

MARCH 2022 WWW.FARMMACHINERYJOURNAL.CO.UK **91**

Massey Ferguson 135 launched as part of the 'Red Giants' range in 1964



Game
Changers

Little Red Giant

Massey Ferguson's 135 model was the archetypal light tractor. Launched in 1964, it became one of the most popular machines of all time and variants of the design were still in production almost 20 years later

WORDS **STUART GIBBARD**
IMAGES **STUART GIBBARD/
AGCO/TED EVERETT**



Introduced at the end of 1964, Massey Ferguson's 100 Series tractors were launched amid a blaze of publicity extolling the virtues of the new range. The slogan accompanying the launch was 'The Red Giants are here!', which was a bold statement considering that none of the new tractors offered more than 66hp. Ironically, it was the second smallest tractor in the range, the MF 135, that became the best-selling and most enduring model in the 100 Series line.

Today, the Massey Ferguson 135, rated 45hp at the time of its launch, would be regarded as a light or even compact tractor. But in its day it was a very useful and capable, all-purpose machine - the saviour of small farmers across the land and overseas.

The 135 and 165 models in the 'Red Giants' range were direct replacements for the previous MF 35 and 65 tractors. The specification was similar and the new models still carried over the Perkins A3.152 and A4.203 engines, but with the power upped to 45.5hp and 58.3hp respectively. Topping the range as the flagship model was the MF 175, basically an overgrown 165 with



1940

1946 Ferguson TE-20 goes into production at Banner Lane

1946

1946



1950

1956

Improved Ferguson FE-35 tractor introduced



1956

1957

FE-35 relaunched as the Massey Ferguson 35 at Smithfield Show

“The 135 was a tractor for global farming and was sold in most countries”

a new Perkins A4.236 motor giving 66.4hp and fitted with an in-built balancer.

There was a smaller model in the UK ‘Red Giants’ range, the MF 130, but it was not strictly part of the same family of tractors. Developed in France and built at MF’s Beauvais factory with a Perkins A4.107 engine developing 30hp and a completely different transmission, it was not a huge success and never had much of a presence on the UK market.

The 135, 165 and 175 were all developed in North America as part of Massey’s DX100 programme, initiated in 1962 to provide a worldwide range of tractors assembled from common parts for production at various MF plants around the world. Massey Ferguson’s former chief engineer, Hermann Klemm, the man responsible for the MF 35 and 65 tractors, had retired in 1961 so the job of heading up the DX100 project went to his successor Jacob J. Jaeger.

Assisting Jaeger on the DX100 team were Lee Elfes (director of engineering) and B. F. Willetts. Some one million man-hours and \$7½m were spent designing, developing and testing the prototype tractors. The cost of re-tooling and equipping the plants for the new tractors was \$22m, and another \$10m was spent with Perkins (part of Massey Ferguson since January 1959) in developing the engines.

Vast improvements

Although much of the design was carried over from the existing 35 and 65 models, a great deal was changed, including improvements to the transmission, differential and brakes. The fuel tanks were also redesigned and the capacity increased.

The Multi-Power option, carried over from the 35X and 65 Mk II, doubled up the basic six-forward and two-reverse gearbox into a 12x4 transmission by the addition of a pair of high-ratio gears. These constant-mesh gears were actuated by a hydraulic clutch via a dog-toothed coupling. A selector-valve unit allowed the changes between the ranges to be made at the flick of a switch.

Much thought was also given to driver safety and convenience, including greater comfort, ergonomic controls and new styling. Features included a sprung seat and improved instrumentation in an illuminated panel, and even the option of a cigarette lighter.

The sheet metal was

cleverly styled to make the tractors appear larger than they actually were (hence the ‘Red Giants’ appellation), while also providing better accessibility for routine servicing. Consideration was given to developing optional cab structures with ROPS for North America and a glass fibre cab for the UK market.

At the heart of all MF tractors was the advanced Ferguson hydraulic system. A dual-lever quadrant controlling the hydraulic system gave position and draft control, constant pumping, response control and pressure control. The latter, a system of weight transference via a special drawbar coupler, was a new feature introduced into the DX100 programme after being developed by MF’s Swedish distributor, AB Nyköpings Automobilfabrik (part of the SAAB Group). It was offered as an option on the 135, 165 and 175.

UK launch

The ‘Red Giants’ were kept under wraps until they were unveiled to UK farmers at the Smithfield Show in December 1964. The 135 was priced at £720, or £810 with Multi-Power. Pressure control added another £20 to the list price. Lights, handbrake and differential lock were part of the standard specification.

The Massey Ferguson 135 was up against some stiff competition because Ford had launched its new 6X ‘Worldwide’ range of tractors at the same Smithfield Show. The four all-new 2000, 3000, 4000 and 5000

models were formidable designs and worthy

Specifications

Massey Ferguson 135 (1965)

Engine Perkins A3.152 three-cylinder diesel; capacity, 152.7cu.in (2500cc); bore, 3.6in (91.44mm); stroke, 5in (127mm); horsepower, 45.5hp; engine speed, 2250rpm

Transmission Six forward speeds and two reverse; first, 1.5mph; second, 2.3mph; third, 4.2mph; fourth, 6.2mph; fifth, 9mph; sixth, 16.7mph; low reverse, 2mph; high reverse, 8.4mph

Clutch Dual dry plate with 11in primary and 9in secondary plates

Fuel tank capacity 8.5 gallons

Dimensions Length, 118in; wheelbase, 72in; width, 64in; height, 54in; weight, 3200lb



Left: Variations on the Massey Ferguson 135 included narrow and vineyard tractors

Massey Ferguson 35
fitted with Perkins
A3.152 engine

1959

1960



1959

MF 35X with
Multi-Power
becomes
forerunner of
135 tractor

1962



1962

Massey Ferguson
135 launched as part
of 'Red Giants' range

1964



1964

1966
Changes to 135
include straight
axle and flat-top
mudguards

MF 135 offered with
flexible-clad safety
cab for UK market

1970

1970

1970



1



2



3



4



7

1 French-built MF 135
Mk III vineyard tractor
launched in the UK in
1976

2 On the road with
a three-ton Massey
Ferguson 17 trailer
hitched to an MF 135
tractor

3 French Massey
Ferguson 135 tractor
from Beauvais with an
MF 8 low-density baler

4 MF 135 tractor on
demonstration at
Massey's training
centre in Stoneleigh

5 Ideal for light work
- 135 tractor with a
Massey Ferguson 718
potato planter

6 North American
Massey Ferguson 135
Standard tractor with
A3.152 diesel engine

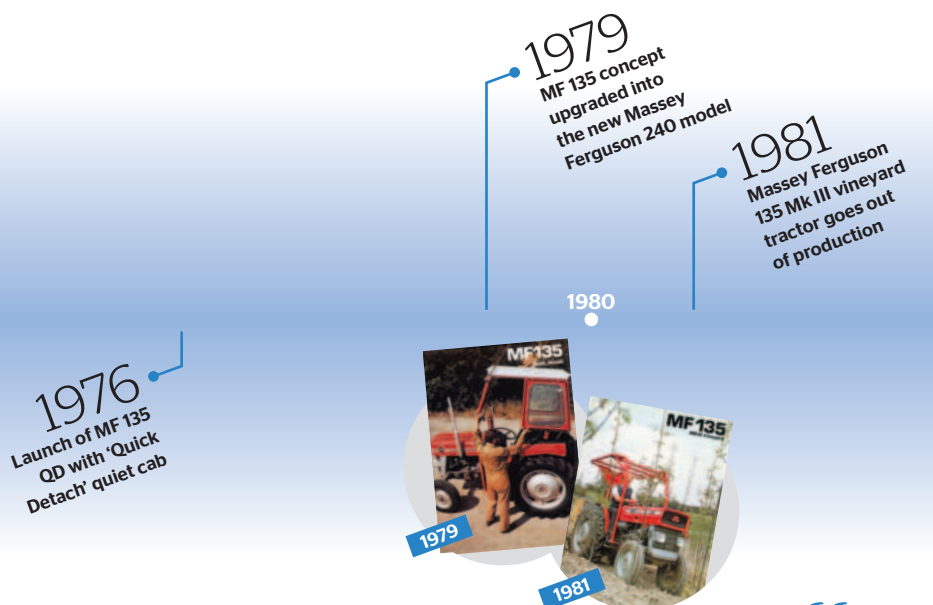
7 The 135's power
take-off easily handled
the Massey Ferguson
19 manure spreader



6



5



“The 100 Series were replaced by MF's new 500 Series in 1976”

competitors to the 'Red Giants', but Ford was operating from a new factory at Basildon and the 6X programme had become both hurried and overloaded. The new blue tractors suffered from teething problems and production difficulties, allowing MF to steal a march on its nearest rival.

The 135 became a very popular tractor in the important light-medium sector of the market with a greater presence than Ford's equivalent 2000 and 3000 models. It was ideal for the small farmer, horticulturalists and the livestock industry, or as a yard tractor or runabout for the larger enterprises. Inheriting the proven reliability of the 35X, it became the torch-bearer for the Ferguson System. In many ways it was a reincarnation of the grey 'Fergie' - carrying on the mantle of the light tractor for a new generation of customers and users.

Global farming

The 135 was also a tractor for global farming and was sold in most countries or continents of the world from Scandinavia to Australia and from India to Iran. Banner Lane in the UK was the main production centre, but variants were also produced at Beauvais in France and Detroit in the USA, as well as at satellite operations in other countries through manufacturing and licensing agreements.

Early models of the 135 for the UK market had a swept-back front axle and shell fenders, but these were replaced with a straight axle and flat-top mudguards during 1966. After the Agriculture (Safety Cabs) Regulations were introduced in September 1970, requiring all new tractors sold in the UK after that date to be fitted with an approved cab or frame to protect the operator from overturning accidents, the 135 was offered with a flexible-clad safety cab.

Variations on the standard tractor included vineyard, narrow and orchard versions. Several industrial models, such as the MF 20 utility/highway tractor, were also based on the 135. Most variants had the Perkins A3.152 engine, but there were other options for different territories.

Perkins power

Nearly 5700 Massey Ferguson 135 tractors were assembled in France during the first two full years of production from 1965-66. The first of these were fitted with the Perkins A3.144 engine, but Beauvais production had reverted to the A3.152 power unit, as used in other markets, by the early 1970s.

Perkins also developed a special spark-ignition version of the A3.152 engine, designated AG3.152, to provide the power unit for a petrol 135 for North America. The American 135 had several detail differences to the UK tractors, including having the headlights mounted on the outside of the radiator cowl.

Other features of the US model included an underswept exhaust, different

mudguards and wheel equipment, the option of power steering and a dry dual-element air cleaner. The diesel version with the A3.152 engine was marketed as the 135 Standard. The petrol tractor with the AG3.152 unit was badged as the 135 Special.

The 100 Series tractors were replaced by Massey Ferguson's new 500 Series in 1976, but the MF 135 continued in the UK as the 135 QD with the 'Quick Detach' quiet cab. The idea was to offer a cheaper option to the 550 model, which was its direct replacement.

Also, during 1976 Massey Ferguson introduced the French-built 135 Mk III vineyard tractor to the UK market for British growers and horticulturalists needing a specialist narrow machine. The tractor was supplied with a safety frame and a pair of driver's ear-defenders to meet UK regulations.

The farmer's love affair with the 135 saw it remain in production in various guises into the 1980s. As such, it was one of MF's longest lasting models. No other tractor introduced in the 1960s had such an impact on the marketplace.

FMJ

Massey Ferguson 135 uses pressure-control hitch to handle an MF 52 disc harrow





NEW Albutt Shear Grabs & Buckets, twin or triple ram, heavy duty pins, wide opening. Hardox or KV lines, choice of sizes & brackets in stock. The best on the market **EPDA**



**01823 429431
07760 236534**

www.blackdownfarmservices.co.uk



NEW Quicke Shear Grabs, 1.2m - 2.5m wide, twin or triple ram, choice of bolt on brackets, 2 year warranty, in stock. E.g. Silcut 150 Euro **£2,295**



NEW Moulton Yard Scrapers, galvanised, A frame or pin attachment, 50mm moulded rubber blade, adjustable working width, heavy duty swing over, very well made **£795**



NEW BFS Work Platforms, 2 person capacity, kick boards, floor grips, harness point, self closing gate, high mesh back, pallet fork mounted, in high vis yellow. Choice of sizes. Prices from **£795**



NEW Moulton Feed Pushers, A frame, pin or pallet fork mounted, twin super single tyres, greasable pivots, adjustable working width, very well made **£795**



USED Dunbar Low Loader Trailer, approx 24ft long, carry around 15-18 ton, 10 stud high speed tri axles with twin wheels, air suspension, air brakes, fixed drawbar, good floor, road lights, sprung ramps, nice high spec trailer **£6,500**



USED Kidd 814 Bale Chopper, 72014, 1.58m tub diameter, 3 point linkage or A frame mounted, fitted with extra blades, left and right hand discharge, adjustable flow rate, very good condition and working order **£4,295**



USED Twose 315 Hedge Trimmer, 3 point linkage mounted, cable control, good flails, good rams, suit smaller tractor, good working order **£3,995**



USED Redrock 180/85 Shear Bucket, 2019, 5'10" wide, 1.25m³ capacity, 85cm opening, twin ram, serrated blade, 1/2 inch hoses, Euro 8 brackets. Hardly used & in very good condition **£3,595**



USED Bomford Hedge Trimmer, 3 point linkage mounted, cable control, good flails, good rams, suit smaller tractor, good working order **£2,595**



USED Albutt A120 Bucket, 1997, 7ft 6in wide, 1.41m³ capacity, replacement floor and front edge, repainted, VG condition. Pin & Cone brackets, c/w Sutton SBB213 Brush, 7ft wide, full set of new bristles, new bearings, pump refurbished ... **£2,295**



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 NC Road Runner 700 Rotary Brush, 7ft wide, 3 point linkage mounted, adjustable rear death wheels, hydraulic drive, very good bristles, hardly used **£1,995**



USED Quicke Silcut 150 Sheargrab, 2010, 1.50m (5ft) wide, 0.95m³ capacity, 12 tines, twin ram, good cutting edge, hydraulic hoses, Euro 8 brackets **£995**



USED Conor 150 Sheargrab, 21.50m (5ft) wide, approx 0.95m³ capacity, 12 tines (all tight and straight) twin ram, good cutting edge, hydraulic hoses, in good condition but with some welding. Trima No5 brackets **£995**



USED Quicke Silcut 125 Sheargrab, 1.25m (4ft) wide, 0.80m³ capacity, 9 tines (2 new), all tight & straight, twin ram, good cutting edge, hydraulic hoses, Euro 8 brackets **£895**



USED Cherry Products Adapter Plate, from MX brackets to pick up JCB Q-fit attachments, manual locking, also 50mm ball hitch, good condition **£795**



USED Foster Rear Bale Spike, 3 point linkage, 3 long spikes, 1 short, all tight & straight, will do round and square bales, handy bit of kit **£595**



USED Quicke Dung Fork, 190cm wide, 10 good straight tines, side tines, solid back, good condition. Euro 8 brackets **£95**



USED Moulton Yard Scraper, A frame or pin attachment, 50mm moulded rubber blade with some life left, pins & pivots ok, will still do the job!... **£295**

ALL PRICES + VAT



YORKSHIRE HANDLERS
The Best Solution For Materials Handling



MERLO

Celebrating over 25 years as the only specialist Merlo main dealer in Yorkshire



2018, Merlo TF35-7-115

2,885 hours, c/w pallet forks, pick-up hitch, boom suspension, air con and Grammar seat.



2019 Merlo TF42-7-140

3,220 hours, c/w pallet forks, pick-up hitch, boom suspension, air con and Grammar seat.



2018 Merlo TF42-7-140-CS-CVT

2,560 hours, c/w pallet forks, pick-up hitch, boom suspension, air con and Grammar seat.



2017, Merlo TF42-7-140

4,000 hours, c/w pallet forks, pick-up hitch, boom suspension, air con and Grammar seat.



2017, Merlo TF33-7-115

3,660 hours, c/w pallet forks and pick-up hitch.



2016, Merlo TF42-7-156

2,650 hours, c/w pallet forks, pick-up hitch, boom suspension, air con and Grammar seat.

Unit 4/5, Fryers Close,
Murton Lane, Murton, York, YO19 5UY

Tel: 01904 489988 / Fax: 01904 489061

Email: sales@yorkshirehandlers.co.uk • Web: www.yorkshirehandlers.co.uk

AVISON SPRAYERS

LARGEST USED SPRAYER OUTLET IN UK



HOUSEHAM AR 4,000 LT, 2016,
12-24M + GPS, 6,800 HRS.



AMAZONE PANTERA 4502, 2018, 4,500LT,
36M + GPS, 5,100 HRS.



AGRIFAC CONDOR 111, 2016, 5,000LT, 24-30-36M + GPS, 6,100 HRS.



SAM HORIZON 4,000 LT, 2015,
12-24-30M + GPS, 6,060 HRS.



BATEMAN RB55, 2010, 5,000LT,
36M + GPS, 8,700 HRS.



HOUSEHAM SPIRIT, 2015, 3,000LT,
24M + GPS (NEW ENGINE).



FASTRAC 2135, 2001, 4WS + CLEANACRES
SPRAYPACK 24M, 5,250 HRS.



SAM VISION 4,000 LT, 2012,
12-24M + GPS, 7,700 HRS.



HOUSEHAM AR 5,000 LT, 2008,
12-24M + GPS, 6,200 HRS.



HOUSEHAM AR 3000LT, 2012,
12-24M + GPS, 4,560 HRS.



CHAFER SENTRY E, 2016, 5,000LT,
36M, ISOBUS GPS READY.



JCB FASTRAC 4220, 2016, F/C, C/W
KNIGHT, 4,000LT 28-3-32M + GPS, 6,500



HARDI NAVIGATOR, 2014, 3,000LT,
24M, TRAILED.



KNIGHT TRAILBLAZER 6,000LT, 2016,
12-24M, GPS READY.



FARMGEM DIAMOND, 2011, 3,000LT,
24M, TRAILED + GPS.

(WANTED SELF-PROPELLED AND TRAILED SPRAYERS)

Roughton Moor, Woodhall Spa, Lincolnshire LN10 6YG

TEL: 01526 354433 FAX: 01526 354242 EMAIL: sales@avisonsprayers.com WEB: www.avisonsprayers.com

ALL SPRAYERS NSTS TESTED BEFORE DELIVERY

THIS IS BUT A SELECTION OF OUR STOCK – MORE ON WEBSITE

GET YOURS DELIVERED!

SUBSCRIBE NOW



Subscribe NOW and enjoy home delivery every month.

Don't miss a single issue of **FARM MACHINERY JOURNAL** you can get a personal copy delivered direct to your door every month for a year, usually before copies are on sale in the shops. Or why not order as a gift for family or friends?

FREE
CONTRACTOR
HANDBOOK**

**TWO
ISSUES
FREE***

**INCLUDES
2 x FREE
FORESTRY
MACHINERY
MAGAZINES**

THERE ARE THREE EASY WAYS TO ORDER

- **Phone** +44 (0)1371 853634
- **Go to our website** www.FarmMachineryJournal.co.uk
- **Post it to** FMJ Subs, Trinity House, Sculpins Lane, Essex, CM7 4AY, England

* UK only via direct debit ** UK and Ireland subscribers only

Name

Address

Post code

Email

PRICES AND WAYS TO PAY (please tick as appropriate)

- UK** ☐ 12 issues £45.40 ☐ 24 issues £88.40
- Eire** ☐ 12 issues £52.00 (€65) ☐ 24 issues £100.00 (€125)
- Europe** ☐ 12 issues £54.00 (€68) ☐ 24 issues £104.00 (€130)
- Rest of World** ☐ 12 issues £61.00 ☐ 24 issues £118.00

I enclose my cheque payable to Sundial Magazines Ltd ☐

Or I wish to pay by credit card ☐ ☐

Card No.

Expiry date..... Start date or issue no.....

Signature.....

FMJ 0322

**FARM MACHINERY
JOURNAL**

SUBSCRIPTION FORM

OR Take my payment of £43.00 every 12 issues by Direct Debit (UK only)
Please complete the Direct Debit form below

SUNDIAL MAGAZINES LTD Instruction to your Bank or Building Society to pay by Direct Debit

Please complete this form and send it with the rest of the subscription form to:

FMJ Subs, Trinity House, Sculpins Lane, Essex, CM7 4AY, England

Please do not send it to your Bank or Building Society

Name(s) of Account Holder(s)

Bank/Building Society account number

Branch sort code

Name and full postal address of your Bank or Building Society

To: The Manager

(Name of Bank/Building Society)

Address

Postcode



Originator's Identification Number

6 8 2 1 5 8

Reference (office use only)

Instruction to your Bank or Building Society

Please pay Sundial Magazines Ltd Direct Debits from the account detailed in this Instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Sundial Magazines Ltd and, if so, details will be passed electronically to my Bank/Building Society.

Signature(s)

Date

Banks and Building Societies may not accept Direct Debit Instructions from some types of account.

Post to: FMJ Subs, Trinity House, Sculpins Lane, Essex, CM7 4AY, England

FARM SERVICES

TO ADVERTISE YOUR
BUSINESS PLEASE CALL
020 8639 4400

ACCESSORIES/SALES/SPARES

Accord, Amazone and Maschio spare parts.
Carrier delivery. TR Smith Ltd. Tel: 01362 668286.

Wide range of telehandler attachments
including bale spikes, grabs and squeezes. Also
for loaders including grain pushes, forks and
buckets. British built. EPOA.
Tel: 01283 815544.
Abiljo, Burton on Trent.

BALE PROCESSORS



*Meeting the Needs of the
Agricultural Community
since 1943*

Teagle

Teagle Machinery Ltd
Blackwater, Truro, Cornwall, TR4 8HQ
T: +44 (0)1872 560592
E: sales@teagle.co.uk
W: www.teagle.co.uk

BEDDING & FEEDING



Redrock Straw Chopper
T: 028 37552390

BRAKES

AIR BRAKE SYSTEMS INSTALLATIONS

Installations, Parts and Repairs – Ball and Spoon Hitches

For more information visit
www.ballandballfarmsservices.co.uk
or telephone 01579 388848

BREAKING FOR SPARES

BREAKING FOR PARTS TELESCOPIC HANDLERS LOADING SHOVELS EXCAVATORS

**Wanted – all types of machines
for resale & breaking**

C W Good & Son

The Foundry, Kington, Herefordshire HR5 3DE
Tel: 01544 230 167 Email: les@gwgood1.go-plus.net
Fax: 01544 231 046 (M)07710 909 100

FINANCE

Machinery & Equipment Finance & Refinance



- ✓ Deal Sizes £20K - £5M
- ✓ Hire Purchase or Finance Lease
- ✓ 24 - 60 Months
- ✓ CCJs, Defaults, Poor Accounts Considered
- ✓ Older Equipment Considered
- ✓ Competitive Rates
- ✓ Interest Rates From 3.9% Flat*
(*Subject to individual Deal Strength)



RICHMOND
ASSET FINANCE

0113 288 3277 / 07949 490930 (24 hrs)
www.richmondassetfinance.co.uk

FARMING FINANCE

Equipment – Livestock – Feed – Fertiliser – Seed – Cash Flow
Diversification Projects – AgChem – Building – Debt Consolidation

- Finance from £10k to £5m
- Simple, quick phone application
- Tenant farmers welcome
- 6 month to 10 year terms
- Bad credit history, large debts – no problem!



Contact Dean Pollen on 07902 645650 or dean.pollen@abtftd.co.uk
Only available in England, Wales & Scotland

HAULAGE

BJ & C CARBERRY HAULAGE AGRICULTURAL MACHINERY & PLANT SPECIALISTS



HIAB HIRE TEL: 01359 252 212
FAX: 01359 252 220
Email: carberrylhaulage@gmail.com
Web: www.bjandc-carberrylhaulage.co.uk

HEATING



LIVESTOCK CONTAINERS & TRAILERS

Plowman livestock containers. New
build, used sales and hire fleet. Repairs and
rebuids to all makes. Tel: 01904 768230.
www.plowmanbrothers.com

MUCK SPREADERS

New and Used Fleming Muck Spreaders Available – MS15/700 and 1000



Tunstall Tractors Ltd
Foggy Gill, Fellend, Kirkby Stephen, Cumbria, CA17 4LN
Tel: 015396 20636 • Mob: 07817832978

QUAD BIKES

THE QUAD CENTRE Est. 1987

HOME OF THE ATV



FOR ALL PARTS

www.thequadcentre.com

01271 320727

TUNING & ENGINES

NEW PERKINS ENGINES & PARTS



200+ new engines in stock

Next day nationwide delivery service from £35 per engine
Credit cards accepted

Ask for Ryan on 01539 560833 Mobile 07843 314695
Email: parts@pvdobson.com
View engines on www.pvdobson.com

TRACTOR TUNING

TRACTOR CHIP TUNING and ECU re-mapping

Up to 30% extra power, 10% extra economy

www.chipboost.com

James 07977 475955

TYRES & WHEELS



Wide Range of Alliance,
Michelin and Trelleborg Tyres
Available for Sprayers and Spreaders



McConnel Limited
Temeside Works, Ludlow, SY8 1JL
Tel: +44 (0)1584 873131

FARM MACHINERY TRADER

BALERS & BALE EQUIPMENT



Kuhn VBP 2160 combi baler, 2013, only 45k bale count, Opticut, variable chamber, £22,500. Tel: 07774 112211. Gloucestershire. **[BCW21R]**



McHale bale wrapper, trailed, 2010, excellent condition, £4,750. Tel: 07970 628006. Staffordshire. **[CW111]**



Vicon RV 5216 SC 14N baler, new, Supercut, 14 knife chop system, ISOBUS, £32,649 + VAT. Tel: 07831 470379. Dorset. **[CW108]**



Anderson TRB1000 bale carrier, self-loading, x10 bale capacity, with air brakes, ex-demonstrator, very little use, £17,000 + VAT. Tel: 07889 007261. Notts. **[CDW126R]**



Krone Round Pack 1250 round baler, 2011, multi-cut, £9,750. Tel: 01524 732370. Lancashire. **[CW100]**

CULTIVATION



Simba double press, 3.8m, end tow, good rings and bearings, £3,500. Tel: 07774 112211. Gloucestershire. **[BCW43R]**



Alpego DP-600 power harrow, 6m, 24 + 24 tines, 120-270hp, £30,385. Tel: 07831 470379. Dorset. **[CW109]**



Kuhn HR6004DR power harrow, 2019, 6m, £25,750. Tel: 01524 732370. Lancashire. **[CW105]**



Pottinger C6 Artis Plus Terrasem mulch disc drill, one pass, genuine 550H/A from new, £46,500. Tel: 01603 712222. Norwich. **[BCW95R]**



Opico 3m Vari-disc, 2003, £4,950. Tel: 01524 732370. Lancashire. **[CW102]**



Lynx front press, 1.5m, 45 degree rings, c/w steering, good order. Tel: 07976 794383. Shropshire. **[CDW119R]**



Sumo Trio cultivator, 3m, 2004, £7,500. Tel: 01524 732370. Lancashire. **[CW101]**

FEEDING & BEDDING



Teagle 4040 and 5050 bale choppers/feeders, giraffe spout, from £2,400. Tel: 028 37 548971. Co.Tyrone. **[CW127]**



Kidd KD 450 bale shredder, hyd rear door, electrics controls, £15,750. Tel: 07831 470379. Dorset. **[CW107]**



Teagle 8100 bale processor, with swivel spout, 2017, as new, £POA. Tel: 028 37 548971. Co.Tyrone. **[CW126]**



Kidd 814 bale chopper, 72014, used, 1.58m tub diameter, 3 point linkage or A frame mounted, fitted with extra blades, left and right hand discharge, adjustable flow rate, very good condition and working order, £4,295 + VAT. Tel: 07760 236534. Somerset. **[CW123]**

FERTILISER SPREADERS



Kuhn Axis 40.1W fertiliser spreader, 2011, good condition comes with control box, £2,950. Tel: 07850 367464. Swindon. **[BCW74R]**



Amazona ZA-M Max 1500 spreader, twin disc, £1,200. Tel: 01603 712222. Norwich. **[ABW500R]**



Kuhn Axis 30.2 Q88 fertiliser spreader, GPS compatible, £POA. Tel: 028 37 548971. Co.Tyrone. **[CW128]**

TO ADVERTISE HERE
FREE!
SEE DETAILS AT THE
END OF THE SECTION

LOADS OF MACHINERY FOR SALE IN FMJ'S

LOADERS & ATTACHMENTS



Fleming HD6 transport box, heavy duty, tipping 6 feet wide, 5mm plate, as new condition, £695. Tel: 079681 78264. Cornwall. [CDW105R]



JCB grain bucket, 2.6m x 4M3, Q fit, £1,750. Tel: 07970 628006. Staffordshire. [CW117]



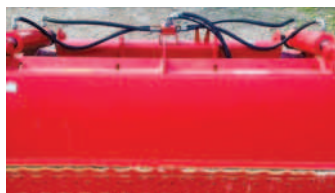
Snow V blade, 3 point linkage, in tidy order, £675. Tel: 07831 541937. Mid Wales. [BCW75R]



JCB 2.1m bucket (Tool Carrier) £995. Tel: 07970 628006. Staffordshire. [CW118]



Bucket, 4-in-1, heavy duty Muir Hill brackets, no leaks, £450. Tel: 07980 823381. Warwick. [CDP9R]



Redrock 180/85 shear bucket, 2019, 5'10" wide, 1.25m3 capacity, 85cm opening, twin ram, serrated blade, 1/2 inch hoses, Euro 8 brackets, hardly used and in very good condition, £3,595 + VAT. Tel: 07760 236534. Somerset. [CW125]



Genuine JCB 5ft ditching bucket, with pins, very good condition, fits 3CX, 8060, £300. Tel: 07774 428853. Tamworth. [ABW75R]

MISCELLANEOUS



Mengele SH40N forager, almost new blade, shear bar just turned, belt, paddle tips, belly band and spout liner excellent, bearings and bushes replaced on header, never spent a night outside, will go straight to work, PUH and bogie, £8,500 ono. Tel: 07854 007328. Shropshire. [CDW61R]



Barth K170 land drainage trencher, good working condition, 300hp DAF engine, 8" digging chain, 2m digging depth, contact Phil for more info, EPOA. Tel: 07970 200492. South Shropshire. [CDW21R]



Komatsu PC50U 5t digger, rubber tracks and blade, Q-hitch and digging/ditching buckets, low hrs, tidy ex-UK machine, £11,500. Tel: 07718 367214. N. Ireland. [CDW83R]



New Holland 213 skid-steer, 2014, 980 hours. Tel: 07976 702858. Powys. [CDW93R]



Thwaites skip loader dumper, 4x4, 1t, £5,000 no VAT. Tel: 07766 216100. Norwich, Norfolk. [BCW90R]



Takeuchi TB016 excavator, 3,749hrs, x5 buckets, trailer, £9,500 + VAT. Tel: 01603 712222. Norwich. [BCW88R]



Kubota KX015-4 mini excavator, 2013, 2,141 hours, £10,800 + VAT. Tel: 01603 712222. Norwich. [BCW89R]



Nissan 350 mini digger, with steel tracks and blade, digging and ditching buckets, tidy and original ex UK machine, £7,900. Tel: 07710 372 273. N Ireland. [CDW81R]



Daewoo 1.5t mini digger, c/w 3 buckets, rubber tracks and blade, with 2,800 hours, £8,750. Tel: 07718 367214. N. Ireland. [CDW84R]



Kubota KX161-2 digger, 2001, with rubber tracks and blade, Q hitch and 3 buckets, 6,500 hours, good tidy and original, ex-UK machine. £12,900. Tel: 07710 372 273. [CDW82R]



Land Rover Defender 90 TD5, show car, 2003 rebuild, £24,000 + VAT. Tel: 01603 712222. Norwich. [CDW13R]

**TO ADVERTISE HERE FREE
SEE DETAILS AT THE END
OF THE SECTION**



Land Rover Defender 110, 2007, D/C, P/UP County TDCi, MOT July 2022, 107,000 miles, chassis wax oiled, very good condition, service history, drives well, £22,000 no VAT. Tel: 07773 480324. Kendal, Cumbria **[CDP4R]**



Mitsubishi L200 Trojan, 66,588 miles, very tidy, 2014, comes with FSH including a cam belt change, recent MOT, excellent tyres, leather seats, canopy, tow pack and load liner, last owner for 6 years, EPOA. Tel: 07740 683113. Gloucestershire. **[CDW14R]**



Iveco Hi-top panel van, twin rear wheel, looks and drives superbly, has had very little use last 2 1/2 years, 150hp, ply lined, fitted bulk head, tachograph, cup holders, power windows, cloth seats, central locking c/w alarm, power steering, side door, radio/CD, Iveco tool kit and spare wheel, 79,600 miles, £6,250 no VAT. Tel: 07970 919666. Totnes, Devon. **[CDW23R]**



Kioti K9 Mechtron 2400 UTV, new, power steering, full cab, £17,450. Tel: 07831 470379. Dorset. **[CW110]**



Lombardini diesel water pump, 2 inch, electric start, complete with delivery and suction hoses, new starter motor cost £90 complete with battery, good working order, £300. Tel: 07817 358738. South Wales. **[CDW63R]**



Ingersoll Rand 7/20 compressor, 2015, 236 hours, £3,500. Tel: 01603 712222. Norwich. **[CDW122R]**



Fuel bowser, 10,000 litres, engine pump, super singles, £14,000. Tel: 07974 312002. Shropshire. **[BCW101R]**



Water bowser, in excellent condition, complete with LED lights and hose, £550 ono. Tel: 01327 361531. Northampton. **[BCP12R]**



Heading tanks and bowser, bundled steel diesel tank, 4,500 litres, excellent condition, EPOA. Tel: 07885 540223. Nottinghamshire. **[BCW82R]**



Claas Ru 600 maize header, is in very nice condition, EPOA. Tel: 07976 702858. Powys. **[BCW47R]**



Claas 520 whole crop header, in nice condition, EPOA. Tel: 07976 702858. Powys. **[BCW48R]**



McConnel saw bench, little used, £1,750 + VAT. Tel: 07831 665757. **[BCW5R]**



Ifor Williams canopy, for Nissan Navara 2016-2019, good condition, £250 ono. Tel: 07796 990286. Chippenham. **[BCW7R]**



Heavy duty alloy ramps, 10t rated, 4m long, as new, £650. Tel: 07968 178264. Cornwall. **[CDW104R]**

Laboratory testing of oil sump oil samples - can warn of many asymptomatic breakdowns before they happen. Only you get the report. Useful information before completing purchase of second hand machine. Contact oiltest@weyode.com **[JK]**

MOWERS & TOPPERS



Taarup Kverneland 3128 disc mower conditioner, £3,250. Tel: 01603 712222. Norwich. **[CDW123R]**



McConnel flail toppler, 2.4m c/w roller, push pull, hyd side shift, EPOA. Tel: 07970 628006. Staffordshire. **[CW115]**



John Deere 1350 mower & grouper, with transport ram, runs well, checked over, off small local farm, £4,250. Tel: 07718 367 212. **[ABW121R]**



Lely 320 mower conditioner, 2018, £4,750. Tel: 07970 628006. Staffordshire. **[CW112]**

**TO ADVERTISE HERE
FREE SEE DETAILS
AT THE END OF
THE SECTION**

LOADS OF MACHINERY FOR SALE IN FMJ'S

MUCK & SLURRY



Redrock 850 tanker and rain gun, on Russian tyres, hydraulic change over on pump, extra fill valve with twin side fill points, wash down gate valve, in very good condition, £6,500. Tel: 07710 372 273. **[ABW122R]**



Bunning Lowlander manure spreader, 150HD, 2015, £24,750. Tel: 01524 732370. Lancashire. **[CW103]**

PLOUGHS



Kuhn 5-furrow plough, 2015, with new points and boards, VGC, hyd front furrow, rear discs, £8,800. Tel: 07980 823381. Warwick. **[CDP11R]**



Kuhn plough, 5-furrow reversible new points, £2,950 + VAT. Tel: 07976 702858. Powys. **[BCW107]**



John Deere plough, 3-furrow, £450, for more info call. Tel: 07768 662419 or 07768 662419. Northumberland. **[ABW2R]**



Pottinger 455 Plus plough, ex-demo, five-furrow vari, £22,000. Tel: 01603 712222. Norwich. **[BCW96R]**



Lemken reversible plough, breaking or for sale as repairs, 3-furrow, been stripped of right hand side, all metal on left hand side is in excellent condition, frame very good too, on (WS21B) bodies. Tel: 07927 386435. Northants. **[BCW70R]**



Kuhn Vari-Master 153 plough, 6-furrow auto reset, 2013, £13,750. Tel: 01524 732370. Lancashire. **[CW104]**

**TO ADVERTISE HERE FREE
SEE DETAILS AT THE END
OF THE SECTION**

RAKES AND TEDDERS

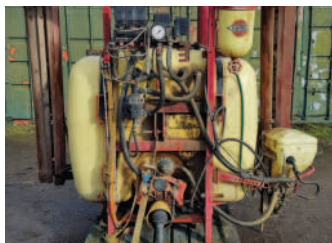


Kuhn GF582 tedder, 2012, six small rotors, has had very little use, £4,750. Tel: 07774 112211. Gloucestershire. **[BCW42R]**



Kverneland 8555 tedder, 4-rotor, 2017, demo condition, due in, £POA. Tel: 07970 628006. Staffordshire. **[CW113]**

SPRAYERS



Hardi 12m sprayer, 1,000 litre tank, induction hopper and wash, electric pressure and controls, hydraulic height and fold, no test. £1,250 ono. Tel: 01474 852669. Sevenoaks. **[BCW79R]**

TRAILERS



JPM 28ft low loader, flip over ramps, 19t, 2021, £15,000. Tel 01603 712222. Norfolk. **[ABW107]**



Commercial trailer, 14ft 6in bed, heavy duty winch, heavy duty ramps, LED lights, tubeless tyres, 175R 14C spare wheel, ball hitch. Tel: 01945 773183. Cambs. **[CDP22R]**



Bailey bale trailer, 24ft, 2016, c/w front and rear raves, due in, £POA. Tel: 07970 628006. Staffordshire. **[CW114]**



Ifor Williams GX 106 plant trailer, full back good condition. Tel: 07976 702858. Powys. **[CDW95R]**



Dunbar low loader trailer, used, approx 24ft long, carry around 15-18t, 10 stud high speed tri axles with twin wheels, air suspension, air brakes, fixed drawbar, good floor, road lights, sprung ramps, nice high spec trailer, £6,500 + VAT. Tel: 07760 236534. Somerset. **[CW122]**

FANTASTIC FREE CLASSIFIED AD SECTION



Frazier F92 grain trailer, good condition, £2,500. Tel: 07563 634657. Cheshire. **[CDW120R]**



Gull 10t trailer, auto gate, grain chute, £3,900. Tel: 01603 712222. Norwich. **[BCW93R]**



AS Marston Ace trailer, 14t, comes with hydraulic brakes and super singles, £3,200 + VAT. Tel: 01603 712222. Norwich. **[BCW91R]**



JPM multi-purpose trailer, 14t, c/w ramps, call for more, £POA. Tel: 07976 702858. Powys. **[BCW105R]**



Crane trailer, 25ft, single axle, Hiab crane trailer, very solid, crane works well, PTO pump. £4,000 + VAT. Tel: 07956 012002. Ludlow. **[BCW38R]**



Ifor William's trailer, 5' x 8' twin wheels, will carry two ton, spare wheel bolster, in excellent condition, £950. Tel: 07801 844175. East Sussex. **[BCW102R]**



Agri Hire grain trailer, 14t, nice condition, ROR HD axles, nice tyres, £POA. Tel: 07831 158848. Cambridgeshire. **[CW106]**

TYRES & WHEELS



Pair of John Deere wheels, 5620-70-R42, £600. Tel: 07970 628006. Staffordshire. **[CW121]**



Tyres and wheels, 18.4/15 26, in very good condition, off a little used tanker, 8 stub, 80% tread, Alliance, £700. Tel: 07980 823381. Warwick. **[CDP8R]**



Set of x4 Good Year wheels, 54 x 31.00 - 26, £1,000. Tel: 07970 628006. Staffordshire. **[CW119]**



x4 tyres available, £65 each, collection from BS36, near Bristol. Tel: 01454 778374. **[BCW100R]**



Pair of Case Magnum wheels, 710-70R x 42, £2,000. Tel: 07970 628006. Staffordshire. **[CW120]**

Two tyres on rims, 12-5/80-18, very good condition, £50. Tel: 07706 922705. Doncaster **[C]**

VEGETATION MAINTENANCE



Two 315 hedge trimmer, used, 3 point linkage mounted, cable control, good flails, good rams, suit smaller tractor, good working order, £3,995 + VAT. Tel: 07760 236534. Somerset. **[CW124]**



Spearhead Twiga 836T Orbital cutter, cuts LH or RH, £10,900. Tel: 028 37 548971. Co.Tyrone. **[CW130]**



Spearhead 65X Twiga Classic hedge cutter, 2018, demo condition, due in, £POA. Tel: 07970 628006. Staffordshire. **[CW116]**



McConnel PA5600 cutter, RH cut, 65hp motor/pump with oil cooler, £9,500. Tel: 028 37 548971. Co.Tyrone. **[CW131]**



Kuhn G II 5757 hedge cutter, with forward cranked arm, hyd roller, new, £POA. Tel: 028 37 548971. Co.Tyrone. **[CW129]**

THE NEXT ISSUE OF

FMJ
ON SALE
11 MARCH

LOADS OF MACHINERY FOR SALE IN FMJ'S

FREE MACHINERY ADVERTS!!!

With a readership of owners and operators of modern farm machinery, there's no better place to advertise than the Farm Machinery Trader pages in *Farm Machinery Journal*. Trade and private machinery adverts are **FREE** and you can also have a **FREE** picture!

Complete the form below and post it to us with your photograph, email your advertisement to **classifieds@farmmachineryjournal.co.uk** or place your advert online at **www.farmmachineryjournal.co.uk**

If required, your photo (JPEG or PDF) should be sent as an attachment to your email message. In addition to the wording required, please provide your full name and address (not for publication).



FREE FARM MACHINERY FOR SALE CLASSIFIED FORM

Advertise your farm machinery for sale in *Farm Machinery Journal* for **FREE!**

We'll include a **FREE** photo too. Advertising is easy, but hurry to catch the earliest possible issue.

- **Post** the coupon and enclose your photo to: Advertisement Dept, **FMJ**, 17 Wickham Road, Beckenham, Kent, BR3 5JS, England.
- **Email** to **classifieds@farmmachineryjournal.co.uk**. Remember to include your full name and address details. Pictures can be sent as a JPEG or PDF.
- **Online** Place your advert online at **www.farmmachineryjournal.co.uk**

FREE ADVERTISING CONDITIONS

Your name and address **must** be provided, but will not appear in the advert unless you request it. Advertisement wording can be sent on a separate sheet or photocopy of the form if you do not want to cut your magazine.

I wish to place the following advertisement in the next 1 ☐ or 2 ☐ issues of **FMJ**

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Tel no. Town

Sundial Magazines (publisher of *Farm Machinery Journal*) would like to keep you updated about the latest offers, products and services. To receive these please tick the box. ☐ Private ☐ Trade ☐

The publisher cannot accept any responsibility for the quality of machinery advertised in *Farm Machinery Journal* or for failure in payment, etc. Contracts are between the individuals concerned and no liability can be attached to Sundial Magazines or its officers. Particular attention should be paid by advertisers to the requirements of the Trade Descriptions Act 1968 governing trade descriptions, especially when detailing accurate descriptions of goods offered for sale. The Business Advertisements (Disclosure) Order 1977 requires all advertisements by people who sell goods in the course of a business to make that fact clear. The responsibility for this lies with the advertiser. It is a further legal requirement that when VAT is to be charged, it is made clear whether VAT is included in the price shown or not.

World of Farm Machinery

A unique remote-control replica of a John Deere 9RX at work in the Czech Republic



This incredibly lifelike replica of a John Deere 9620RX is the result of two years' work by Roman Hanel in the Czech Republic. The remote-control model started life as a child's toy by Bruder, into which Roman added the components required to make the 9RX fully drivable and with the same features as its real-life counterpart. It is 52cm long, 20cm wide and 28cm high. It weighs 3kg and can tow a 20kg load on flat ground or a 6kg load over rough terrain.

The drive is provided by four motors with gearboxes, one for each drive wheel, which are housed in steel tubes. The speed is controlled by two speed controllers – one for the left side, one for the right side, which offers the differential effect and allows turning.

A sound module replicates the sound of the engine, while lighting is identical to a real 9RX with 24 working lights, running lights, brake lights and turn signals. In total there are eight metres of wires, almost 70 LEDs, with power from a 12v battery.

Email us your pics

For a chance to see your machinery photos on this page, send a high-res photo to peter@farmmachineryjournal.co.uk. Please include a brief description of the machine, where the photo was taken and the names of anyone in the picture.



OUTCAST V2 - Wider Slug Protection



- 36m application
- Fits to all sprayers
- Hydraulic fan
- In cab control
- Front rear or side mounting
- Headland control

T: 01353 862044 E: info@techneat.co.uk W: www.techneat.co.uk

Techneat
engineering ltd



RG655D
2017, 2911 Hrs,
2+2 Dual Select Nozzles
36m Boom Width, 6,000 l
£132,000.00



MT755B
2006, 11880 Hrs, 320 HP
Speed: 40Km/h
Track: 25 Track %: 30
£38,750.00



MT765B
2008, 10000 Hrs,
Speed: 40Km/h
Track: 25
£41,950.00



MT765E
2015, 8279 Hrs, 380 HP
Speed: 40Km/h
Track: 25 Track %: 50
£71,250.00



MT775E
2018, 4000 Hrs, 400 HP
Speed: 40Km/h
Track: 30 Track %: 50
£118,000.00



MT775E
2015, 5638 Hrs, 439 HP
Speed: 40Km/h
Track: 25 Track %: 90
£110,000.00



211
2017, 2290 Hrs, 110 HP
Tyres: 340/65R18 (90%)
420/70R28 (90%)
£57,500.00



516
2020, 496 Hrs, 160 HP
Profiplus, Vario S4,
Telemetry Ready
£112,500.00



516 & LOADER
2020, 1480 Hrs, 160 HP
Tyres: 540/65R28 (80%)
650/65R38 (80%)
£97,500.00



724
2018, 3950 Hrs, 240 HP
Tyres: 600/65R28 (40%)
710/70R38 (40%)
£112,500.00



942
2021, 1097 Hrs, 420 HP
Tyres: 650/60R38
750/70R44
£237,500.00



MT943
2018, 1513 Hrs, 440 HP
Speed: 40Km/h
Track: 30 Track %: 90
£228,000.00



MF 1740M
40 HP, ROPS
26X10.50-12 TURF TYRES
13.6-16 TURF TYRES
£22,950.00



MF 7724
2017, 4732 Hrs, 250 HP
Tyres: 540/65R30 (65%)
650/65R42 (65%)
£74,750.00



MF 7726 EXD6
2018, 4770 Hrs, 280 HP
Tyres: 600/65R28 (40%)
710/65R38 (60%)
£76,500.00



MF 8737 EXDV
2016, 3045 Hrs, 370 HP
Tyres: 600/65R34 (50%)
710/75R42 (60%)
£95,000.00



MF 8740 S EXDV
2018, 2637 Hrs, 400 HP
Tyres: 620/75R30 (100%)
710/75R42 (100%)
£143,500.00



MF 8S.205 EXDE
2021, 800 Hrs, 205 HP
Tyres: 540/65R30 (80%)
650/65R42 (80%)
£118,000.00



N174D ST
2020, 226 Hrs, 165 HP
Tyres: 540/65R28 (100%)
650/65R38 (100%)
£92,250.00



N174V
2020, 675 Hrs, 180 HP
Tyres: 540/65R28 (95%)
650/60R38 (95%)
£158,202.00



N174V
2017, 2708 Hrs, 175 HP
Tyres: 540/65R28 (40%)
650/65R38 (60%)
£69,850.00



T174EA
2018, 3651 Hrs, 185 HP
Tyres: 540/65R28 (40%)
650/65R38 (40%)
£64,950.00



T214V ST
2019, 4192 Hrs, 210 HP
Tyres: 600/65R28 (40%)
650/75R38 (50%)
£69,950.00



T214V ST
2020, 207 Hrs, 215 HP
Tyres: 600/65R28 (100%)
650/65R42 (100%)
£117,500.00



MERLO 42.7-156
Year: 2015, 4525 Hrs
7m Reach, 4200kg lift
460/70R24 (40%)
£41,250.00



MANITOU MLA T533
2018, 644 Hrs, 143 HP
M-Vario Hydro CVT
Transmission
£65,650.00



MANITOU MLT 634
2014, 4902 Hrs
6m Reach,
3400kg Lift
£35,000.00



MANITOU MLT 634 PS
2016, 2704 Hrs, 120 HP
3500 Kg Lift
Tyres: 460/70R24 (100%)
£45,000.00



MF TH.7038
Year: 2017, 1573 Hrs
Tyres: 500/70R24
Micheline 90%
£56,000.00



MF TH.7038
Year: 2017, 1615 Hrs
Tyres: 500/70 R24
Micheline 60%
£46,000.00



FORD RANGER
2018 (18) 3.2 Wildtrack
Auto Double Cab
61,446 Miles
£26,290.00 (NO VAT)



FORD RANGER
2018 (18) 2.2 Limited
Auto Double Cab
21,400 Miles
£23,290.00



ISUZU D-MAX
2016 (66) 1.9 UTAH
Auto Double Cab
42,263 Miles
£22,990.00 (NO VAT)



MITSUBISHI L200
2018 (18) 2.4 Warrior
Auto Double Cab
74,917 Miles
£18,990.00



VW AMAROK
2013 (63) 2.0 Highline
Auto Double Cab
69,079 Miles
£19,890.00 (NO VAT)

Errors and omissions excepted. All prices +VAT

AG SALES ; Graham Peall: 07970 121109 / Andrew Elms: 07860 464753
USED PICK-UP TRUCKS ; Richard Young / Adam Swales: 01476 590077



SCAN ME

Scan from your mobile for
our latest used stock.



McHale

SQUARE
BALE
WRAPPER



CALL TODAY

Finance*
& Special
Offers
Available



*Offer Available in Mainland U.K. Only.
Terms and Conditions Apply.
For Full Details Contact McHale.

998 | HIGH SPEED

35%
More Output
Over a
Standard 998**

**Based On Field Test Conducted in 2017

AS STANDARD



Load Sensing
Hydraulics

AS STANDARD



Fast Loading
Conveyor

AS STANDARD



Patented Bale
Rotation

- + Patented Oscillating Rollers for Even Wrap Application
- + 2 X 750mm High Speed Dispensers
- + Automatic Bale Leveling
- + In Cab Control Console



CALL TODAY



①

Scotland & Northern England
Gary McConnell
07796 148 769

②

Midlands / Wales & Southern England
Kieran Hughes
07850 373 145



McHale Superior Forage Solutions



www.mchale.net