THE CASE IH MAGAZINE

NEWS • INSIGHT • ON FARM

WINTER 2016/2017

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THE LUXXUM SERIES. HARD WORK HAS NEVER BEEN SO EASY

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FACING YOUR CHALLENGES

Dear Reader

Welcome to your new-look FarmForum magazine. In it we will bring you all the latest news from Case IH, together with insights into our work behind the scenes to bring you the best machines and products for your farming enterprise. Equally important, we look at how they are being used by our customers on farms across Europe.

You won't be surprised to see that our cover story is the new exciting Autonomous Concept Vehicle. Its unveiling in the USA prompted a huge amount of interest from around the world, and no doubt you will have seen it in the press and online. It is a great example of how we are exploring new technologies to help our customers obtain greater operational efficiencies and overcome shortages of skilled labour. In this issue we look at it in detail, and meet one of the senior designers involved in creating it and other Case IH machines.

Livestock and mixed farmers are very important markets for us. For them, we have recently launched two new tractors: Luxxum and the latest version of the Maxxum – and a new baler range. Both tractors bring capabilities and technologies that you would normally only expect to see in much larger machines.

For the arable farmer we have introduced the Optum and the Magnum Rowtrac. Both attracted a lot of interest – and quite a few awards, so it's great to see how some of the first users, in the Netherlands and Denmark, have been finding them.

We are well aware that farmers around Europe, the Middle East and Africa face a lot of challenges. We look at how we have been able to support them, whether it is dealing with soil compaction in Eastern Europe, tight fieldwork time windows in Bavaria or managing a 53,000 hectare farming operation in the UK.

I hope you are tackling your own challenges successfully, and enjoy this FarmForum.

Paul Harrison
Business Director - UK & ROI

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AUTONOMOUS TRACTOR CONCEPT OFFERS GLIMPSE INTO THE FUTURE

Case IH wowed the crowds at the US Farm Progress Show in Iowa, USA, back in late August, with the unveiling of a Magnum with a difference. From the futuristic styling to the absence of a cab, it was clear this was no ordinary tractor.

Relief from long hours in the tractor seat, better use of labour, integration into fleets of standard machines, and the flexibility to work unmanned around the clock – plus even the intelligence to adapt to weather events. That's what Case IH autonomous tractor technology could bring to world agriculture, following its public premiere at the 2016 Farm Progress Show.

While precision farming and machine automation are already taking on ever-greater importance in order to meet the need for more efficient, economic and environmentally-friendly agriculture, at key times of the year farm work still demands long hours in the field – particularly when harvesting a crop, or planting the next one. And sourcing staff sufficiently qualified and prepared to put those hours in is becoming ever more difficult, while alleviating existing operators of some of the need for extremely long days enables them to put their skills to better use, and enjoy more sociable working hours, thereby helping to support the industry and its existing labour force. In short, says Andreas Klauser, Case IH Brand President, the autonomous development is about improving conditions for the industry's existing labour force, including both farmers/contractors themselves and their employees.

"In many parts of the world, finding skilled labour during peak seasons is a constant challenge for our customers," notes Mr Klauser.

"While today we offer auto-steering and telematics on our equipment for remote management of farm machinery and staff, our autonomous tractor concept demonstrates how our customers and their employees could both monitor and control machines directly, yet remotely. That means greater operating efficiency for common arable field tasks such as tillage, planting, spraying and harvesting."

With autonomous road vehicles – such as a version of the Stralis truck from Case IH sister brand Iveco – already well under development, the Case IH autonomous tractor concept was created to validate agricultural applications for the technology involved through real-world in-field testing, and to collect feedback from customers on their interest in the future development of autonomous products for their operations.

"It's very exciting for us to explore the possibilities that this technology can provide to our customers, and we've been eager to get their input regarding this concept and how it could help them achieve new production efficiencies," says Mr Klauser.

Working with CNH Industrial's Innovation Group, Case IH based the autonomous concept on an existing Case IH Magnum tractor, which retains its conventional engine, transmission, chassis and implement couplings. However, it was the subject of a complete restyling exercise to account for its new role as a driverless – and therefore cabless – tractor, resulting in a sleek new design. And while the concept vehicle was created from a high-horsepower Magnum, the technology could equally be incorporated into smaller tractors for tasks with a lower power requirement. Case IH will also be closely following regulation developments, both on and off road, as this could impact future consideration for development and

Case IH's proud management team pose with the ACV at its launch in the USA. They are (from the left) Rob Zemenchik, Monte Weller, Andreas Klauser, Christian Huber and Eric Shuman.

application.
The tractor's automatic guidance capability centres around the use of RTK GPS for guidance down to 2.5cm accuracy levels, plus a fully interactive interface which can be used on an office PC or a tablet computer, providing the ability to programme in implement widths and create machine paths for the most efficient operation. It also provides remote monitoring of pre-programmed operations, while also allowing supervision of the tractor's activities and remote adjustments to be made where necessary, plus immediate field and machine data recording and transfer via telemetry.

The process of operating the tractor begins with the use of a desktop or laptop computer to plot the machine's most efficient field paths – autonomous technology is most suited to jobs that make this possible, such as cultivation, planting, spraying and mowing. Manual path plotting can also be carried out for refuelling or when custom paths are required. The operator can choose a job from a pre-programmed menu by simply selecting the vehicle, choosing the field and then setting the tractor out on its task, the whole sequence taking little more than 30 seconds. And where fields are accessible via negotiable private roads or tracks, the route to them can also be pre-programmed.

Thereafter, the machine can be monitored and controlled via a tablet computer, on which the operating software displays three screens. A path-plotting screen shows the tractor's progress, another shows the camera feed from it, providing the user with the same view as the vehicle, while a further screen enables monitoring and modification of key machine and implement parameters, such as engine speed, fuel levels and implement data – seeding rate, for example.
The autonomous Case IH Magnum incorporates a complete safety package from technology provider ASI that uses the latest infra-red, metal detection, radar, lidar (laser-based) and video camera techniques to sense stationary or moving obstacles. These halt the machine immediately should an obstacle be detected and notifies the operator through audio and visual alerts on the operating tablet computer. The tractor only moves off again once the operator assigns a new path or instructs the machine to carry on, or the object has moved.

This not only ensures the safety of anybody or anything which comes within distance of the machine, but also guarantees continuous, trouble-free, efficient operation. Any loss of GPS signal causes the autonomous vehicle to stop automatically for safety reasons, while stop button on the control interface can be used manually for the same purpose. There is also the possibility for the tractor to use 'big data' such as weather records to make best use of ideal conditions by operating regardless of the time of day, and stopping automatically should it become clear changeable weather is going to cause a problem, before recommencing work when conditions have sufficiently improved. Alternatively, if on private roads it can be sent to another field destination where conditions are better – soils are lighter or there has been no rain, for example. In addition to monitoring via tablet, the tractor can also be visually monitored by the operator of another manned machine. As an example, from his seat a combine operator can monitor the progress and performance of an autonomous tractor/seeder combination working in the same field, or control a grain cart tractor to fully automate shuttling between combine and truck. As such, autonomous tractors can form part of an existing farm fleet, with no requirement for any other changes or investment. Alternatively, multiple autonomous tractors can be put to work in one field or separate fields, on the same tasks or consecutive ones – such as cultivation and seeding.

While the Case IH autonomous tractor is currently a concept machine, and no production date has been set, the technology it incorporates is relevant and ready for real-world situations. And because it can be integrated seamlessly into current farm equipment systems, no other changes to a business or its assets are necessary.
Autonomous tractor operation is suited both to owner-operator situations, where it could allow a person working with no employees to operate two tractors, or to the very largest businesses where finding suitable labour is increasingly becoming a challenge.

Although the autonomous vehicle is presently considered only as a concept tractor, the technology could function just as well in a standard cabbed tractor, where it could use real-time weather and satellite data to optimally apply crop inputs such as nitrogen, herbicides, or fungicides. Prior to the concept's unveiling, company executives presented a video demonstration of the tractor cultivating and planting in the United States earlier this summer. Although the autonomous concept vehicle was developed in the form of a cabless tractor, combines and other equipment could operate on the same technology.

To watch a video detailing the concept tractor's capabilities, visit the Case IH Europe YouTube channel: https://www.youtube.com/watch?v=MwC_Hzm5Z9s .

NEW LUXXUM RANGE BRINGS PREMIUM SPEC TO SMALLER TRACTORS

A new challenger in the premium tractor class around 100hp, the recently-launched Luxxum range incorporates numerous new details aimed at meeting the efficiency demands made by modern livestock, mixed and arable farms.

Mid-range tractors with maximum specification levels – that neatly describes the new Luxxum tractor range. Spanning 99-117hp, the Luxxum models introduce a number of new features designed for a power bracket that has to cater for almost every type and size of farm. They include automatic gearshift, the Multicontroller armrest with integrated loader joystick and cab, and front axle suspension – in short, everything that's needed to make jobs faster, easier and more comfortable to complete. The new Luxxum models are designed to handle a whole spectrum of tasks, from simple everyday jobs to those normally reserved for much larger tractors. A compact frame means these machines are highly manoeuvrable, making them easy to handle in confined spaces, around sheds and yards or at headlands, while a strong chassis and axles mean they also can handle the stresses and strains of working with almost any implement, whether trailed, mounted or in the form of a front loader. Excellent visibility is provided in every direction, complemented by a high-view roof that provides an unrestricted view for front loader work at full height. Combined with the new front axle suspension, stronger front axle and uprated automatic gearshift transmission with power shuttle, the Luxxum fits in to any size of farm business.

A TRANSMISSION DESIGNED FOR PRODUCTIVITY

The centrepiece of the new tractors is a new automatic gearshift transmission, standard on all models. Providing 32 speeds in both forwards and reverse, it features four power shift steps and eight ranges, and can be set to shift progressively both up and down the ratios according to the engine rpm, without any input from the operator. For field work, the transmission can be set to shift automatically through the 16 speeds in the two lower ranges, while on the road it's possible to move smoothly through the two upper ranges all the way from gear 17 through to 32. This can be done via a single press of a button on the armrest for full automation, or manually via easy-to-identify buttons on the rear of the Multicontroller joystick. Maximum travel speed of 40kph is achieved at just 1,730rpm, resulting in excellent fuel efficiency. For fine-tuning, shift points can be set using the split throttle, while in auto mode downhill safety is assured by the ability to use the forward shuttle button to manually override upshifts. The new transmission package is completed by a

steering column-mounted power shuttle, incorporating three response levels that can be altered to speed up or slow down the change in direction. It's also possible to program the forward/reverse gear selection to set the speed difference between the two directions.

UNSURPASSED COMFORT LEVELS

Providing 80mm of movement, the front axle suspension system on new Luxxum tractors is the same well-proven arrangement that features on Case IH Maxxum tractors, with damping controlled via an advanced accumulator and regenerative valve system for a super-smooth ride and automatic self-levelling. It also provides the ability to raise or lower the height of the tractor's front-end via a console-mounted switch, a feature which can be used as an aid to increase traction in the field and improve stability and comfort on the road. Luxxum front axles have been strengthened to increase total payload capacity to 8,000kg, aiding these tractors' ability to handle heavy implements and loader work. Coupled with the option to fit tyres of up to 28" diameter on the front rims, the result is the elimination of the 'nodding' motion that can occur when braking, decelerating or making directional changes. And all this comes at no detriment to the Luxxum's tight 4.8m turning radius, making these tractors as manoeuvrable as they are comfortable.

HIGH PERFORMANCE IN A COMPACT PACKAGE

Standard 80 or optional 100 litres/min closed-centre load-sensing hydraulic systems mean these tractors are built for heavyweight handling, and with the perfectly-matched line of Case IH LRZ loaders they can shift up to 2,800kg to a height of up to 4.05m, depending on model. The ultimate in control comfort is afforded by the loader joystick that's integrated into the Multicontroller armrest. It incorporates transmission buttons that allow declutching and changing of the power shift steps, making control almost effortless. Part of the Luxxum development process involved consulting the views of customers around the globe and asking them what they would like to see in a tractor of this type. High on the list was the Multicontroller armrest, proven across high-horsepower Case IH tractor ranges. Developed and optimised to suit the practical requirements of farm businesses demanding a tractor of the size and specification of the Luxxum, the result is that the key operating elements of the tractor are grouped together in a simple, easily-understandable and intuitive manner. The full Multicontroller armrest puts multiple operating controls in the palm of the operator's hand via the Multicontroller joystick and the separate hydraulic services joystick for loader operation. This means almost every tractor function is fingertip-operated, from gear selection and shuttling, to hydraulic outlet and loader operation. There's also a split throttle for Eco/Power Mode settings, plus rear linkage controls. Repetitive operations are made as simple as possible, and the result is a machine that leaves its operator as fresh when leaving the cab as when entering it.

The Luxxum range comprises three models, with power ratings of 99, 107 and 117hp from new engines which comply with Stage IV emissions legislation courtesy of Case IH's engine partner, FPT Industrial. With the patented Hi-eSCR-only exhaust gas treatment system, the 3.4-litre engines deliver robust performance and plenty of torque, coupled with efficient use of fuel and diesel exhaust fluid (DEF/AdBlue). Diesel and DEF tanks hold 150 and 14 litres respectively and, combined with excellent fuel efficiency, this means Luxxum tractors can work long days before requiring refuelling. Meanwhile, key service points are designed to ensure maintenance is as easy as possible, reducing time spent in the yard.

Case IH has a tradition of continuous innovation when it comes to designing tractors, and the new Luxxum holds true to this, combining high performance and reliability with cost-efficiency and a level of equipment and rugged durability that matches the same traits offered by larger models in the Case IH range. With engine power ratings in the key 100-120hp bracket, together with an increased payload and a high specification, the Luxxum is a premium tractor for those who demand more in this size of tractor – those who put in hard labour day in and day out to reap the rewards it brings. Case IH knows that the size of an enterprise bears no relation to the commitment of its owner and staff, or to the amount of hard work required to run it. Just like any larger farm, smaller and mid-sized businesses require reliable, versatile, comfortable and powerful tractors. They simply need them in a more compact format to suit their needs. And that's exactly what the new Case IH Luxxum delivers.

MULTICONTROLLER ARMREST EASES OPERATION

The new Luxxum brings the well-established benefits of the Case IH Multicontroller armrest down to a new power bracket. Proven across a range of higher-hp Case IH tractors, for the first time in a Case IH model in this class, our design engineers have incorporated the full Multicontroller functionality. The leading feature is the joystick itself, which falls easily to hand and allows operation of a number of key tractor functions at the press of a finger or thumb. These include forward/reverse shuttle, transmission control and hydraulic outlet operation.

Beyond this, the armrest also brings with it features such as a separate spool valve joystick to make hydraulic functions easy to operate, a split throttle to allow the setting of minimum and maximum engine speed settings – for use at headlands, for example – and lift/lower buttons for the rear linkage. The result is that repetitive operations are made as simple as possible, reducing operator fatigue and making working time more productive.

Also on the Multicontroller armrest is the automatic shifting button for road work. This takes up the task of shifting through the gears as the tractor progresses. Press the foot throttle and you shift progressively through both gear and range changes from a standstill right up to the tractor's top travel speed of 40kph. For fine-tuning, shift points can be set using the split throttle, while in auto mode downhill safety is assured by the ability to use the forward shuttle button to manually override upshifts.

REDESIGN RESULTS IN BETTER BALERS FOR NEXT SEASON

The new RB545 series of fixed chamber round balers has been completely revised for 2017, with a number of new features designed to make a difference to output, efficiency and serviceability. With a choice of baler-only and baler-wrapper combination models, they are ideal silage machines but can happily handle any crop.

The latest generation of fixed chamber round balers from Case IH has been introduced for the 2017 season, with the standalone 122 x 125cm RB545 and the RB545 Silage Pack wrapper combination models having been redesigned in multiple areas. They are joined by the more subtly modified 122 x 135cm RB544 Silage Pack HD. With this new line-up, Case IH now has a full range of updated fixed and variable chamber round baler models to suit the needs of every operation.

RB545 AND RB545 SILAGE PACK

At the front end, both RB545 balers now benefit from a new 220 cm wide pick-up, which already has a proven track record in Case IH variable chamber round balers. There are five tine bars equipped with 5.5mm steel tines for full and clean swath gathering without losses, while a standard swath roller helps smooth out any swath lumps and provides an even feed and flow of crop into the pick-up. Customers can choose between fixed and castor-type pick-up support wheels, with both variants easily adjustable without requiring tools. Where transport width is an issue, either type can be easily removed and refitted in a matter of seconds.

ENHANCED DRIVELINE, EFFICIENT CROP GATHERING

Engineering enhancements have boosted the driveline's load ratings, with new drive chains for both the rotor and the bale chamber also contributing here. Powerful springs, combined with two hydraulic cylinders, ensure the pick-up follows the contours of the terrain to gather all crop and prevent soil intake and ground damage.

MANUAL BLADE SELECTION FOR CUTTER ROTOR

The RB545 and the RB545 Silage Pack both have a rotor cutter with 20 knives as standard, providing a theoretical chop length of 52 mm. In-cab hydraulic operation of the standard drop floor allows any blockages to be dealt with quickly and easily, by opening to a maximum of 120mm to eject material towards the bale chamber. Special geometry creates a double opening effect, with the floor opening wider at the front when compared to the rear. The manually adjustable bank of knives provides a choice between activating two groups of ten blades separately, or engaging all 20 blades at the same time. With the two groups of ten blades, the change to a new sharp set of blades is performed in

almost no time at all using a rotary knob on the left side of the baler. As an alternative to the new standard drop floor feature, there is the option to specify a rotor de-clutch system. In the event of a blockage, this allows the bale in the chamber to be net wrapped and ejected with the pick-up and rotor disengaged, so that the blockage can then be dealt with.

NEW ROLLERS KEEP BALES ON THE MOVE

The new cold-shaped bale rollers now have ten ribs instead of the previous four, to deliver more grip and more effective bale rotation for a more uniform end result, while there is minimal gap between the individual bale rollers. A new folding knife behind the rotor cutter ensures any net that may get snagged by the rotor cannot cause a blockage.

NEW NET WRAP SYSTEM

The RB545 balers now have a duckbill system to pre-wrap netting around the bales, placing the 1.3m-wide net over the edges of the bales, preventing loss of material. This new system operates approximately 20 per cent faster, further enhancing productivity. The net rolls are easy to clamp from the side, and in addition to the roll currently in use, there is also space for two spare rolls. A new net pre-wrapping feature on the RB545 Silage Pack also uses 1.23 or 1.3m-wide net, while bales can also be pre-wrapped with 1.23-1.40m-wide plastic film to provide improved air exclusion – and therefore better quality – in silage bales that are subsequently fully wrapped. And with only the sides to be wrapped once the bale exits the chamber, total wrapping time is reduced. In keeping with pre-wrapping with netting, the edges are encompassed to prevent material losses, and there is room for two spare rolls. For greater efficiency, there are two separate storage compartments on the RB545 Silage Pack, enabling a supply of a further ten rolls of 750mm plastic film to be carried on board the unit.

CUTTING-EDGE ELECTRONICS AND SOFTWARE

ISOBUS functionality comes as standard on the new RB545 series, and the balers can be ordered with or without an AFS 700 monitor. In conjunction with the optional camera at the back of the baler, the monitor enables the driver to keep a close eye on what is happening at all times. A host of new software features aid complete visualisation of the baling and wrapping process, while a memory unit stores details of the previous 25 jobs and a diverse array of setting and diagnostic options. For non-wrapping work, where straw is being baled, for example, bales can be left in pairs by retaining one on the wrapping table until the next is ready for discharge.

EASE OF OPERATION

The ease of operation of the new RB545 series is further improved by enhancements to service access. The ladders remain mounted on the drawbar, but the platform is now connected to the cross-member of the baler. During field-work, this permits a tighter steering lock and provides additional flexibility. To improve safety and allow for compatible handling methods, a bale turner option turns each bale through a one-quarter turn as they are being set down, to ensure they cannot roll away on sloping ground. An improved system uses a wheel/tyre to gently turn bales on their ends. For on-road transport operations, it can be folded up effort-lessly. And for better soil protection, the tyres on the RB545 Silage Pack have been upgraded to larger 560/45x22.5 units.

RB544 SILAGE PACK HD: ENHANCED AND IMPROVED

While it hasn't been subject to the same sort of complete makeover as the RB545 and RB545 Silage Pack balers, the RB544 Silage Pack HD round baler has also received interesting new updates for 2017, with a redesign of the area at the rear of the pick-up helping prevent bottlenecks in thick crops, aided by wider gaps between the pick-up tines. A substantial improvement in efficiency also results from faster transfer of the bale from the chamber to the wrapping table, a process which now takes only four seconds, theoretically increasing out-put by up to five per cent. A new sensor on the transfer table also provides improved detection of wrapped bales, preventing possible wrap damage.

MAGNUM IS CHAMPION, SAYS PROFI

Profi magazine was highly impressed with the Magnum 380 CVX in its German August issue, calling it the 'Field Champion'. Its detailed test, conducted by the highly respected DLG organisation, declared its 255 kW pulling power as the highest they have ever seen on a conventional tractor. Also praised was the CVX transmission, hydraulics (282 l/min), three cruise speeds and cab comfort.

The Magnum also broke the record for fuel efficiency, consuming (with boost) only 252 grams of fuel per kWh of power – although this record was not to stand for long, as you can see on page 28!

CASE IH GETS 'OUT IN THE FIELD'

If you haven't seen them already, Case IH has created eight short films talking to farmers around the world about their challenges and how Case IH helps them. Titled 'Out In The Field' and hosted on YouTube, they are each around three minutes long and include dairy farming in France, growing sugar cane in Zimbabwe, soya beans in the US, maize in China and using AFS in Germany.

"Despite all the differences in farm size, crops, and culture, one thing was the same across all these customers: the pride they take in their daily work and feeding the world. This pride is hard earned. They have so many factors to juggle to bring food to the table and they do this in a very reliable way. As Case IH, we are honoured that these farmers are all using our equipment in this noble un-dertaking," said Case IH Brand President Andreas Klauser.

To see them, just search for 'Case IH Out In The Field' on YouTube

NEW LOOK, NEW FEATURES FOR MAXXUM RANGE

The Case IH Maxxum range of tractors gets a distinctive new look for next year, with fresh styling and improved roof-mounted lighting. But underneath, there are more new features set to make a difference to owners' businesses.

With the latest generation of the Maxxum series, Case IH has launched a comprehensive new model range covering the heart of the tractor market, spanning both popular engine configurations and a whole raft of specification levels, to ensure there is something to suit every buyer and every business.

The new tractors are available in three versions: Maxxum, Maxxum Multicontroller (MC) and Maxxum CVX. In each series there are four models with four-cylinder engines rated at between 115 and 145hp, with maximum outputs including pto/transport boost of 145, 155, 168 and 175hp, while in addition there are also Maxxum 150 and Maxxum 150 MC models with six-cylinder engines and a nominal power rating of 145hp (179hp with boost). The two six-cylinder tractors were the first to hit the market in July 2016; all other models will be fully available by the end of the first quarter of 2017.

FRESH AND DYNAMIC DESIGN – AND MUCH MORE UNDERNEATH

A significant restyling exercise marks the new Maxxum out as something very different from its predecessor, with a new shape that extends from the bonnet to the cab roof. About more than just looks, this new styling incorporates practical details, including new road and work lights for excellent night vision whether travelling or in the field. The front windscreen is now a single piece unit and, combined with the high-view roof window, this delivers perfect forward visibility, particularly where the tractor is used with a front loader.

POWER TO THE GROUND

Underneath the new front-end styling, the new Maxxum remains true to the Case IH Efficient Power concept, delivering excellent fuel efficiency, low emissions and impressive economy through the use of a Hi-eSCR system that blends a diesel oxidation catalyst (DOC) with selective catalytic reduction (SCR). The Maxxum four-cylinder models are equipped with a 4.5 litre NEF engine and the six-cylinder models with a 6.7 litre NEF engine, both manufactured by Case IH sister company FPT Industrial. These power packages comply with the Stage IV European exhaust emissions standard via the Case IH Hi-eSCR only system, and therefore do not require a diesel particulate filter, thus delivering optimum economy and performance combined with excellent fuel efficiency and full environmental compliance.

EASY ON THE OPERATOR

The interior design of the Maxxum cab is an excellent example of the Case IH philosophy: to create the most quiet and comfortable workplace possible for the driver, with the most intuitive of controls. There are good reasons why Case IH design engineers believe the Maxxum series cab is the best in its class in terms of comfort and spaciousness. Along

with an upgraded steering wheel, there is a full range of seat options, from standard through to Deluxe Comfort and Deluxe Leather versions, plus easy-to-use Case IH hallmarks such as A-pillar instrumentation and the Multicontroller armrest. And during work, Case IH features such as ISOBUS Class II on the Maxxum CVX and Class III on the HMC II headland management system greatly simplify things for the driver. But comfort also comes from external sources. A second pressure accumulator on the front axle delivers enhanced cushioning from rough terrain, improving ride comfort on the road and in the field, as well as boosting traction. Case IH cab suspension and the extended wheelbase of 2.64 metres also help here. The well-known ability for manoeuvrable Maxxum models to turn tightly remains unaffected.

POWERFUL DETAILS

There are many and varied new features on the Maxxum series which are simple in effect, including the rear mudguards. These extend over the tyres completely, and it is now also possible to fit 650/65R38 tyres. With a permitted gross weight of 9.5 tonnes, the Maxxum can also tow big heavy attachments effortlessly. The electronic vibration suppression system prohibits any see-saw motion of attachments in the rear hydraulics. Another clever detail is that the control units are now located to the left and right of the upper control arm, making them easier to access. In addition, the covers of the control units are colour-coded to make them simple to identify.

The Maxxum is the cost-effective entry-level model, equipped with up to four mechanical control units. However, the Maxxum MC and the Maxxum CVX have electrical control units and the well-proven Multicontroller armrest. All Maxxum models can be equipped with the full range of lighting options up to and including the 360° LED package, which provides daytime-quality illumination even during the hours of darkness. The Maxxum and the Maxxum MC deliver engine power efficiently to the ground, either using a 16F/16R 40km/hr or 17F/16R 50km/hr four-range semi-powershift or a 32 x 32 transmission with creeper.

The Maxxum CVX features the well-proven Case IH CVX continuously variable transmission (CVT) as standard, plus Automatic Productivity Management to manage engine speed and transmission ratio for the best blend of fuel economy and performance, and ECO Drive, a split hand throttle which allows for the setting of minimum and maximum engine speeds. New on the latest Maxxum models is an engine brake, which retards engine speed when driving downhill to protect the axle brakes. Fuel tanks hold 195 litres as standard on the Maxxum, with a 220-litre option, while Maxxum MC and Maxxum CVX tractors benefit from a standard 220-litre tank with a 230-litre option. Combined with the 39.5 litre capacity of the diesel exhaust fluid (DEF/urea) tank and the economy of the FPT engines, the result is longer spells between refuelling stops and overall greater efficiency.

AFS, HMC AND ISOBUS

The Maxxum range is able to benefit from the full features of Case IH Advanced Farming System (AFS) technology, with Maxxum MC and Maxxum CVX models being pre-equipped ex-factory for AFS AccuGuide and fitted with an AFS Pro 700 monitor. This means that, even before delivery to the customer, GPS/GLONASS guidance systems can be installed by the dealer. When combined with a locally available RTK+ signal, this delivers 2.5cm repeatable precision, and with the integrated xFill app the system can account for any signal failure for up to 20 minutes.

Maxxum tractors are also available with the Case IH HMC II headland management system, enabling repetitive end-of-field operation steps to be recorded and automated. On Maxxum CVX versions, compatible implements can be operated via ISOBUS through the AFS terminal, the tractors being fitted with an ISOBUS Class III system which not only provides on-screen implement control, but also allows compatible implements to control individual functions of the tractor, such as its forward speed, PTO speed or operation of its rear hitch, to further improve tractor/implement combination efficiency.

FULL FLEXIBILITY

All Maxxum models are available pre-equipped for front loader operation, with a new wider front loader frame and new single-section front windscreen providing excellent visibility of the attachments and the working area. The tractors' steering lock of just 43° (with 480/65 R28 front tyres) gives the Maxxum a turning radius of 5.5 metres, for an exceptionally manoeuvrable and versatile package.

THE NEW CASE IH MAXXUM:

1. Dynamic new design
2. Four- and six-cylinder alternatives at the top of the line
3. Spacious cab with single-section windscreen and high-view roof for front loader operation
4. Maximum comfort with front axle and cab suspension, plus a range of seat options
5. Ergonomically-designed Multi-controller armrest for easy operation (MC and CVX models)
6. Perfect 360° illumination with up to 16 LED worklights
7. Efficient Power: DOC plus Hi-eSCR for maximum efficiency and low fuel consumption
8. Now available with new, wider front loader frame for maximum visibility, ease of removal
9. Up to three PTO speeds
10. ISOBUS Class II – or Class III for implement-tractor control – on the Maxxum CVX
11. HMC II Headland Management for ease of operation at field ends
12. New spool valve positioning with colour-coded covers for easier identification
13. Maxxum MC and Maxxum CVX models are pre-equipped ex-factory for AFS AccuGuide, and are fitted with an AFS Pro 700 monitor

A few Magnum customers said that with the bigger tyre options they were finding it hard to reach the rear fender switches. This was fed into the design of the rear fender for the Optum, and will be used in future rear fender designs for Magnum.

CUSTOMER FEEDBACK DRIVES CASE IH DEVELOPMENTS

Behind every new range, model and update that forms part of the Case IH continuous product renewal cycle lies a structured development programme centred on determining customer demands. FarmForum finds out more about how it works.

Many people play valuable roles in the development of Case IH tractors, harvesters and equipment, from our own design, engineering and manufacturing teams to those that supply us with smaller, outsourced components. But when it comes to finding out in the field what really works and whether something should be taken forward into final production, one opinion matters above all – that of the customer. That's the basis on which the Case IH customer clinic concept is built, explains Dan Stuart, Case IH high-hp tractor product marketing manager for Europe, The Middle East and Africa. A key part of the development process, this consultation, testing and feedback-gathering exercise is at the heart of ensuring Case IH owners and users are the core contributors to advancement of our products. "But our customer clinic programme isn't just about what our customers think of our machines – it's also about assessing those made by others," explains Dan.

"At the same time we talk to owners of other machines to find out what they do and don't like, about both the products they drive and the equivalent Case IH models. Not only do we want to retain existing Case IH customers by ensuring we are meeting and exceeding their expectations, but we also want to attract new converts to Case IH products by listening to their likes and dislikes about their machines and ours."

"The customer clinic programme begins at a stage when new products or key updates are in development and need to be validated to see how they should be carried forward," explains Dan. **"**It's one of several ways of gathering information from users, but is among the most important because it brings Case IH and customers together in the field. That's invaluable, as there's no substitute for direct contact and feedback that allows us to learn exactly what users want from their machines," he says. "As a product project starts to grow and we develop the vision of where we want to get the product to, we invite customers to attend clinics and aid its development, enabling us to understand their challenges and pull in feedback and information on what the market requires. We take into account not just one country's needs, or one sector's, but what's required by different farming practices around the world. And as well as our own machines we also bring competitor products to clinic days, so we can benchmark their individual features against our own, and get customers to contrast, compare and measure whether we are competitive against other makers' models. Each tractor

development clinic also takes into account not only the design of the machine itself, but also that of the implements it's likely to be paired with," explains Dan.

"We're concerned not only with the our tractors themselves, but also with the performance of tractor and implement combinations, to ensure our models work optimally with all possible partner products. So preparation for our customer clinics involves ongoing dialogue with machinery manufacturers to understand what their own development plans entail, so we can ensure our tractors and their implements work together in the most efficient way."

Each clinic is a real-world exercise, taking place out in the field so the working environment can be fully emulated, with customers able to operate Case IH tractors and others. To ensure feedback can be provided in an unpressured and unbiased way, independent researchers are employed to gather the thoughts and judgements of those present.

"We're seeking to know what customers are seeing, thinking and feeling when they operate machines, and we want to know as much about their opinions on the products at the clinic days themselves as we do about their day-to-day experiences with the machines they operate," says Dan.

"What might seem a small detail during a short test drive of a machine can actually become a major issue for an operator who spends many hours in the seat for many days of the year. So we focus on drilling down into every detail to a very fine level, bringing in our external suppliers of components, such as switchgear and seating. In this way we ensure the operation, quality, fit and finish of components work together to give the whole machine a solid, high quality, precision feel. Written notes are used to assess and measure product development feedback, while questionnaires with marking ratings are also a part of how we invite customers to assess tractor model ranges, as they allow us to quantify feedback. We find customers are keen to give feedback on our machines, and of course we are equally keen to receive it, both good and bad. Although interviewing and information-gathering is conducted by independents, our staff are also present, so that they can listen in to give them a clear idea and understanding of what is being said. They include Case IH team members right up to senior design and platform engineers, plus supplier staff."

To ensure every possible aspect of customer requirements is covered, each clinic comprises a group of five or six customers, and a number of such events take place during the year. And it's not just European user input that's fed back to the designers and engineers at St Valentin for the Luxxum, Maxxum, Puma and Optum ranges, Racine for the Magnum or Fargo for the Steiger/Quadtrac tractors. Similar clinics take place in other worldwide markets, to ensure Case IH machine developments meet the needs of users around the globe.

"At the conclusion of each event, we will hold a debrief session among the interviewers and the Case IH staff present, and then correlate the marks given by those participating so we can analyse the results. We also assess their verbal feedback to give us a structured way of identifying their concerns. Some of these we may expect, while others can take us by surprise. But ultimately the response is the same – we can use this invaluable information to take positive action with regard to machine development, passing the feedback in a formal manner to our designers, engineers and suppliers, to enable them to respond accordingly and come up with solutions where necessary."

"The customer clinic programme is continuous, and soon after a new machine is launched we begin the process of working on developments and improvements, and presenting them to customers in this way for assessment," Dan explains. "For example, with a tractor range such as the Optum, launched only just over a year ago, we are already using customer feedback from clinics to develop and test new concepts. In addition, some developments from one range are often also applicable to other tractor ranges, either immediately or at a later date. In this way, it's the customer who is ultimately responsible for the development of the Case IH range. And that's how we aim to produce the products that help our customers progress their businesses."

FPT INDUSTRIAL KEEPS AHEAD OF ENGINE EMISSIONS RULES

Case IH benefits from having an in-house engine supplier, FPT Industrial, another of the CNH Industrial group of businesses. That means we are able to work closely at all times to ensure our machines and their engines are seamlessly integrated and designed to work together from the start. One of the biggest challenges facing FPT Industrial engineers in recent months has been trialling and developing the technology required to meet the latest Stage IV European emissions regulations, but dedicated teamwork has resulted in a solution that, in addition to being cleaner, also brings benefits to the customer.

"Although there was no requirement for a cut in particulate matter levels, Stage IV regulations required an 80% reduction in the level of nitrogen oxides (NOx) emitted in the exhaust gas when compared with Stage IIIB," explains Diego Rotti, product manager for off-road industrial engines at FPT Industrial. "For the F5C four-cylinder engine that powers the Luxxum, for example, that meant we moved from a diesel oxidation catalyst (DOC) and diesel particulate filter (DPF) combination to a DOC combined with selective catalytic reduction in the form of our maintenance-free Compact Hi-eSCR system.
"At the same time, we incorporated a second-generation 1,800 bar common rail fuel injection system, and an enhanced 16-valve cylinder head, allowing incorporation of more fresh air for improved combustion. We also reduced the percentage of recirculated exhaust gas from 25% to 10%, to ensure efficiency while allowing overall system compactness.

"When combined, these developments have helped bring about a significant reduction in fuel consumption, while also minimising service requirements, with a 600-hour oil change and a maintenance-free after-treatment system. FPT Industrial has experience of SCR systems dating back over ten years, incorporating its first such arrangement into a diesel engine in 2005, since when over 650,000 FPT Industrial engines with this technology have been sold.

"With eight patented solutions allowing up to 98% NOx conversion efficiency, including 'feed forward' strategy for urea dosing, optimised fluid dynamics and sensors to guarantee full functionality of the dosing system, the F5C engine and after-treatment in the Luxxum are ideally designed to meet the customer demands for a tractor of this size."

DESIGNING TOMORROW'S MACHINES TODAY

Design is becoming increasingly important to agricultural machinery manufacturers and an area in which CNH Industrial is unique because of its design team's wide-ranging experience across the agricultural, construction equipment, commercial vehicle and automotive sectors.

FarmForum spoke to David Wilkie, the company's Design Director, to find out more about the role of good design, his own background and the work of his team.

"Good design is two things really: it makes products very functional and work well, but also gives them personality and charm, making them a joy to own and operate," David Wilkie, Director of the CNH Industrial Design Center, enthuses.

The city of Turin in Italy, which he now calls home, is geographically and culturally distant from his native Scotland, where he graduated with Honours from the Charles Rennie Mackintosh, Glasgow School of Art with a specialization in Product Design. "Glasgow was a tough industrial city at that time and the idea of designing cars was frowned upon because they were regarded as frivolous - industrial equipment was seen as being much more important. Although my first project was to design an excavator, back then cars were my first love. An internship at Ogle Design England led to a Postgraduate Master's Degree in Automotive Design at the Royal College of Art in London, sponsored by the Ford Motor Company, following which I joined PSA Peugeot Citroen. Paris was wonderful, but I always wanted to work in Italy.

In 1988 I interviewed for a position with Carrozzeria Ghia, one of the most famous of the Italian automobile design and coachbuilding firms, in Turin. I stayed with Ghia for 15 years, during which time it was the Advanced Design Studio for Ford. I was involved in many concepts and was responsible for the design of the Ford StreetKa. In 2003 I joined Stile Bertone, as Director of Interior Design and finally Design Director. After five fantastic years with Bertone I went to work on electric mobility programmes - 'Mindset' in Switzerland and a specialist car manufacturer Mia Electric. Then, in 2014, CNH Industrial offered me the role of Design Director, which presents a wonderful opportunity to apply my knowledge of the automotive sector to agricultural machinery, construction equipment and commercial vehicles. I am now responsible for the design teams at our studios in Turin and Modena in Italy, at Burr Ridge, Chicago in the United States and in Lyon, France. We serve 62 CNH Industrial factories and 49 engineering centres around the world, so the job involves a lot of travelling.

100% FUNCTIONAL

CNH Industrial products have to be one hundred per cent functional, but exterior and interior design is becoming much more important, both to attract the eye of customers and achieve sales, as well as providing operators with a comfortable, ergonomic and pleasurable environment in which to spend long hours. The design teams for which I am responsible work very closely with our engineering colleagues to balance design and functionality. Much of what I learned designing cars actually translates very well to agricultural machinery and there's every opportunity to make a tractor as good-looking as a car. For example, the lights on tractors have a specific function related to how the machine is used, but, as with cars, they give the vehicle its personality, charm and recognizable brand image. Our designers have been responsible for the award winning Case IH Optum CVX tractor (Machine of the Year 2016). In designing the Optum we wanted to convey a feeling of strength, quality and a strong personality. Our headlamps and grill feature are stylish as well as being functional. The surfaces on the hood give tension and transmit a feeling of the power that is below. The Optum design is a very good example of the style supporting and emphasizing the technology that lies within. In many ways, the industrial world is actually more advanced than the automotive sector, with which people are more familiar but which can be quite traditional. Agriculture certainly provides scope to be more advanced in terms of technology. Autonomous vehicles, for example, are no longer science fiction and years away from commercial reality – the technology is here right now and will change the layout of all our vehicles.

STYLING COMPLEMENTS INNOVATION

The Autonomous Concept Vehicle which Case IH unveiled at this year's Farm Progress Show in Iowa was designed mainly at our Burr Ridge Studio near Chicago. The design originally conceived by Dwayne Jackson, Eric Jacobsthal and Frank Asztalos is a fully working project, the style was intended to be functional but also create real visual impact. It has certainly achieved that. The concept has been developed in close collaboration with our Innovation team. It's very much a technological vehicle where the styling complements the innovation beneath the surface. This technology is becoming necessary because, in many parts of the world, finding skilled labour at key times of the year is a challenge for our customers. It builds on the auto-steering and telematics which are already offered on Case IH equipment today for remote management of farm machinery and employees, allowing machines to be remotely monitored and controlled. This technology will offer greater operational efficiencies for tasks such as tillage, planting, spraying and harvesting. CNH Industrial is unique in bringing together so many talented designers from a range of backgrounds, which is why my role as Design Director is so very exciting."

David Wilkie at work...

"CLOSED-LOOP" FAMILY FARM HOSTS MEDIA EVENT

When Cecilia Rathje, Case IH Europe's Press Officer, went looking for a location to launch the new Luxxum and Maxxum tractors as well as the RB545 baler to the media, she was very fortunate to find the farm of Michael Wittman in the beautiful rolling hills of the Bavarian countryside. "We looked at several farms in Bavaria," says Cecilia. "There are a lot of different parameters to weigh up. It was with the help of the local dealership Albin Ostermayr, that we found the Wittman's farm, which was perfect".

Michael runs the family pig farm with his father, also named Michael, near the town of Rohr in Niederbayern, Lower Bavaria, about 40km from the Czech border. It hasn't been easy in pig farming recently with pigs currently selling in Germany at 1.30 euros per kg, having been 1.60 euros in 2013. He believes his 'closed-loop' system, whereby he grows virtually all his own feed and takes the pigs all the way from sow to slaughter, has helped him keep his head above water.

On his 170 hectares, Michael grows maize, wheat and barley to feed 250 sows and around 2,000 offspring at any one time; in a year he expects to sell around 5,000. Meanwhile his father uses his long experience to focus on the breeding side of the business. A true family operation, Michael and his wife Bettina live on the farm with their children Felix (2½) and Paula (6 weeks).

The Wittman family are loyal Case IH owners – and International Harvester before that. Michael's grandfather bought an IH D430 in 1957, and they haven't looked back. The farm's fleet currently includes a 2008 CVX 195, a Steyr 6195 CVT and a 1997 Maxxum 5150, which must have been one of the last tractors to have been built at the old International Harvester plant at Neuss am Rhein, near Dusseldorf. They even have a 1974 IH 423 still in working order. When we visited, Michael was trialling a new Optum 300 on loan from their local dealership, Ostermayr.

THE IMPORTANCE OF THE DEALER

Ostermayr's main facility is just down the road in Rohr in Niederbayern itself. Like the Wittman's, the dealership is a long standing and successful family firm, founded by 1933 by Simon Ostermayr. In a mirror image of the Wittmans, it is run by his grandson Albin Ostermayr junior helped by his father Albin senior. The company took on the International Harvester range in the 1950s, selling its first combine harvester, a D-61, in 1958.

Over the years it has expanded considerably, adding workshops and a parts warehouse, and a second location in Hemau, some 40km (25 miles) north of Rohr. It has also built an impressive network of 13 sub-dealers (Partnerhändler), all independently owned and operated.

"Why have we stayed with Case IH all this time?" asks Michael Wittman. "There are two reasons, I think. Our great relationship with Ostermayr, and the amount of useful technology that Case IH puts in its machines for the price." He is especially keen on the CVX transmission, finding it smooth and easy to use. "It is great to work with, especially moving manure out of the sheds and onto the land" – another link in the success of his closed-loop approach.

The Wittman's farm was the location for the media launch of three new machines for livestock farmers – the new Luxxum and Maxxum tractors, and the RB545 baler. Run in conjunction with Kuhn, it attracted 91 agricultural journalists from magazines and websites across Europe from as far as Finland, Croatia, Ireland and Bulgaria. To give them the maximum opportunity to drive the machines for themselves, and interview key engineers and executives from Case IH, they were briefed in three groups across four days at the end of July.

Michael senior and Michael junior with their 1974 International Harvester 423.

Michael Wittman tries out a new Optum CVX on loan from Ralph Bogdan (R) at dealers Ostermayr.

The De Winter family's Case IH Rowtrac, seen here with a Kverneland power harrow-drill combination, is equipped with 650/60 R34 front tyres.

Picture credit to: Niels van der Boom, Agrifoto.nl

MAGNUM ROWTRAC "EXACTLY THE TRACTOR WE NEED"

The first Case IH Magnum Rowtrac sold in the Benelux, a 310 CVX, has exceeded the expectations of the De Winter family, who farm at Uithuizen in the Netherlands.

A family business which started with 120ha in 2004, the farm extends to 250ha. Cropping includes 75ha of winter wheat, 75ha of potatoes, 35ha of sugar beet, 20ha of onions, 20ha of winter barley, 15ha of root crops and 10ha of grass.

Situated on the northern coast, just metres from the Wadden Sea (Waddenzee), the farm receives 700mm of rainfall per year and the deep, heavy clay soils retain moisture so well that there's no need to irrigate crops, even during an extended dry period. Although the soil is not particularly sensitive to compaction, once it has been worked into a seedbed any rain will cause consolidation, so cultivations, drilling and harvesting must be carried out when conditions are favourable. The family's history with Case IH products dates back to the 1980s and their latest Magnum 310 Rowtrac CVX, which delivers up to 382hp, joins a Puma 225 CVX, Puma 130 Powershift, Farmall U Pro 105 and Axial-Flow 6130 combine. "We chose the Rowtrac for its power, traction and low ground pressure," explains Niek De Winter, one of four sons who farm with their parents. "We need powerful tractors to work our heavy land and the Rowtrac is ideal because its rear tracks provide 2.96m2 of ground contact. As it operates without damaging the soil structure, the working season is much longer than would be possible with any wheeled tractor. We have found no difference in the yield from crops grown on headlands compared with the middle of fields, or where the Rowtrac has driven and where it has not."

Case IH had only recently launched the Rowtrac when the De Winter family were considering the purchase of a larger tractor and so they had a demonstration model on their farm for two weeks. That convinced them it was right for their situation, as nothing else met their requirements so precisely.

"The Rowtrac is exactly the tractor we need," says Niek De Winter. "The engine's power output is ideal for our requirements, the tracks minimise the ground pressure, the 9.7-tonne hydraulic lift capacity is very high and the 40km/h CVX transmission works great, making the tractor smooth and easy to operate on all types of work, at all speeds."

HIGH POWER WITHOUT COMPACTION

"We operate the Rowtrac with a seven-furrow reversible plough at 7kmh, covering 30ha per day. It is also used with a 4m drill, 6m power harrow, 3m subsoiler and a Grimme GL 420 Exacta potato planter. On this application its high power output, speed and ability to travel across the land without causing compaction or rutting is a major advantage. The cab provides a very spacious and luxurious working environment, with everything needed to make long days very comfortable and enjoyable. The heated and cooled operator's seat is excellent, while the combination of AFS and 360° LED lighting makes working at night very easy."

So has the new Rowtrac 310 CVX met the De Winter family's high expectations? "Absolutely," Niek states enthusiastically. "We thought the Rowtrac would be versatile, capable and make a big difference on our soils and it has delivered on all of those aspects. The tractor is also very easy to operate, so anyone can drive it, and we all enjoy using it. In our experience, Case IH products are very high quality and competitively priced, with the benefit of very good support from our dealer, Landbouw Mechanisatie Bedrijf Oosterhof in Groningen."

FARM FACTS

Size: 2,100ha
Average field size: 40ha.
Climate: 250mm rain per annum. High summer temperatures

Crops:	Area (ha)	Average yield (t/ha)
Sunflowers	510	3.5
Wheat	500	7.0
Maize	400	8.0
Oilseed Rape	340	3.6
Barley	250	7.3
Soybeans	100	2.0

CHANGING THE FACE OF FARMING IN ROMANIA

Agriculture in Romania has advanced rapidly during the last two decades. Today, it is at the forefront of global farming in terms of the scale of the enterprises, the machinery which is used and how that is put to work.

Farming practices in Romania have experienced massive change since the turn of the Century, driven by progressive agri-businesses such as SC Euromar 95 SRL. The company, which is based at Lanurile in Constanta, a picturesque region east of the country's capital Bucharest and bordering the Black Sea, is reaping the rewards of its investment in the latest technologies.

In this major grain producing area, the 'breadbasket' of Romania, a new generation of farmer-businessmen is taking a very critical look at what has to be done to produce better crops. For too long, farms in this region used the wrong tools to establish crops, which resulted in a very hard, yield-limiting plough pan being formed 30cm to 35cm under the surface of the soil. The only way to put that right is to use equipment which can break through this compacted layer, which is why forward-thinking farmers are harnessing the latest techniques and powerful machinery.

Marian Budu represents the changing the face of agriculture in Romania. Extremely modern and open-minded in his approach, he has transformed what was traditionally-farmed land into a highly-productive farming business. Large by the standards of the region, the company employs 11 staff.

Having joined SC Euromar 95 SRL18 years ago Marian has been the driving force behind its dramatic expansion, from 110ha of flat land then to 2100ha today. Although the Chernozioms-type soil is potentially very productive, the business has to contend with low annual rainfall, just 250mm, strong winds and high summer temperatures, although there are no particular agronomic issues in terms of weeds or diseases.

YIELDS UP 40%

Previously, traditional crop establishment practices involved ploughing, followed by two passes with disc harrows, then drilling. Now, having adopted the latest Case IH equipment, yields have increased by 40%. To improve timeliness of establishment, the company has replaced the 15 small, two-wheel-drive Romanian-built Universal (UTB) tractors, which were very basic, lacked power and offered no comforts for the

operator, with the latest Case IH equipment. This process began in 1998 when Marian became Manager and he purchased the farm's first Case IH product, an MXM 190 tractor. Today, the business operates a wide range of Case IH models, which are highly productive and produce much better quality work. The current fleet includes JX 95, Maxxum 140, Magnum 310 and Magnum 335 wheeled tractors, a Steiger Quadtrac 600, an Axial-Flow 2388 combine together with two key pieces of Case IH tillage equipment.

The Steiger Quadtrac, which has become popular with large farming businesses in the region, was purchased to ensure that cultivation work could be carried out more quickly after harvest, improve the timeliness of sowing crops and reduce compaction, all with less labour.
"It is a very nice machine – very impressive," Marian explains. "Compared with models from other manufacturers it is simple to operate, offers maximum traction, is very reliable, highly efficient and works on all soil types. We love it. Our farming operations now revolve around the Quadtrac 600, which is equipped with the Case IH Advanced Farming System (AFS) and full RTK GPS, which is accurate to 2.5cm," Marian states. "The tractor produces up to 669hp and does the hardest work which requires the most power."

65HA IN A DAY

The Quadtrac pulls a 6.7m-wide Case IH Eco-lo-Tiger 875 disk ripper at an operating depth of 30cm and a forward speed of10kph, covering 65ha in a 10-hour day. The tractor is also used with 13m-wide Case IH True-Tandem™ disc harrows for spring cultivations, operating 25cm deep at 12kph and covering 168ha in the same time. For drilling, the farm uses a 7.2m Horsch Focus with an output of 8ha per hour.

"For me this new method of establishing crops is the best," Marina states. "It has reduced our production costs, improved the timeliness of establishment and put right years of damage to the soil caused by ploughing. That enables us to produce much higher yields from all our crops.

"As a company, Case IH is always close to the farmers' needs. I have a good relationship with them and with Titan Machinery, our Case IH dealer. They work well together and are always there to offer help and advice, which helps me to solve technical and agronomic issues on the farm. Following generations will rely heavily on this type of technology and produce higher yields than us. Case IH will be there to help them do that."

Picture credit to: www.agraragazat.hu

AGRONOMIC DESIGN FOCUS AIDS SOIL HEALTH

Held across eastern Europe over the past year, Case IH 'Agronomic Design' workshops have been attended by key customers in the region, with owners and operators able to find out first-hand how the latest Case IH technology can help protect soils. They have proved a big success.

The events focused on soil compaction cost and reduction. This was linked to the ways in which Case IH products can play their part, from the low weight yet easily-ballasted Optum, to the rear-tracked Magnum Rowtrac and the articulated, four-tracked Quadtrac.

"The workshops included a soil pit dug into the host field to illustrate the creation of a plough pan," explains Christof Feuerhake, Operational Marketing East Europe & Balkans.

"This showed clearly the compaction effects of tyres travelling in the furrow when ploughing. Years of ploughing at the same depth creates a compaction layer – a plough pan – at 25-30cm between the top and sub-soil. But shallow soil cultivations typical of minimum tillage practices, such as discing, also create shallower compaction at 8-10cm, right under the seedbed horizon, leading crops to produce 'lazy', shallow roots."

"A well-structured soil absorbs water more rapidly to reduce the likelihood of flooding and erosion. Conversely, it also aids water movement upwards from depth through a dry soil, helping plant survival and growth."
The workshops were also designed to examine optimal machine set-up for maximum performance with minimum compaction, including ideal ballasting, tyre pressures and wheelslip rates. Around 40-60% of land in eastern Europe suffers from compaction as a result of practices from the past 50-70 years, exaggerated by heavy tractors with small tyres. New technology means this can be addressed, though, suggests Christof.

"The workshops helped illustrate the range of Case IH equipment available to help combat the problem, and examined how to operate equipment for best effect, using examples such as driving over a buried egg with a Quadtrac to illustrate how spreading weight minimises its impact.

"Reducing the number of passes made, and ensuring the correct ballasting is used to maximise traction and minimise slip, can help cut compaction. And where appropriate, the greater ground contact area and positive drive of tracked machines, such as the Case IH Quadtrac, Magnum Rowtrac and tracked Axial-Flow combines can also help here. For those who prefer or require a wheeled tractor, the Optum's high-hp, low weight design means it can be easily ballasted according to the task. And in conjunction with the latest tyre technology, ensuring pressures are correctly set for the work allows for full exploitation of the capabilities of our wheeled high-hp tractors."

EXPANSION LEADS TO SECOND QUADTRAC FOR FARMING BUSINESS IN EAST ANGLIA

Whether a machine 'looks right' is a key consideration for Suffolk farmer John Collen, who says that, in his experience, if it passes that initial visual appraisal then the chances are that it will perform right. And, in his eyes, the Case IH Quadtrac is a machine that 'looks right'.

That's a good starting point for a key piece of equipment which over the last five years has transformed the Collen family's approach to high-horsepower tractors and enabled them to farm more land, more efficiently, over a much wider area. Now operating two Quadtrac models, one producing 600hp, the other 535hp, John states:

"We buy the machinery which best suits the job. Historically, when it comes to tractors we had tended to use mainly large wheeled models fitted with dual wheels to get the power down and minimise compaction.

Until 2011, the largest was a 310hp Case IH Magnum 310, which we bought new in 2007 to replace our previous Challenger 45, as that was becoming unreliable and expensive to maintain. But transporting tractors on dual wheels along roads which are particularly busy with tourist traffic in the summer and autumn, as well as being narrow in places, was increasingly impractical, time-consuming and dangerous, so we needed an alternative.

"In 2011 the Magnum 310 was traded in against our first Case IH Quadtrac, a 485hp model from Doe Power at Framlingham. The following year we took on more land and decided to part-exchange it against a new Quadtrac 600, which was significantly more powerful and certainly much more comfortable for the operator because its suspended cab offered a great improvement in ride quality, particularly when travelling on the road," John explains.

In addition to the 1500 acres which they own at Whitehouse Farm, Gisleham near Lowestoft, the Collen family also contract a further 2000 acres at three sites up to 20 miles away, the soil types varying enormously from heavy clay to blowing sand. Cropping encompasses 1700 acres of winter wheat, 500 acres of oilseed rape, 300 acres of sugar beet, 200 acres of spring barley, together with maize for a local AD plant and 100 acres of parsley, a new crop for 2016. Average yields are 3.5t/a for wheat, 3.5t/a for barley, 1.6t/a for oilseed rape and up to 40t/a for sugar beet.

CHALLENGE OF HEAVY SOILS

"Our soils mostly consist of very heavy Beccles-series clay, which is noted for its lack of structure and was once used for making house bricks, so we are very aware of the need to minimise compaction. If it becomes wet, wheeled tractors struggle for grip, the soil becomes compacted and the life goes out of it, which hits yields hard and encourages black-grass.

"Because of that, field work has to be done at the optimum time, under optimum conditions. There is no second chance and any compromises in terms of getting crops in the ground means that we sacrifice significant yield and profitability. On our heavy

This 2011 Quadtrac 535 was purchased to ensure that cultivations and drilling can be completed on time, which is essential on the heavy clay soils.

John Collen and his father Bryan with their Case IH Quadtrac 600, a 2012 model which they purchased new for their own farming and contracting businesses, H. J. Collen & Sons and Grain2seed.

Despite its considerable size and weight the Quadtrac leaves barely a mark on the ground, even when pulling hard.

land that loss of potential income costs far more in the long run than operating the right machinery, so we don't compromise, even if it means having slightly more capacity than, theoretically, we should need for the acreage.

"Tracks are now the only option to cover the ground quickly and keep the transport width manageable," John explains. "In the past the Challenger 45 needed an H-category license to drive. Its differential steering made it very difficult to operate in wet conditions, it smeared the soil and produced significant disturbance on headlands, which involves more work to correct it.
"The Quadtrac's design looked right from the start, but what has impressed me most is how such a large machine can float across the land and go places where any ordinary wheeled tractor would quickly get bogged down. We have even taken it on some very wet, low-lying marshland to pull out another tractor, with no issues at all.
In fact, the Quadtrac is so different from any conventional tractor that we tend to think of it as an entirely different class of machine.

LIGHT FOOTPRINT

"Although some might question the damage that large, heavy machinery does to the soil structure, the Quadtrac's footprint is so light that it barely leaves a mark on any type of soil. The spring of 2016 was very wet and our wheeled tractor left ruts which could be seen for the rest of the season, but behind the Quadtrac there was nothing.
The amount of compaction and damage to soil structure today is certainly much, much less than 30 or 40 years ago when we used to spend the entire winter lifting sugar beet with a single-row Standen harvester going up and down the field hundreds of times with a tractor and trailer running beside it."
"Having taken on more land in 2015, we replaced our other 2007 Magnum 310, which had completed 5500 hours, with a second Quadtrac, a 535 model which came from Startin Tractors in Warwickshire with 5000 hours on the clock. Although there's not a great difference in performance between it and the Quadtrac 600, the newer model is significantly more advanced in terms of operator comfort. That is important on a machine which is used for up to 16 hours a day, but with crop prices where they are at the moment that was not an option.
"Our Quadtrac 600 has done about 3000 hours over the last five seasons, which is nothing like the number that some of these machines will have clocked up. But the key thing for us is to be able to do the work when it needs doing - the cost to us of not having the Quadtrac would be much more."

NEWS IN BRIEF

SEE YOU AT LAMMA

You will be able to see Case IH's latest tractors at LAMMA 2017, including Luxxum and the new Maxxum. The new baler range will also be there, along with Case IH's product experts.
LAMMA is at the East of England Showground at Peterborough over 18th and 19th January.

NOTTINGHAM UNI GOES RED

The University of Nottingham is ranked in the world's top 1%. With all those brains, you would expect them to make the right decision – and they did when they replaced their rented groundcare fleet with six brand new Case IH Machines.
Managed through Sharrocks (UK Hire), the five Farmall Cs and one Maxxum 120 have been put to work on the University's four campuses which total 365 acres.

AND CASE IH CAME TOO

When Patrick Mannion and Loretta Wall got married in Williamstown, Co. Galway in Ireland, a red Optum and a black Puma provided a great backdrop. Both are from farming families, and Patrick used to work at the old Terence O'Neill Case IH dealers. Wedded in August, they have since moved to Emerald, Queensland in Australia where Patrick works for Milne Brothers - you've guessed it, another Case IH dealership!

THE VERSATILITY SECRET - HARVESTING A DOZEN DIFFERENT CROPS WITH AN AXIAL-FLOW

David Debrune started farming 31 years ago, in the French 'Département' of Indre, around 200 km south of Paris. Back then, he had around 100 hectares, which he has now grown to 300 where he grows millet, wheat, oilseed rape, sunflowers and barley, as well as some maize. Monsieur Debrune also acts as a harvesting contractor, covering a further 1,500 hectares a year.

WHY DID YOU CHOOSE THE CASE IH AXIAL-FLOW COMBINE HARVESTER?
I have been loyal to Case IH since 2008. I started with one machine, then in 2010 I acquired another to swell the ranks of my farm machinery. Right now, I use two models: an Axial-Flow 7230 and a 7140 that I have just purchased.

The reason for this choice is relatively easy to understand; it is essentially all down to the single rotor technology. With more than a dozen different crops to harvest on my own farm and on those of my customers, versatility and the ease of use that Axial-Flow combine harvesters deliver are essential qualities – in fact they are indispensable.
I need to be able to switch from harvesting one crop to another very easily and quickly: from barley to mustard, from clover to oats, from wheat to corn, or even to peas for the cannery. The equipment even has to be up to the task of coping with tiny clover or alfalfa seeds.

WHAT DOES THE ROTOR IN THE AXIAL-FLOW ENABLE YOU TO DO?
It is a real bonus for a large number of

reasons. With more than 1,500 hectares harvested each year, my experience has shown me that the single rotor on the Axial-Flow is extremely gentle on the crops that I have to thresh. This is an important point, because they are less prone to damage than tends to be the case with other types of threshing action. For example, you can handle peas without any form of crop damage. This is certainly unusual enough to be worth mentioning. Then you can add reliability, ease of use and speed of operations.

COULD YOU GO INTO MORE DETAIL, PLEASE?

In terms of what I do for a living, the equipment has to be easy to use, and it must be versatile as well. The Case IH Axial-Flow combine harvesters fit these requirements perfectly. It takes less than 15 minutes to reconfigure the machine for a different crop. Access to the rotor cage from either side of the machine is very simple. It enables me to remove the baskets in a few minutes. On a conventional machine, you have to remove the conveyor before you can tackle this task. Also Axial-Flow machines can be adapted very efficiently to suit all kinds of cutting work.

OK, AXIAL-FLOWS ARE EASY TO USE AND MAINTAIN, BUT ARE THEY ALSO ROBUST ENOUGH?

My work involves me in about 400 hours on each machine every year. I have just purchased my fifth Axial-Flow and I try to renew every four years. This is not just about solidity and reliability but - and this is critical - I receive exemplary service from my local dealership, Ets Cloué, on those rare occasions when I have a problem with the equipment.

That is also one of the essential points for me in choosing farm machinery. From my point of view, the qualities of the machine and its manufacture, its versatility, its ease of maintenance and its reliability - these are all of immense value at harvest time. Then I would add the calibre of interpersonal contact offered by the dealership, by my side throughout the working period.

This invariably guides my choice in favour of Case IH and its Axial-Flow range of combine harvesters. It is all about choosing peace of mind, reliability and effectiveness in terms of harvesting, with all the demands of working with a dozen different crop types each year.

GET THE BEST... FROM YOUR CASE IH CVX TRACTOR

The Case IH CVX continuously-variable transmission allows you to operate your Maxxum, Puma or Optum tractor with the utmost precision for maximum fuel efficiency and productivity. Here are some tips for getting the most from you CVX tractor by using the three aggressiveness settings which can be selected from the armrest.

For road/transport work, acceleration and deceleration can be controlled either with the Multicontroller or with the foot pedal. Pull back the Multicontroller quickly to 0% and the tractor is brought to a standstill, or take pressure off the foot throttle slowly to approach a junction smoothly.

When accelerating, push the Multicontroller fully forward to activate transmission kick-down for maximum power. The CVX transmission incorporates an anti-jack knife feature to keep the tractor from jack-knifing down hills due to the weight of towed equipment.

By holding the forward shuttle button while using the brake pedal, the transmission will be prevented from exceeding the current speed.

For general field work, the field mode suits the majority of field applications. Transmission deceleration when using the foot throttle or Multicontroller is at the right speed for approaching the headland, while faster movement of the foot pedal activates kick-down mode with maximum power to quickly achieve target speed when moving back into work, blending a reactive response with smooth power uptake.

For more demanding field work or heavy front loader tasks, the CVX transmission can be fine-tuned to offer precise stop/start control, an infinitely-controlled acceleration/deceleration rate and a broad band of speed control sensitivity.

YouTube **You can see more on this subject on video at: www.youtube.com/watch?v=vNAKijSN_a0**

OPTUM MANAGES THE MOST DEMANDING TASKS

In the spring of 2016, contractor Casper Christensen purchased a Case IH Optum 270 CVX. It is usually driven coupled to a slurry tanker and a hay baler

Something happens when Jonas Olesen drives in the fields. He is a tractor operator with contractor Casper Christensen, based in Terndrup in the north of Denmark, which specialises in slurry transport and hay baling. "We took delivery of our Case IH Optum 270 CVX around 3 months ago, and we have already clocked up around 900 hours of use," he says. It was the first Optum to be delivered by the S.D. Kjærsgaard dealership, and is probably the Optum that has been in operation for the most hours in Denmark. "I think the tractor is superb, as it has more than enough power and is very handy," he says.

There is not much time to stand around talking - so we sit in the cabin, whilst the huge baler swallows huge amounts of hay from the combine harvester harvesting in the same large field. Right away, we establish that the sound level is very low - as it should be, when operators have to spend many hours each day in the cabin in the harvesting season.

WOULD NEVER GO BACK

So we ask the inevitable question of Jonas: Is he so satisfied with the new Case IH Optum that he would rather keep it than go back to the Magnum that he previously drove? "No, I would not go back, as the Optum has just as much control over the slurry tanker as the larger Magnum. Moreover, it is easier to manoeuvre in more restricted spaces - this is also a major advantage," he points out. In total, the company transports 150,000 - 180,000 cubic metres of slurry, and makes 30,000 large bales, every year.

Jonas Olesen bales around 9,000 - 10,000 bales and transports about 1,000 cubic metres of slurry every working day.

MAY ADOPT SAFEGUARD

Casper Christensen, as the owner, is very pleased with his fleet of Case IH tractors. "I am considering buying new tractors in 2017," he states. The new purchase is not because the present tractors are worn out. "The reason is that I have seen the new SafeGuard system, where we can follow costs for the tractors - and this is a system I would like to have," he explains. So - perhaps there will be several more Optum tractors in his machine fleet next spring?

Casper Christensen (left) and Jonas Olesen (right) during a quiet moment in front of the Optum, which in just about 3 months has clocked up around 900 hours of operation.

Jonas Olesen in the cabin, which has a lower sound level than the larger Magnum.

The design of the Case IH Optum 270 CVX is stylish and modern.

A huge capacity hay baler, painted in Case IH colours - and Optum has the muscle to pull it at high speed.

OPTUM IN BRIEF

PROFI TEST DECLARES OPTUM 'OPTUMAL'.

Only one month after it gave Magnum a glowing review (see page 5), Profi's September issue in Germany turned its attention to the Optum. Put through the respected DLG-run tests, Optum was declared the thriftiest tractor ever tested, consuming only 247grams of diesel per kWh of power. DLG's PowerMix test, which examines output across a range of farm work, came in at 249 g/kWh, some 14% lower than the average for all tractors.

profi Schleppertest

Case IH Optum 300 CVX:

Alles optumal?

Looking further, Optum's front lift of 4 tonnes was 'Super', and the optional 223l/min hydraulic pump was 'Prima!'. The cab was also praised: "Together with the (standard!) cab suspension, little fault could be found with regard to comfort… Also the all-round visibility is very good." The article concluded: "Almost everything regarding the new Optum is "optumal".

OPTUM TAKES THE PRIZES

Since its launch last year, the Optum CVX has received no less than five awards. Last November it won Machine of the Year 2016 in the L category at Agritechnica. It won the Special Innovation Award at AGROmashEXPO in Hungary, and two Technical Innovation Awards at the Fieragricola show in Verona, Italy for its dual speed front PTO and its engine brake system. The brake also received the Technical Innovation Award at the FIMA show in Zaragoza, Spain (above). "These awards confirm the strong innovative spirit that characterises Case IH products and reflect the appreciation of our high performance machines in agriculture", said Matthew Foster, Vice President Case IH.

FRENCH STREET TEST FOR OPTUM

Agriculture magazine Entraid had a different challenge for Optum – the busy streets of Toulouse. In a humorous change to the regular scenario of ploughing and pulling, Optum took on the city's cobbled lanes and boulevards. To the surprised city-dwellers, it was compared to King Kong and even Toulouse's most famous product, the Airbus. The Toulousains agreed it was truly magnifique. See it for yourself at: **www.youtube.com/watch?v=wiGAx8YX1Os**

A GREAT DANE EXPERIENCE WITH OPTUM

Brothers Jens and Jørgen Blach won the use of a Case IH Optum 300 CVX for 100 hours. They believe it has more than enough power for both a large harrow and a large chaser bin.

Troels B. Mogensen (left), a co-worker of the Blach brothers, is the most frequent operator of the Optum.

It is one thing to see a tractor at an exhibition. It is quite another to experience it as tractive power with the usual tools and trailers at your own business. "As something a little out of the ordinary, we held a competition at Agritechnica, in which it was possible to win 100 hours of use of a Case IH Optum 300 CVX," explains Rasmus Buhl, Case IH's District Manager for Jylland and Fyn, Denmark. The competition was won by Jens Blach, who along with his brother Jørgen Blach, farms around 2,500 hectares at Trustrup on the Djursland peninsula. The tractor was delivered in the middle of August and co-worker Troels B. Mogensen has been the main operator. "It is extremely quiet, it is effective at carrying out various tasks and the MultiController control system means it is easy to operate," he says.

PENSIVE ABOUT HIGH SPEED LARGE HARROW PERFORMANCE

The Blach brothers both plough and operate plough-free, depending on sowing timings. So their tractors must be able to pull a large plough and a large harrow without problems. "We harrow at a depth of 10-15 centimetres and need to drive at 12-15 km/h with an 8.25 metre wide harrow," explains Troels B. Mogensen. He was interested to see: "how would the tractor perform, with its 313 horsepower." He was clear: "It could definitely manage the task."

A LARGE CHASER BIN

With several large combine harvesters in operation at the same time, huge amounts of corn are being transported out of the fields. "So we coupled the Optum to a chaser bin," says Jens Blach. Troels B. Mogensen was once again behind the wheel. "The tractor also performed this task well, and the continuously variable transmission is easy to work with," he stated. The transmission ensures that the engine works at the lowest possible revs in relation to the actual load. This means the tractor uses the minimal amount of fuel.

A FANTASTIC WORKPLACE

For Troels B. Mogensen it is also extremely important to have a pleasant working environment in the cabin, in regard to acoustics and tractor operation. "Even when it was fully loaded, pulling a trailer or a harrow, the sound level was very low," he found. He also saw that it is a major advantage to be able to regulate engine braking according to conditions. "If I want slow, gradual braking when I release the accelerator, I can have that. And if I want more rapid braking, I can have that too," he explains.

MAX'S BETTER QUALITY OF LIFE, THANKS TO AFS

The very narrow time window for carrying out field work on Max Stürzer's farm in Bavaria means that it has to be done whenever conditions allow, including operating around the clock if necessary. His Case IH Axial-Flow 8230 combine is seen here harvesting the last of this year's wheat crop as darkness falls.

Case IH Advanced Farming Systems (AFS) have been at the forefront of precision farming for more than a decade, giving farmers the ability to control the entire crop production cycle. FarmForum visited one farm in Germany to find out what benefits they derive from AFS.

Ask farmers what they hope to gain from AFS and most would talk about reducing fuel use and costs while optimising the use of crop inputs, such as seed, fertiliser and agrochemicals. But despite saving almost 20 per cent in fuel, this technology has more important considerations for Max Stürzer, who farms with his wife Sara near Andechs in Bavaria, where they live with daughters Sara Maria and Vroni. A representative for Germany at the World Ploughing Championships in The Netherlands in 1990, he states:

"Because of where our farm is situated and the very difficult climate we have here, the time window for carrying out field work is very narrow, so we are really under pressure to get things done when conditions are favourable. Timeliness is the key to working this land successfully." Max's grandfather started the long association with Case IH when he began purchasing International Harvester tractors in the 1970s, and that connection continues through the latest 180hp Steyr equivalent of the Puma.

"Unlike some farms which have land that is very forgiving and gives them perhaps 20 days to carry out cultivations and drilling, we have just five or six," Max explains. "We also have to contend with an average annual rainfall of 1,100mm, which makes arable farming difficult.

"Because of that we need powerful, high-capacity machinery. Our fleet includes two tractors of over 350hp, which clock up only 200 hours a year each, but there is no other way. We also operate a Case IH Axial-Flow 8230 combine with a 7.5m header and make use of the latest technology to get the best out of the equipment.

"The aim is to finish drilling oilseed rape by 25 August, although bad weather meant that this

year it was 9 September. I like to get wheat in the ground by 5 October and sow spring barley at the beginning of April. If that can be achieved then good yields are possible: up to 5 tonnes per hectare from oilseed rape, 8 t/ha from spring barley and 10 t/ha from winter wheat."

Max Sturzer with his wife Sara and daughters Sara Maria and Vroni

FARMING ACCURATELY

"As a family we have always been attracted by the idea of using information and graphics to help us farm more accurately. In the 1970s my father had soil samples taken to improve the application of nutrients, and because our fields were large the company produced hand-drawn maps which were painted in different colours to show the soil status of the various areas. It made me realise that a field is not just one uniform area, but consists of several different parts which need to be treated individually to optimise the use of inputs and maximise yields. When the first yield monitors became available on combines in the 1990s I thought that the technology was interesting, but limited. We began logging yield data and produced our first yield map in 1998. The following year I used the information to vary the seed rate through our 4m drill, applying more where germination was reduced because of the soil type or location and reducing it in others.

Since 2010 we have operated our own RTK base station which gives maximum accuracy to within 25mm, and AFS has completely changed the way we carry out some operations by removing all the previous constraints. Rather than starting at the longest side of the field and working away from that, for example, we are now able to leave a headland on every side of the field and work in the most efficient way.

Our AutoPilot system has been programmed so that the operator simply has to choose between two settings, 'Headland' and 'Field'. The AB lines are then activated automatically, making it much quicker to set up and use. Now, for example, we might start drilling in the morning when the soil is driest and leave the wettest part of the field until later in the day when the sun has dried it out."

NO MORE U-TURNS

"The accuracy of RTK also means that we do not have to drill the very next bout but can work alternate passes. That means we can turn in a 'U' shape on the headland rather than in an 'Omega' (Ω) pattern, which greatly reduces the need to turn tightly, and we often don't even need to select a lower gear or slow down. The amount of soil and compaction is also greatly reduced, which improves yields in those areas.

To minimise compaction our Case IH Axial-Flow 8230 combine is fitted with rubber tracks and a 7.5m header to match a form of Controlled Traffic Farming (CTF) based on 30m tramlines. In the past we ploughed to 25cm deep before planting oilseed rape, but 2016 has been so wet that it was impossible, so we had to get the crop in the ground using a 7.5m cultivator and 6m trailed drill.

The most obvious benefits of AFS are the time and fuel savings, but for me personally they are the least significant. Quality of life is very important as you get older and now that I am 50 I find that the ability of AFS to make operating machinery much easier and more relaxing counts for more, especially when working very long hours. It reminds me of when I was a child and went ploughing for the first time. With the wheels on one side running in the furrow the tractor would virtually steer itself, so I could turn around and watch the soil being turned over.

Now, rather than having to concentrate fully on driving accurately, I can leave the task of steering to the AFS and can focus on maximising the quality of the work that the machine is doing, whether cultivating, seeding, spreading, spraying or harvesting. Because it does not rely on following visible tramlines, AFS allows me to spread fertiliser for spring barley before we cultivate the land, so that nutrients are incorporated into the rooting zone of the soil before drilling and become immediately available to the developing plants, rather than being applied after emergence.

This advanced technology also allows me to operate much more flexibly, in ways that would never have previously been possible. I can cultivate land when the soil is dry during the day, then at night, when there is often less wind and no risk of plants being scorched, I can apply fertiliser or agrochemicals. With AFS the quality of work is also much improved, soil-engaging implements are less likely to clog up, field borders remain exactly the same every year, there are far fewer weed problems on headlands and compaction is much reduced.

I cannot imagine running the family farm by myself, with just the help of our eldest daughter Sara Maria, without AFS technology. It is an excellent investment which greatly improves the quality of my working and family life."

FARM DETAILS

Timeliness is vital on the 330ha Sturzerhof Farm, which is located 15km south west of Munich and just 70km from the Alps mountains, with the land at 650m above sea level. The combination of challenging location and high rainfall make farming here very difficult as there are only a few working days available in which to sow crops, and harvest can be delayed by adverse weather.

Traditionally, 25% of the farm has been used to grow oilseed rape, 25% milling wheat for bread and pasta, and 50% for spring malting barley. However, Max Stürzer is now looking to replace at least some of the malting barley with either spring beans or soybeans to provide a wider rotation.

The farm comprises two blocks of land some 10km apart, encompassing a wide range of soil types, from sand to glacial silt and heavy clay which is particularly prone to compaction if operations are carried out under adverse conditions.

LEADING UK FARM MANAGEMENT COMPANY HAS A 30-YEAR ASSOCIATION WITH CASE IH

Velcourt Group Ltd, the leading provider of farm business management and advisory services in the UK and overseas, has been using Case IH tractors and combines for 30 years. Farm-Forum Magazine discussed this long-standing arrangement with Doug Inglis, who is responsible for negotiating all of the company's machinery purchases.

Case IH tractors, such as this Magnum 260 CVX, are very popular with operators because they are comfortable, perform well and are easy to operate.

The relationship between Case IH and Velcourt Group Ltd has gone from strength to strength since it started in the 1980s, when the company adopted contract hire to further increase the financial and operational efficiency of its business to optimise returns for clients.

Established in 1967, Velcourt now manages 53,000 hectares throughout the UK, as well as providing consultancy services. Focused on profitable, sustainable farming, it enables landowners and tenants to retain ownership of farming assets while enjoying a secure income from them. To ensure that farming inputs are supplied on competitive terms, Velcourt has strategic partnerships in place with key suppliers.

The company operates an extensive inventory of Case IH products, comprising more than 150 tractors and combines. Eighteen Quadtrac tractors from 450hp to 600hp are supported by Magnum and Rowtrac models up to 380hp, together with the latest Optum tractors up to 300hp. It also operates 70 Pumas up to 230hp, a large number of Maxxum models and two Quantum fruit tractors. The fleet also includes Axial-Flow 7000, 8000 and 9000 Series combines.

All machinery purchases are negotiated by Doug Inglis, Velcourt's Farms Director for East Anglia and the South East, who also has overall responsibility for nine operating units from 320ha to 3000ha. He states: "The association with Case IH started in the 1980s when we investigated contract hire as a means to help us control our machinery costs and budget more accurately. We approached all of the major manufacturers, but Case IH provided the most favourable combination of product specification, cost and service. The arrangement worked well from the start and has stood the test of time, with an annual negotiation on price. One of the main advantages of the arrangement is that it gives us the flexibility to accommodate changes in our business by incorporating facilities such as short-term hire.

"Cost per hour of operation is a key factor when it comes to machinery and to achieve that we employ the latest technologies, then fully utilise their capabilities. We work very closely with Case IH dealers and technical experts to ensure that our operators are fully conversant with the products and know how to make the most of developments such as CVX (Continuously Variable Transmission) and AFS (Advanced Farming Systems) to optimise performance, productivity and efficiency.

"The majority of tractors are supplied by Case IH, which now has a product range that is equal to anything else currently on the market. We find them to be reliable, economical, good to operate, reliable and well supported by an excellent dealer network.

"The latest AFS system reflects the big strides which Case IH has made in the area of

Velcourt's fleet includes a number of Case IH Optum tractors, including this 300 CVX.

This Puma 150 CVX is one of more than 70 such models which operate on Velcourt-managed farms. More than 80 per cent of the company's Puma and Maxxum tractors are CVX models.

guidance technology over the last two years. Where it is not standard, we specify it on all tractors which are used for soil-engaging operations or other tasks that require absolute accuracy.

"Twelve of the 40 combines which we operate are Case IH Axial-Flow models. We also have models from two other manufacturers, an arrangement which dates back about 15 years to when Case IH was unable to supply the very large-capacity combines which we required. We are re-evaluating that situation now that the Axial-Flow range is very comprehensive and fully meets our requirements.

"The majority of tractors are covered by contract hire agreements over two and five years, or up to 5,000 hours, and include new tyres at 3,500 hours. Combines are rotated every four or five years and average about 360 engine hours per year.
The contract hire charge includes all maintenance costs, which helps us to budget accurately and manage risk, a theme which characterises Velcourt's management approach.

"Being responsible for all machinery purchases I negotiate the framework of the deal with Case IH and agree a minimum level of specification. It is then up to each Velcourt farm manager to decide exactly what they require in terms of models and options, the exact cost of each machine being invoiced to their business unit on a monthly basis.

"One of the key reasons why the partnership between Velcourt and Case IH has lasted so long, and become stronger over time, is the excellent relationship we have with the company's management team and that we have been able to utilise our extensive knowledge of farming to help with product development."

THE AFS 700 GETS YOU CLOSER AND CLOSER

AFS ADVANCED FARMING SYSTEMS

Case IH's AFS 700 console has been improved further still to match the demands of farmers. Tramline management has never been so simple or so intuitive.

WHAT ARE THE NEW FEATURES?

TRAMLINE MANAGEMENT

Thanks to the new method for managing tramlines, it is very easy to track the progress of field work. By changing the screen colour of these tramlines, you can see from your screen the area that has been worked and what is left to do. The system's accuracy means that you can optimise every passage and therefore get the most productivity out of your machine – and your time. For example, when combining it allows you to use the full cutting width of the header. In the cab it needs a lot less concentration, so making it all much easier for the driver.

RIGHT-ANGLED FIELD CORNERS

In 'Fields' mode you can choose between rounded or right-angled corners of fields. Switching between these two modes is a touch of a button. The function for right-angled corners of fields enables the vehicle to remain on its tramline right to the end. Engaging reverse gear on the following line is then possible - the ideal way to continue work. On the console, simply indicate how many tramline passages you wish to make, and the system takes care of the rest. This new functionality, one in great demand, facilitates perfect management of headlands.

MANAGEMENT OF INTERNAL LIMITS

Thanks to this new function, the operator can edit visual waymarkers on the field to cut sections or to raise tools manually. It will be possible to configure different distances for each side of the field, to choose to display the limit of headlands on just one side, on both sides, or across the whole of a field.

This functionality also makes it possible to manage the automatic or manual section cutting to achieve enhanced comfort and to optimise work on a given field. Improvements to the AFS 700 console were made to provide farmers with the best working conditions possible, and are the result of listening to customers on a daily basis and adapting our product to reflect their expectations.

IMPROVEMENT TO THE ISOBUS INTERFACE

ISOBUS is a shared protocol language which enables all tools and vehicles to communicate with one another. Thanks to this, the vehicle can control the tool, and vice versa. The ISOBUS interface on the AFS 700 has been reviewed and is now much more intuitive. A 'Control of Section' has also appeared. This mode makes it possible and very easy to trim a section. This is a perfect illustration of an application that began life as an analysis tool for the needs of farmers.

HMC II

The headland management interface has also been given a facelift. It is now very easy to group all actions at entry and exit points in a single operation. As tools become more complex, there are ever more tasks to perform at the headland: PTO, front/rear hitch, distributors, speed - all may need to be configured. All you need to do is to show the tractor once what it should be doing, changing anything on the AFS 700 screen, and the desired sequence of actions is then executed at the touch of a button. The Case IH HMC II is clearly the most intuitive on the market.

THE EVOLUTION OF MAGNUM: "THERE'S STILL MORE TO COME..."

Ahead of the 30th anniversary of the launch of the original Magnum tractors, FarmForum talks to the range's Global Marketing Manager Scott Tenbrink, about plans for the future.

FARM FORUM: The Magnum series is 30 years old in 2017. Where does this tractor range go now? Is it simply a case of adding more horsepower?

The principles of a strong, high-hp conventional tractor that's easy to operate remain unaltered, but of course the product has changed considerably in power, specification and design since its 1987 introduction.

Most recently, there's been a steeper trajectory in power growth, in response to customer demand and because of our engineering team's abilities. But developing these tractors' capacity is about more than adding power.

Globally, the 'sweet spot' of high-power conventional tractors today is around 300hp, the majority of demand existing here to match modern implements. With the current Magnum range we offer European farmers good coverage here, with the Magnum 250 (for certain markets), 280 and 310, covering the 250-311hp (rated) bracket. But we're also well ahead of the curve in anticipating its inevitable increase, with the 340hp Magnum 340 and 379hp Magnum 380, the latter offering 435hp maximum power.

There's obviously an overlap now between lower-hp Magnums and the 270/300hp Optum CVX, introduced to fill demand in Europe for a high-hp, light weight tractor that can be ballasted for heavier work. But different builds suit different needs, and there's still demand for heavier tractors like the smaller 250-300hp Magnums – extra weight can help hold back heavy trailers and tankers on hills, for example, or handle equipment such as ridgers.

FARM FORUM: What are Magnum's key advantages/selling points over its competitors? Why would/should a farmer buy one over a competitive tractor?

When seeking a tractor of this size, most commonly for arable land work, customers primarily look for performance, productivity, efficiency, low cost of ownership and intuitive controls. With Magnum we've always focused on those key areas, and the efficiency of our engines and transmissions, plus the jump-on-and-drive nature of these machines, have long been elements of their appeal.

But operations and implements are growing, while developments such as shallower, faster cultivation and higher-speed sowing create new demands, so tractors must be able to handle these. Not only do we put up to 435hp to the ground via either all-round tyres or

Scott Tenbrink, Magnum Global Marketing Manager

the tyre/track Rowtrac option, but we have an SCR system providing exceptionally good fuel efficiency without a particulate filter or exhaust gas recirculation.
Magnum is also a machine often driven by a range of operators, from those who own the tractor and run their own businesses, to drivers whose tractor may be part of a large fleet, and who need to be able to get in the seat and go. Ease of operation and intuitiveness are important, so although it incorporates the latest technology, Magnum has been designed with those traits.

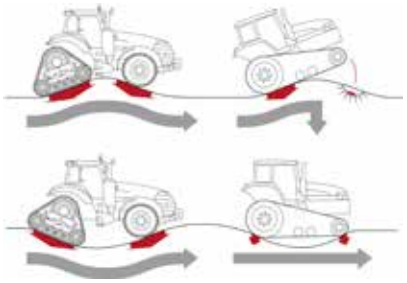
FARM FORUM: How much input do European Case IH engineers have into Magnum, given that it's North American designed and built? How do the different ways of operating tractors like this in different regions present challenges for Magnum design engineers?
We keep a close eye on agricultural, economic and regulatory trends and developments, and of course we also operate interactively, using customer-driven product design to guide development direction.
While Magnum is US-built, in our Racine, Wisconsin, factory, we have innovation groups both in the North America (NAFTA) region and in Europe/Middle East/Africa (EMEA).
I co-ordinate these, liaising with product managers in each area, such as Dan Stuart in EMEA. In turn, they liaise with each country's product specialist, not only by telephone and email but, importantly, in the field, visiting owners and operators. That's done throughout the year, every year, not just when major upgrades are due. So there's an equal amount of design input from Racine and from all other key regions in which Magnum is important.
Magnum is a global tractor for global needs, so yes, there are design challenges. For example, wheel/tyre equipment varies widely. In North America most Magnums run on narrow-width duals, for rowcrop work, while big single wheels/tyres are most common in western Europe, and both types are seen in eastern Europe and Africa, alongside full-size duals. In Europe, tight turning is also required, so we focus on areas such as ensuring fuel capacity/filling and engine/checkpoint access aren't compromised when large wheel equipment is fitted.
So yes, we face design challenges, but they are always at the forefront of our minds to ensure customers everywhere get the best possible product.

FARM FORUM: What has adding CVT brought to Magnum? What proportion of Magnums are now fitted with CVT as opposed to a powershift transmission?
Globally, the proportion of Magnums sold with the CVT transmission, branded CVX in Europe, is around 40%, but in Europe the figure of around 60% is roughly double the North America figure. It's becoming the European norm, especially as one of the most popular Magnums is the 380 flagship, fitted as standard with CVT.
The addition of CVT has opened new markets for Magnum, for customers who require it for practical fieldwork reasons, demand it on economic grounds based on infrastructure and farm type, or simply prefer it.
On the most popular models they can now choose from CVT or powershift, and rear wheels or tracks. Customers like to do business with a brand, and Case IH can now supply any build of tractor required.

FARM FORUM: Could you explain how the Magnum Rowtrac format was arrived at – why the choice of rear tracks only and front wheel steering? Were four tracks or articulated steering ever considered? And how successful has Magnum Rowtrac been since its introduction?
When we were considering bringing track technology to this range, and interviewed farmers with twin track machines, headland soil disturbance when turning was their biggest concern, followed by comfort, ground contact, and the twitching caused by the constant steering correction required with a twin-track machine.
We evaluated multiple solutions, with both tractor users and our engineering team taking part. Ultimately, rear tracks and conventional front axle steering proved the optimum one in meeting all global demands.
The rear tracks provide a considerably larger ground contact area, boosting both traction and flotation, and compared with a twin track design we have full diff lock capability, ensuring full power to the ground even in tough going.
Steering with a conventional front axle helps keep the tractor in a straight line in difficult conditions – with a twin-track machine, constant corrections are necessary. And with four ground contact points, traction and weight bearing are maximised, regardless of whether the tractor is in work or has its implement raised, while ride quality and road handling are smoother than with a twin-track crawler.
As farming operations grow in size, tractors are covering ever-greater road distances. This configuration also offers the best on-road solution – front tracks would reduce this and result in different steering characteristics.
We knew when we first showed the concept that we had to get people in the tractor, because it looks different. But when they see it at work, when they drive it, we find they cease to question the solution.

FARM FORUM: Are there any plans to mark the 30th anniversary of Magnum in 2017?
With the first Magnums having been launched in late 1987, that anniversary is approaching rapidly. We have a lot of loyal customers who have had Magnums since the beginning, and we're proud of the history, the heritage and the name.
But 2017 also marks milestone birthdays of a number of our key products, including the 60th anniversary of the foundation of Steiger, and we will be highlighting these in a number of ways, so watch this space…

"Operators need to be able to get in the seat and go. Ease of operation and intuitiveness are important"



Magnum Rowtrac: "with four ground contact points, traction and weight bearing are maximised"

AT LAST, EUROPE HAS FOUND SOMETHING TO AGREE ON

It has taken two months of testing by 25 expert judges from 23 countries. Out of seven finalists from leading manufacturers, they have chosen the Optum CVX as the Tractor of the Year 2017. They are not alone. Optum CVX's high power-to-weight ratio and advanced technologies have already won it Machine of the Year, and four different innovation awards, in 2016.

Test it out for yourself at your Case IH dealer, and see if you agree too.

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