THE CASE IH MAGAZINE 3/2013

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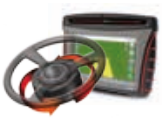
FM 750™ + EZ Pilot

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IMPRINT
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EDITORIAL

SMART & EFFICIENT FARMING – NEW SOLUTIONS AND INNOVATIONS FROM CASE IH

DEAR READERS,

All over the world we have been experiencing a changing landscape over the past few months. This is characterised mainly by our diminishing resources. This situation presents the whole agricultural sector with new challenges. Today, faced by limited, finite resources, it is more important than ever to produce sufficient quantities of the highest quality agricultural raw materials sustainably.

One of the keys to meeting these challenges is most certainly agricultural technology, because it delivers the capabilities to manage production processes more efficiently and sustainably. Case IH again makes a contribution here with a series of innovations.

At no point in our company history have we been able to offer farmers such an efficient range of tractors and harvesting machinery. As a result our customers worldwide can operate with more precision and more efficiency while conserving resources. What this means for agriculture in practice, is what we would like to present to you in our latest edition of FarmForum. We will provide you with an overview of new developments - in Precision Farming - for example.

Take the opportunity to find out more about our solutions for your farming business. Perhaps at the world's largest agricultural trade show, Agritechnica in Hanover, or at your nearest Case IH dealer.

We look forward to talking to you and being able to show you our latest technologies.

Greetings from St. Valentin

Matthew Foster
Vice President Case IH

CASE IH EXTENDS ROUND BALER RANGE

HIGH-SPEED BALING WITH THE NEW RB GENERATION

NEW ROUND BALERS WITH VARIABLE COMPRESSION CHAMBER FOR EFFICIENT STRAW AND FORAGE HARVESTING / ROUND BALES FORMED FLEXIBLY BETWEEN 0.9 AND 1.8 METRES DIAMETER / NEW DESIGN / DUAL DENSITY ENSURES HIGH BALE WEIGHT

Harvesting green forage, silage and straw is subject to increasing harvest material prices, wider swath widths and tight time frames for working in the field. That is why efficient and high speed baling of harvest residues and forage is becoming more and more important.
It is for this reason that Case IH has now developed a new round baler with a variable compression chamber, available from January 2014.

MODERN DESIGN FOR EASY ACCESS

The new RB series consists of two models - the RB 455 and the RB 465, which form bales 1.2 wide and between 0.9 and 1.5 metres in diameter (RB 455) or between 0.9 and 1.8 metres in diameter (RB 465).
Both models can be supplied with an optional rotor feeder and cutter rotor. As a result, the new RB 455/465 can be adapted to different operating requirements.
The new generation of balers can be recognised by its modern design with full-length folding doors along both sides of the baler. These enable easier access for service work, for example.

UNIFORM BALES THANKS TO PERFECT SURFACE

The way RB 455/465 balers work is to use a combination of flexible belts and compression rollers. Performance is greatly increased thanks to the short distance between the pickup and rotor. The dense and stable core of the bale is formed quickly using the compression rollers. The belts then ensure uniform density as the bale increases in diameter.
This is thanks to new materials and an optimised surface on the continuous belts that achieves better grip, less stretching and a longer service life. Four wider belts are used to minimise disintegration losses.
Belt tension is set using springs. Hydraulic tension is then applied as the diameter increases. As a result the compression pressure is ideally controlled.
The optional new Dual Density function enables additional mass to be compressed into the bales when required. Bales are then more cost-effective to transport and ensilability is also improved.

NEW PICKUP

The new RB series can be equipped with a 2.0 or 2.3 metre-wide, suspended high capacity pickup, which is able to collect the largest straw swaths even on bumpy ground.
As standard, the new balers feature four tine carriers with a total of 28 or 32 spring-mounted pairs of tines.
As an option, a Heavy Duty pickup with five banks of tines is available with reinforced rubber-mounted tines to handle especially difficult conditions.
The standard adjustable swath suppressor roller guarantees a smooth flow of crop.
The pickup can also be equipped with passively-steered jockey wheels as an option to protect

the topsoil when cornering. These jockey wheels can be manually folded into the transport position without tools to stay within the transport dimensions.
From the pickup the crop moves into a large cross-conveyor auger that feeds the material towards the rotor, increasing the throughput of the pickup. A double feed auger - as used on our large square balers - can be fitted as an option. Two augers, one above the other, convey the high volume flow of crop into the rotor duct. The advantage of this configuration is that it greatly increases performance during the first cut and with very high quantities of straw.

HIGH PERFORMANCE ROTOR

The chopping rotor has three rows of double tines that cut the crop uniformly with 15 knives that pivot hydraulically. This system produces a short and uniform chopped length. The knives are spring-loaded to protect them against stones and can easily be replaced without the use of tools. The knife bank is controlled hydraulically. A new drop-floor option clears any clogging in the rotor zone very rapidly and is remote-controlled from the tractor cab.

NEW CONTROL CONCEPT

Another new feature is the innovative control concept on the RB 455/465. The entire baling process is controlled fully-automatically using a touchscreen display. Here, for example, you can select with the tap of a finger the bale diameter at which the binding cycle should start. Various binding patterns for the twine can also be chosen by tapping the screen. These ISOBUS-compatible balers can be controlled entirely using the monitor screen in the tractor. Two monitors are available. Users can choose between a cost-effective b/w monitor or a 4-colour TFT display.
You can supervise the filling of the compression chamber using the screen. In addition, all the relevant machine functions - such as compression chamber filling right/left, status of the binding system, status of the feed rotor and chopper rotor, as well as job statistics - can be displayed. This makes it easier to achieve optimum bale shape and density when picking up irregular swaths.
All the functions are controlled by tapping the touchscreen display.

OPTIMUM BINDING WITH NETTING OR TWINE

When ordering your baler you can choose between netting or twine, or a combined netting and twine binding system. Depending on the version, six rolls of twine and up to three rolls of netting are transported on-board the baler.
The new Over-Edge net binding function applies netting wider than the compression chamber. This ensures that the edges of the bale are completely covered when using standard 1.2 metre-wide netting. With 1.3 metre-wide netting, the bales are covered right over the left and right edge.
In addition, double twine binding is available using two telescopic twine arms. Binding takes place automatically. The number of wraps can be set using the control monitor.

The five-bar pickup collects even very short crop reliably at high driving speeds.

NEW DETAIL SOLUTIONS

The new RB 455 features numerous new detail solutions to provide enhanced safety and convenience during operation.
All new RB balers can be driven using a 500 or 1000 rpm PTO. The main driveshaft is equipped with an automatic friction clutch.
All drive chains are permanently lubricated and the pickup is protected using a shear bolt.
Another new feature is a safety switch on the baler. This enables maintenance work to be performed on the baler's electronics system without the risk of electrical functions being switched on or triggered inadvertently that could harm the service technician.
The choice of tyres has now been extended to include 500/55-20 tyres. Larger tyres are intended primarily to provide significantly improved ground protection. Depending on country-specific equipment options, both hydraulic brakes and air brakes are available.

ARABLE FARMER FINDS NEW ROUTES:

"SOIL, SOIL, SOIL!"

AT GUT SCHWAIGE FARM NEAR STARNBERG IN BAVARIA, THE STÜRZER FAMILY APPLY CONTROLLED TRAFFIC FARMING USING THE LATEST SATELLITE TECHNOLOGY TO CONSERVE THE SOIL AND OPTIMISE YIELD.

Asked about his arable farming principles, Max Stürzer simply answers: "Soil, soil, soil!" in describing the basis of a modern concept on his farm built on all the principles of planting gathered so far, to which are applied the very latest technologies.

On more than 320 hectares of agricultural land Max Stürzer grows rapeseed and wheat as well as triticale and malting barley. On average the fields surrounding the farm buildings are around ten hectares. With an annual precipitation sometimes in excess of 1000 mm and a soil rating of 40 to 70 points, they farm very changeable ground at an elevation of between 550 and 650 metres above sea level, consisting of glacial deposits. "These location factors mean that we have to have the necessary productivity available from drilling to harvesting, especially in order to make use of optimum arable farming timeframes", explains Stürzer. However, it is right here that he also sees a risk in modern farming: "Higher and higher performance and wider working widths - and as a result heavier machinery in the field - that can't be the best way. Our pressure-sensitive ground soon punishes you for every mistake."

SOIL IS AT THE CENTRE

"When we continue to develop arable farming, increase yield and want to operate sustainably, it becomes more important than ever before to maintain a healthy infrastructure in the soil", is how Stürzer explains the key to his philosophy and use of modern technology.

CONTROLLED TRAFFIC FARMING (CTF)

One of the main contributors from his point of view is Controlled Traffic Farming. Satellite-based guidance systems are used to lay down permanent lanes that are maintained over the years, meaning that the tramlines used for fertilization and spraying are then used for virtually all work processes. The result: the risks of compaction due to heavy machinery are minimised, the amount of tillage required is reduced, energy requirements are lowered and the infrastructure of the soil is conserved. "This retains a higher proportion of humus, an active soil life and improves soil characteristics such as water retention capabilities, root penetration and infiltration capacity of the soil", explains Stürzer.

SURVEYING USING CONDUCTIVITY MEASUREMENT

To conserve his farm land as best he can, Stürzer first mapped in detail his land to highlight differences in the soil. Using electrical conductivity measurements he plotted soil maps for each field that provide a basis for ongoing farm processes, such as fertilization.

NEW METHODS OF FERTILIZATION

This is another area where Max Stürzer applies different methods compared to many of his peers. The basis for measuring nutrients are the principles outlined in the "Albrecht Papers" developed by Dr. W. Albrecht and available today under the title "Hands on Agronomy" by Neal Kinsey applied worldwide in all cultures focussing on the interaction of nutrients and micro-nutrients in the soil rather than yield, quality and withdrawal values. "This takes into consideration the discrepancies in the balance of nutrients that can lead not only to loss of yield, but also to disease and problems associated with weeds and pests. It is often not the lack of nutrients that causes us problems in modern farming but the imbalance of nutrients in relation to each other, or in the worst case an excess of nutrients", says Max Stürzer.

CROSSING THE FIELD BY SATELLITE

To implement his Controlled Traffic Farming System, Max Stürzer has his own RTK station on the farm enabling guidance systems to achieve an accuracy of two centimetres. All tractors and

Max Stürzer, farmer at Gut Schwaige near Starnberg in Bavaria

harvest machinery are equipped with guidance systems. To reduce the proportion of tracks in the field as far as possible (Max Stürzer has already managed to reduce the proportion of tracks in the combine harvested crops to below 35 percent) he first of all used software to create exact field maps defining the fixed lanes for the most important work sequences. "Of course this is one of the most difficult challenges since the working widths and track widths need to be matched precisely to enable the highest possible rate of lane-dedicated traffic and above all reduce the track proportion", says Max Stürzer.

"The first thing that we had to do was optimise all work processes. In six months over winter we used FarmWorks™ to precisely define the traffic lanes based on our field maps. A great deal of planning is needed here to adapt the working width during tillage to the combine track width, for example."

EFFICIENT FARMING

Once the traffic lanes have been entered into the system, it is easy to transfer the data using a USB drive so that the tractors automatically find the right route. For the tractors, Stürzer relies on AFS systems from Case IH – using, for example, factory-fitted and integrated guidance systems. "Overall, the system not only offers new methods of soil conservation, but we have also been able to increase our output, for example", says Max Stürzer. His experience shows that up to 20 percent in working hours and energy can be saved. Stürzer calculates that four to five litres of diesel can be saved per hectare. On top of that, working quality and convenience are increased because drivers no longer need to concentrate on steering.

"In the face of increasing energy prices and the more and more critical involvement with the causes of climate change, such as climate-relevant nitrous oxide emissions, the potential and significance of CTF will continue to grow in future", reckons Max Stürzer.

SOFTLY OVER THE FIELD – COMBINES TOO

For Max Stürzer the key objective of Controlled Traffic Farming is to reduce surface pressure in the field. This can either be achieved using wide tyres with low tyre pressures, or by using machines with drive tracks.

That is why since last year he has been using an AF 8230 with 7.50 metre-wide header and tracks for harvesting. Although it was not just the soil-conserving drive tracks that were decisive in changing to an Axial-Flow® combine from Case IH. Low losses, high output – even in poor conditions – and above all the straightforward transmission system, were what also impressed this farmer.

INTRODUCING THE NEW FLAGSHIP CLASS

PREMIERE FOR THE NEW STEIGER AND QUADTRAC SERIES

FOR MANY YEARS THEY HAVE BEEN AMONG THE MOST SUCCESSFUL TRACTORS WHEN IT COMES TO DELIVERING THE HIGHEST PULLING POWER FOR WIDE WORKING WIDTHS WHILE IMPLEMENTING EFFICIENT, GROUND-CONSERVING TILLAGE AND DRILLING CONCEPTS.

With the 2014 series, Case IH presents the latest generation of Steiger and Quadtrac tractors, including the 540 and 580 models and the new top-of-the-range 620, with a power rating of 628 hp and a maximum power output of 692 hp. As a result, the new Case IH Steigers and Quadtracs are the most powerful series production tractors in the world. In addition, they deliver a torque of almost 3,000 Nm and have a tare weight of 25 tonnes.

CASE IH QUADTRAC – HIGHEST PERFORMANCE COUPLED WITH OPTIMUM TRACTION AND MAXIMUM GROUND PROTECTION

The Quadtrac chassis with four independently driven tracks offers a constant contact area of more than 5.6 square metres – around 25 percent more than other tractors in this class. This adds up to increased traction, reduced ground pressure and virtually zero slip.

The numerous features that contribute to the key success factors and highlights are the result of its uniquely designed and engineered concept.

On the Quadtrac, for example, the track units can pivot up and down by ten degrees. This guarantees a large area of ground contact in every operating situation and reduces ground compaction. Working together with the independent and individual suspension on each track unit, the long wheelbase of 3.92 metres and the Positive Drive concept, power is transmitted 100 percent. The centre-acting articulated linkage ensures consistent pressure on all four tracks. No additional ballast weights are required.

Quadtracs can be steered under load in any working situation and offer optimum performance even in damp or difficult ground conditions. Weight distribution has already been factory-optimised with ballast for all work with 60 percent in front and 40 percent behind. In the middle the Quadtrac can 'flex' by up to 13 degrees up and down to produce excellent driving performance and optimum weight distribution.

In addition, the Steiger and Quadtrac series has the largest cab in the industry with unrivalled all-round visibility. The Surveyor™ cab features exclusive cab suspension. This equalises jolts and minimises back and forth movement along the direction of travel as well as sideways movement, contributing to improved driving comfort and more control.

THE LATEST ENGINE TECHNOLOGY WITH PATENTED EXHAUST CLEANING SYSTEM

All new Steiger and Quadtrac models are powered by a Cursor 13 FPT engine. These engines have a capacity of 12.9 litres, six cylinders and two intercoolers, enabling a significant improvement to the thermal efficiency of the engine. Engine torque is 2,941 Nm for the highest pulling power. A fuel tank capacity of 1,900 litres and 320 litres of AdBlue is provided for long working days in the field.

COMFORTABLE WORKING ENVIRONMENT

The cab on Steiger and Quadtrac tractors is still among the largest and most comfortable on the tractor market. Numerous detail improvements have been implemented on the new series: the cab has new ergonomic features such as seat ventilation on the driver's seat and new wide-angle rear-view mirrors that can be heated and adjusted electronically.

The driver's seat can be adjusted by 40 degrees to improve visibility of mounted equipment and considerably reduce stress on the driver while monitoring implements.

NEW MULTICONTROLLER

Both the Steiger and Quadtrac now have the latest generation of Multicontroller, which features several detail improvements. Its new design makes it easier to operate, while the backlit controls enhance safety when working at night.

Using the Multicontroller armrest you can control up to eight remotes as well as the automatic headland function.

CASE IH STEIGER: MAXIMUM PULLING POWER WITH WHEEL TRACTION

With the 2014 models the Case IH Steiger series is now extended with three new models, the Case IH Steiger 540, 580 and 620 with an engine power output of 543 to 628 hp, increasing the power range of the existing Steiger series. As a result Case IH now offers the most powerful wheeled tractors worldwide. The chassis on the new Steiger 540, 580 and 620 has been adapted to their power output with integrated ballast and is equipped with heavy duty components throughout, including larger axles and wheel hubs. The larger chassis on the Steiger with new, more stress-resistant drivetrain and transmission components sets new industry standards in productivity, making these tractors the ideal solution for heavy pulling work during tillage and planting.

EVERYTHING IN VIEW

An AFS Pro 700 colour monitor is integrated into the armrest and follows the movements of the driver's seat. The AFS Pro 700 offers the latest standard of user friendliness for controlling all the automatic guidance functions offered by the AFS AccuGuide system as well as key tractor functions such as hydraulic flow rates.

HIGHEST EFFICIENCY

All Steiger and Quadtrac tractors are equipped with Automatic Productivity Management (APM), which automatically selects the best combination of gear and engine speed for each implement and type of terrain. When APM is active, the driver only needs to enter the desired driving speed.

FASTER ON THE ROAD

The fully-synchronised Full Powershift transmission provides 16 forward speeds and two reverse gears for an optimum performance spectrum and a maximum speed of 37 kph. Reverse speeds of up to 13.5 kph are possible.

Nine gears are available for working in the field. Speeds for the main working ranges are therefore ideally adaptable to the current job and working conditions.

POWERFUL REAR END

The class 5 drawbar easily handles vertical forces of up to seven tonnes and the optional hitch ram lifts up to nine tonnes on all models in the Steiger and Quadtrac series.
A rear PTO with 1000 rpm is also available as additional equipment, reaching maximum power at reduced engine speed.

HID FLOODLIGHT PACKAGE TURNS NIGHT INTO DAY

An exclusive high intensity lighting package with adjustable HID floodlights improves visibility at night with 360-degree illumination of the field. This lighting system is five to six times brighter than conventional systems and the HID lamps last 6,000 hours longer than standard tractor lights.

PRECISION FARMING

All Steiger and Quadtracs can be supplied with a complete AccuGuide guidance system factory-fitted. Expensive retrofit and installation time is saved as a result. The AccuGuide guidance system includes the very latest AFS 372 generation of GPS receiver. This means you can receive the Russian Glonass signal at no extra charge for optimum reliability thanks to the higher number of satellites.

The new Steiger and Quadtrac tractors have an overall height of 3.77 metres and are 7.60 metres long. The width at the fenders is 2.99 metres, fitted with 710 millimetre tracks. 910 millimetre tracks are also available. With a wheelbase of 3.92 metres, it has the longest wheelbase in its class.


CASE
620

Vincent Hazenberg
Product Manager Large Tractors Case IH Europe

IN DEMAND:

TOP TECHNOLOGY FOR HIGHEST EFFICIENCY

The new Steiger and Quadtrac series is one of the first tractor series from Case IH to be equipped with an SCR-only system to fulfil the stricter emissions criteria of Tier 4 Final/Stage IV. The latest generation of Efficient Power also takes effect, making available new and patented technology for exhaust post treatment. We spoke to Vincent Hazenberg, Product Manager for Large Tractors at Case IH Europe, about the advantages and innovations of the newest generation of engines:

QUESTION 1: WHAT IS SPECIAL ABOUT THE NEW ENGINES?

The new engines with unique Hi-eSCR technology deliver optimised combustion, continuing to secure the pole position in fuel efficiency for Case IH. This patented technology not only ensures excellent cost-effectiveness but also an NOx transformation efficiency of 95 percent – compared to between 80 and 85 with other systems.

QUESTION 2: CASE IH WAS ONE OF THE FIRST TRACTOR MANUFACTURERS THAT APPLIED SCR SOLUTIONS ACROSS THE BOARD. WHAT ARE THE ADVANTAGES OF THIS SYSTEM?

The exhaust cleaning stage is performed by Efficient Power using a separate SCR-only solution outside the engine. More power, much lower fuel consumption and enhanced reliability is achieved as a result.

The engines are factory-tuned for the highest performance without increasing pollutant emissions or reducing efficiency. A precision-regulated combustion process without recycling exhaust gas through the engine means a noticeable increase in fuel efficiency.

QUESTION 3: WHICH INNOVATIONS CHARACTERISE THE LATEST GENERATION OF SCR EXHAUST CLEANING ON EFFICIENT POWER?

The highly efficient SCR system features excellent AdBlue management with precision control over the whole working range - the result of a series of patents registered during intensive research by FPT Industrial.

Patents have been issued, among other things, for optimised fluid dynamics models of the exhaust stream and injected AdBlue.

- a control system for the fine admixing of AdBlue, taking into consideration the NOx produced by the engine
- ammonia and NOx sensors that detect the current condition of the catalyst, taking into account its aging
- integrated mixer technology in the exhaust post treatment system to ensure very good hydrolysis of the AdBlue and uniform distribution of the ammonia to the catalysts.

Mr. Hazenberg, many thanks for talking to us.

CASE IH INNOVATIONS FOR PRECISION FARMING

RIGHT ON TRACK

NEW CORRECTION SIGNALS AND SERVICES FOR THE CASE IH ADVANCED FARMING SYSTEM MAKE THE ENTRY LEVEL TO PRECISION FARMING MORE ATTRACTIVE. INTERRUPTIONS TO THE RTK SIGNAL CAN NOW BE BRIDGED FOR UP TO 20 MINUTES WITHOUT AFFECTING YOUR WORK.

Case IH now offers interesting innovations in Advanced Farming Systems for all Case IH tractors and harvesting machines. These include new correction data and a new service that extends conventional RTK positioning data for several minutes if the RTK correction data stream should become temporarily unavailable. This system greatly improves the functional reliability and performance of auto guidance systems.

CASE IH RANGEPOINT RTX

Ideal for newcomers and all working widths: RangePoint RTX is a new and highly reliable correction system available right now for Case IH tractors and combines with a maximum pass-on-pass deviation of just 15 centimetres and a repeat accuracy of 50 centimetres.

As a result, this correction signal is ideal at cost-effective entry level for assisted steering and automatic guidance systems and applications using different working widths.

The RangePoint RTX signal is GNS-compatible so that GPS and Glonass satellite signals can be used with Case IH AFS 372 receivers and FM-750 or FM-1000 monitor screens. A key advantage in the field is that full accuracy can be achieved in less than five minutes.

In addition, RangePoint RTX correction data is available via satellite throughout Europe.

If the correction signal is not available - due to shadowing for example - AFS systems with RangePoint RTX continue to operate automatically for up to two minutes. This ensures that continuous operation is possible in the field.

Special hardware - such as modems or new receivers - is not required.

Moreover, Case IH offers RangePoint RTX free-of-charge in the first year. Entry-level Precision Farming is now a great deal more attractive for farmers in Europe - especially thanks to a guidance precision of 15 centimetres.

CASE IH CENTERPOINT RTX

Guidance accuracy and repeatability of four centimetres is possible without a reference station. CenterPoint RTX is the 'big brother' of RangePoint RTX. Based on the same technology – known as absolute positioning – CenterPoint RTX increases positioning accuracy to below four centimetres.

This service is also compatible with the new AFS-372 receiver as well as FM-7150 and FM-1000 monitors. CenterPoint RTX can also use GPS as well as Glonass satellite signals. With an active CenterPoint RTX subscription, farmers also receive free-of-charge access to Glonass satellite signals. The additional Glonass signals improve reception quality even further for even more precise positioning. A base station is not needed when using CenterPoint RTX. Owners of compatible AFS monitors can easily make use of the new signal by updating their equipment firmware and requesting an activation code from their Case IH dealer.

AVAILABLE RIGHT NOW:

Case IH xFill is a new service for all Case IH Advanced Farming System (AFS) users, which makes RTK positioning data available for several minutes, even if the RTK correction signal is lost due to shadowing or mobile communications issues.

Using new xFill technology, RTK standard signals are supported during downtime if the GSM correction data network is overloaded or the receiver is shadowed from RTK signals.

The new xFill function becomes available as soon as the RTK signal is lost. Because there are no delays, work can continue uninterrupted. In the field, it is thus possible to bridge any failures in mobile communications and internet networks, which are the main causes for losing RTK correction data.

For xFill to become active, it is not necessary to have received RTK signals for a specific period beforehand. xFill is ready for action immediately after the first start signal and can bridge RTK signal loss up to 20 minutes from the first second of signal failure.

Work can continue uninterrupted thanks to the seamless availability of positioning data. The AFS equipment is supplied with data of suitable accuracy by xFill for up to 20 minutes. As a result, sporadic reception of RTK signals will no longer have an influence on the work in progress in the field. This means less downtime and considerably more productivity.

A software update of AFS monitors and receivers is required to make use of Case IH xFill.

GUIDANCE SYSTEM PROVEN IN THE FIELD

ON THE WAY TO CONTROLLED TRAFFIC

HERMANN KÄSTLE APPRECIATES THE ADVANTAGES OF THE EZ-STEER IN COMBINATION WITH AN FM-750 / COMBINATION OF RTK, GPS AND GLONASS CORRECTION SIGNALS PROVIDES A TRACKING ACCURACY OF 2.5 CENTIMETRES

For Hermann Kästle - a farmer in Steinheim near Dillingen in the Danube valley - the reasons for using an automatic steering system on his Case IH tractors are many. In particular it is its capability of increasing the accuracy of work processes, improving driving comfort and applying sprays and fertilizers much more precisely - i.e. lowering operating costs - that encouraged the young farmer to invest in an automatic steering system. He decided to retrofit an EZ-Steer from Case IH in combination with an EZ-Guide FM 750, which he can use on his Puma 230 CVX, 1155 CVX or Maxxum 140 as required. The newest tractor, a Puma 230 CVX, was delivered factory fitted for use with the steering system.

NOT ONLY DOES IT STEER ITSELF IT PAYS FOR ITSELF TOO

He chose the assisted steering system primarily because there is no need to change anything on the tractor's hydraulics system, the system is easy to install and offers extremely good value for money. Hermann Kästle and his father farm around 300 hectares. They also run a pig farm with 3,000 fattening pigs and their own biogas plant. The father and son rely completely on their own machinery and dispense with ploughing by using mulch and direct drilling only. "In recent years we have attempted to increase efficiency in all of our processes. To really make use of reserves, it is no longer feasible to work without a guidance and steering system. Not only is machine utilization improved and output increased, but we can also save a great deal on materials - and not only because of the reduced pass-to-pass overlap."

FOCUS ON THE ESSENTIALS

"An important factor is taking the stress off the driver. Once the fields have been mapped and

reference lines put in place, it's easy to find the right tramline. Even inexperienced drivers manage very well. In our experience you can then concentrate more on the function of the implements rather than on steering carefully through the crop. The system can do that much better," says the young farmer.

In order to achieve high accuracy tracking, Hermann Kästle relies on signals from GPS satellites, plus the EZ-Guide FM 750 is able to process signals from Glonass satellites as well. In addition, his Case IH dealer – Hans Ayrle - operate their own RTK station with which additional correction signals can be used. This increases accuracy to between two and three centimetres. Together with Hans Philipp Ayrle, Hermann Kästle mapped fixed lanes that can be used for all work processes for almost all his fields - over 100 in total.

"In future we will definitely be implementing Controlled Traffic Farming. It clearly separates crop and traffic. Alongside other advantages, such as reduction of ground pressure in the field, improved precipitation absorption and minimisation of erosion, yield is definitely increased," explains Hermann Kästle.

Hermann Kästle, farmer in Steinheim near Dillingen

TECHNOLOGY READY FOR ACTION

Hermann Kästle rates the technology offered by the EZ-Guide FM-750 as advanced yet highly practical. During the retrofit a cable loom was fitted for the power supply and antenna signal. Swapping the monitor between one tractor and another is quick and easy. High signal availability is ensured thanks to the RTK station. He rates the monitor as extremely rugged. Using FieldFinder technology you can select the field in advance while you are driving there. Day/Night mode provides a pleasant work interface even at dusk. Obstacles in the field can be highlighted with a marker and then localised later on. The young farmer also appreciates the USB Flash drive with which maps and updates can simply be transferred to the unit and data for evaluation can be exported.

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CASE IH AFS GUIDANCE SYSTEMS IN ACTION:

THE PRECISE DRIVERS

MAGNUM 250 AND GRIMME GL 430 CUP PLANTER WITH ACTIVE STEERING SYSTEM ENSURE THE HIGHEST PRECISION DURING POTATO PLANTING.

It is particularly in specialty crops and row crops - such as potato planting, for example, and in undulating and hilly terrain - that today's guidance systems can achieve the highest level of precision during drilling. Using complementary technologies it is also possible to ensure that large machine combinations remain on the ideal course despite side pull and slope angles. How that works can be witnessed in action on Herbert Geisen's farm in Münstermaifeld.

ALL SET FOR GROWTH

Here, Herbert Geisen operates a specialty farm that he is continuously expanding. He now farms an area of more than 400 hectares. In addition to his own fields, he has also taken over complete responsibility for operating three neighbouring farms under commercial contract . The region around Münstermaifeld, between Koblenz and the Eifel plains is characterised by very good soil, often with up to 95 points. At the same time the mild climate of the Rhine and nearby Mosel provide favourable conditions in the region - ideal for intensive arable farming. "Although, here we usually have small fields in very hilly countryside", is how Herbert Geisen describes the topography of his farm. Alongside the growth of his business, the farmer has focused on planting potatoes on an industrial scale. In the meantime he grows more than 85 hectares of potatoes under contract, mainly for manufacturers of crisps. Then there are 60 hectares of sugar beet and winter wheat to add to the production spectrum. "We decided to rely completely on our own machinery – from planting through to harvesting. Only the sugar beet are harvested using a contractor's six-row self-propelled beet harvester."

One of the main concerns of Herbert Geisen and his team, consisting of two employees, is to lower operating costs and increase efficiency. That is why some years ago he equipped the complete fleet of Case IH tractors with automatic steering systems, including a Magnum 315, a Magnum 250, a Puma 210 and a 195 CVX.

"The advantages are obvious: thanks to the automatic guidance system we achieve a much higher output – sometimes up to 20 percent higher productivity in our fields. On top of that there are the savings in plant protection sprays and fertilisers as well as taking the stress off the driver," he says.

The latest application for the AFS system is potato planting. "The Autopilot system in the Magnum 250 steers the tractor to an accuracy of 2.5 centimetres with the help of the RTK correction signal. The most important thing during potato planting is that the planter remains exactly on track. We have looked at different technical solutions and decided to use a planter with active steering. This means that our Grimme GL 430 has an axle that is steerable by up to 15 degrees, its own on-board navigation computer and the necessary steering valves", says Geisen. All data are controlled using an FM 1000 monitor with TrueTracker, the active control system in the Magnum cab.

Using its own GPS unit, the position of the planter is detected even on a slope. Exact positioning is determined by an RTK signal, which the farmer receives from his own station.

After the first year of operation Herbert Geisen sees clear advantages of the system and many practical benefits: "We achieve a previously unattainable level of precision, especially on slopes. The system takes the pressure off the driver and we plant a much higher number of plants per hectare. First we map out tramlines every 30 metres. Each subsequent pass is to within a centimetre!"

Due to the exact location of the tramlines, the potential for savings is transferred consistently to each subsequent work process such as fertilization and plant protection.

Photos:

1 Herbert Geisen and employee Ralf Linscheid are convinced of the advantages of the AFS system in combination with an active steering system on the potato planter.

2 View into the cab: the Case IH AFS FM 1000 monitor assumes overall control. Not only the Autopilot steering system on the Magnum, but also the steering system on the Grimme potato planter.

3 Dedicated GPS unit on the planter

4 The Magnum 250 pulls a four-cup Grimme GL 430 potato planter. This features an active steering system, meaning that it has an on-board antenna, navigation controller and 15-degree steerable axle.

PROFESSIONAL CYCLIST ON AN ORGANIC FARM:

ORGANIC FARMING AND EFFICIENCY ARE NO CONTRADICTION

IN POLAND AND THROUGHOUT THE WHOLE EUROPEAN CYCLING SCENE THEY KNOW HIM – AND ARE IMPRESSED BY HIS UNPRECEDENTED CAREER THAT LED FROM CYCLING SPORT AMATEUR TO PROFESSIONAL AND THEN ON TO BECOME ONE OF THE MOST IMPORTANT CYCLING SPORT MANAGERS IN EUROPE.

Czeslaw Lang is a professional cyclist, sports manager and farmer in Barnowo, northern Poland

We are talking about Czeslaw Lang. As an amateur he won the Polish National Championships and the 100 kilometre team time trial World Championship. Other milestones in his career were winning a medal at the 1980 Olympic Games, winning the national team championships in Poland and taking part as a professional in the Tour de France and the Giro d'Italia. Since 1995 he has been Manager of the Tour de Pologne, which he took over as an amateur race and developed it into a world-class tour and one of the most important cycle races in Europe.

However, only a handful of people know about Czeslaw Lang's other passion. Alongside cycling, for many years he has dedicated the same passion, sporting discipline and ambitious objectives to farming. Many years ago, he acquired an old, run-down farm in his home region of Barnowo in northern Poland. "My father used to work there when it was still part of an agricultural collective. That is why I felt compelled to purchase a piece of my homeland and protect it against decay", explains Lang during our visit.

He and his wife lovingly renovated the farm. Then there was the question of farming the fields that belong to the property. Lang very quickly rediscovered his enthusiasm for farming that he had already experienced here as a child.

NEW METHODS IN ARABLE FARMING

Typically, instead of pursuing conventional planting methods, he decided to take a step that was daring and above all new. Lang and his employees decided to apply ecological farming principles. That is where the experienced sports manager yet again showed that he had a good feel for the markets and their development.

"Analogue to economic development in Poland, there is a growing market for well-being, healthy and health-conscious food. As a result, the demand is growing for food from ecological agriculture. In Poland it is trendy to live more healthily than before, do sports and place importance on healthy eating, so that healthy products become more and more highly rated", says Lang.

"That is why five years ago we decided to introduce organic farming step-by-step to the around 600 hectare farm."

But of course it wouldn't be Lang if he didn't apply new methods here as well. "Originally, we thought about implementing traditional mechanisation concepts with low horsepower, for example. But then we quickly realised that if you want to succeed at organic farming, the same general rules apply as for conventional farming. Harvesting has to be performed with a high level of productivity. It is important to make the most of the available timeframes with wide working widths and protect the soil using the most modern technology.

That is why we decided from the beginning to implement a modern farming concept, but with ecological aspects in terms of fertilization, for example, and to dispense with pesticides."

He now relies on a complete Case IH fleet. In addition to a JX 80, which is used mainly for maintenance, his machinery includes a Puma 210 for all the tillage work and, since the last harvest, and Axial-Flow® 5088. "The legendary reliability of these machines, the most modern engine generation with Efficient Power and an impressive service concept were decisive for the purchase of Case IH tractors and combines", reports Lang in retrospect.

"Since then they have been performing to our complete satisfaction. Since we would like to reduce energy usage, one of the most important factors is of course fuel consumption. The tractors were claimed to be real fuel savers, which has also been confirmed in our operating conditions. The latest generation of FPT engines with the new exhaust cleaning systems, on the Puma and Axial-Flow® combine, for example, are smooth running and powerful", says Lang.

On around 600 hectares of arable farm land he grows winter barley, rye, wheat and oats. A 240-head herd of sheep also belongs to the farm. The organic products are marketed mainly through wholesalers, with grain products increasingly in demand from western European countries. "The trend for organic products there really suits us, leading to a high-price market situation", says the entrepreneurial sports manager as he plans the next company-wide development. "It is well-known that nutrition is only one part of a healthy way of life. Well-being, sport and the joy of life are also important. I would like to convey this philosophy – ideally right here at our farm." For this reason Lang is currently building a hotel in which he will open a spa resort for "stressed civilised people", says Lang, who can be treated using a holistic therapy, or in the case of illness, using the Gerson therapy. We look forward to finding out how successful this latest Lang project will be!

VISIT TO FPT DEVELOPMENT CENTRE IN ARBON

"WE MAKE ENGINES MORE EFFICIENT!"

THE STRICT STAGE IV EXHAUST GAS REGULATIONS DETERMINE CURRENT DEVELOPMENTS. THE ENGINEERS AT FPT ENGINE RESEARCH IN ARBON (SWITZERLAND) ARE ALREADY WORKING ON AN OBJECTIVE FOR FUTURE ENGINES FOR CASE IH TRACTORS: INCREASE EFFICIENCY CONSIDERABLY AND CONTINUE TO SET NEW INDUSTRY-LEADING STANDARDS.

Dr. Dirk Bergmann, Managing Director of FPT Engine Research

The first diesel engines around 120 years ago had an efficiency of 26 percent. Over the years, thanks to the introduction of intercooling and four-valve technology, the efficiency of modern engines has been increased to around 46 percent. The current generation of engines in Case IH tractors belong to the most efficient industrial engines worldwide – proven by official tests and competitive comparisons conducted by leading testing and approval bodies. But the engineers in Arbon have no intention of resting on their laurels. At FPT Industrial they have set themselves an ambitious objective: over the next six years the efficiency of FPT engines is to be considerably increased yet again.

Dr. Dirk Bergmann, Managing Director of FPT Engine Research, reckons more than 55 percent is possible. "Of course many small steps and optimisations are needed so that together they make industrial engines much more efficient than previously", says the developer.

Dr. Bergmann sees one of the main issues being the reduction of frictional losses in engines. "Modern lubricants, improved bearings and new surface coatings can reduce frictional losses. "In Arbon we are currently researching smart control systems that improve networking and tuning between the tractor engine and units such as compressors, air conditioning and above all, hydraulic pumps.

NEW METHODS OF FUEL INJECTION

One major point of research in Arbon is the optimisation of injection systems. This is a special area of expertise for the engine developers in Arbon since they were first to develop common rail systems.

They see key areas for further development in continuous injection using variable flow control. In future, intelligent software - similar to the system used by Case IH for Automatic Productivity Management (APM) - should be implemented to support the driver in saving fuel. "Sensors in the engine and drive train will detect current power demand better than they do today, and automatically adjust the engine speed, transmission ratio as well as the amount of fuel injected. We are currently following the first promising results in the industrial vehicle sector."

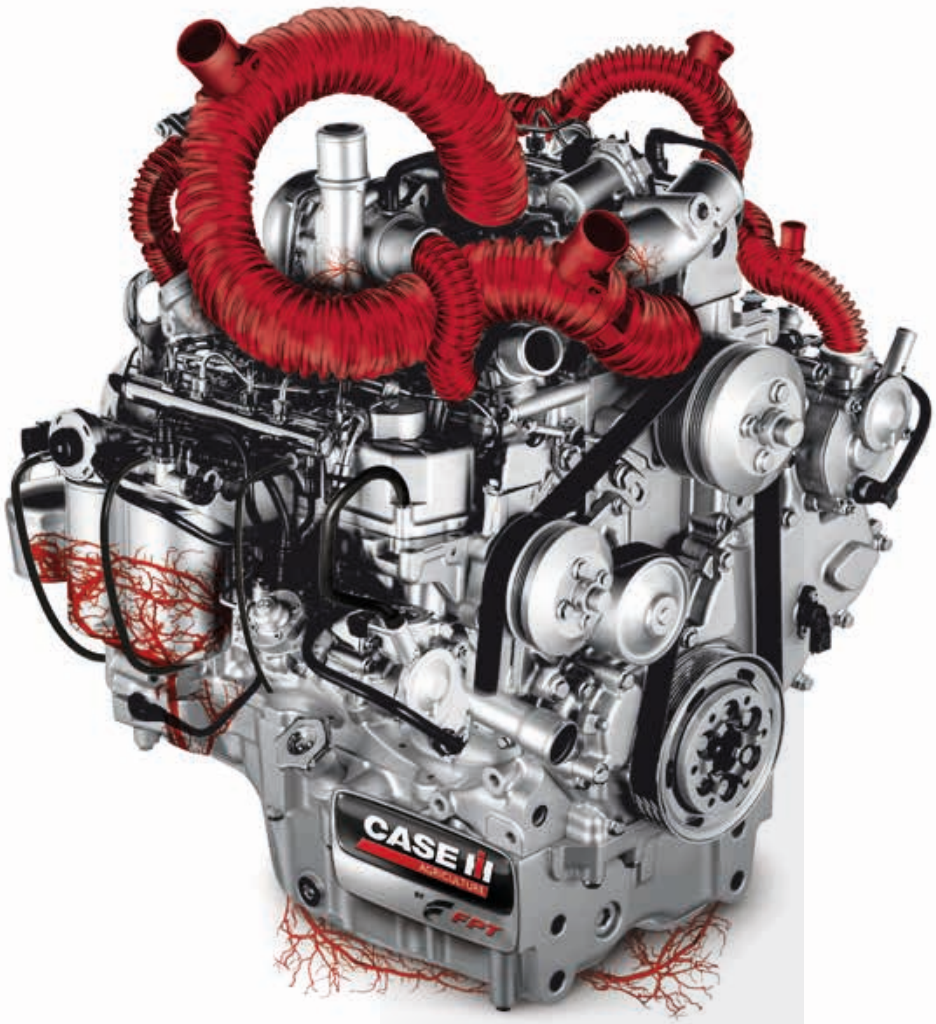
Exhaust post treatment will also continue to be optimised in future. The technicians in Arbon will be relying on flow analysis to make filters and catalysts more compact and even more efficient. For agricultural machinery, Bergmann sees opportunities in hybrid systems, electrifying one part of the drive line and storing excess energy in electrical form.

"Turbo compound systems could also place a more significant role in the next generation of engines. These would involve using exhaust gas flow to drive a turbine that outputs energy directly to the crankshaft. More than a quarter of the energy input by diesel is still lost through the exhaust. This is definitely an interesting source of energy that we can harness better than we have so far," says Dr. Bergmann.

WHAT COUNTS: HI-ESCR MAKES EFFICIENT POWER EVEN BETTER!

Following intensive collaboration with FPT Industrial and the use of HI-eSCR technology from FPT Industrial, Case IH tractors and combines are equipped to comply with the new Tier 4 Final/ Stage IV emissions regulations. This innovative solution from FPT Industrial involves the latest developments in Selective Catalytic Reduction (SCR), which the engineers in Arbon have been working on since 1991. Today, it is now the research and development centre for FPT Industrial. SCR became the company's exhaust post treatment system of choice to ensure its engines maintained the limit values for NOx, especially in accordance with Tier 4A/B and Stage III B/IV regulations.

SCR technology has proven itself so far not



only in Case IH agricultural machines, but also in more than 350,000 road transport trucks and construction machines. The NOx emissions are treated in the exhaust tract, where the focus is on optimising combustion. As a result power delivery is improved while fuel consumption and operating costs are reduced. Last year FPT Industrial continued its long tradition of innovative developments and introduced High Efficiency SCR. HI-eSCR already takes SCR technology to another level before the new Tier 4 Final/Stage IV regulations dictate another reduction in NOx emissions.

HIGH EFFICIENCY SCR

The stricter emission limits of Tier 4 Final/Stage IV can only be adhered to by using Selective Catalytic Reduction (SCR), with or without Exhaust Gas Recycling (EGR).

Although EGR reduces NOx emissions in the combustion chamber, recycling exhaust gas lowers combustion efficiency. To compensate for this deterioration in performance and in order to achieve outputs comparable to the HI-eSCR solution, additional technologies need to be applied where EGR is used. Higher injection pressures, two-stage turbocharging, intermediate cooling and particulate filters are just some of the technologies that make competitors' engines considerably more complicated.

With HI-eSCR technology, clean air in the engine plays a major role in optimising combustion effectiveness. NOx is transformed into water and harmless molecular nitrogen (N2) during the exhaust post treatment process. Emissions are reduced by more than 95 percent as a result.

Thanks to the solution provided by FPT Industrial, not only are performance, fuel consumption and reliability improved, but also less particulates are emitted, making a diesel particulate filter superfluous.

On the road, HI-eSCR is already being used by a prize-winning vehicle from the Fiat Industrial Group. The Iveco STRALIS HI-Way was awarded the esteemed title of 'International Truck of the Year 2013'.

The system for Tier 4 Final/Stage IV consists of:

– Diesel Oxidation Catalyser (DOC)
– AdBlue injection module
– AdBlue mixer
– Selective Catalytic Reduction (SCR)
– Clean-up Catalyser (CUC)

HI-ESCR ENGINES FOR OFF-ROAD APPLICATIONS

In the NEF and Cursor engines used in Case IH machines, the new HI-eSCR technology is used with the additional intention of increasing combustion effectiveness. As a result the engines fulfil the emission limits as per Tier 4 Final/ Stage IV.

Thanks to ongoing developments on the crank case and cylinder head, the design resistance and coolant flow have been optimised so that together with common rail injection the cylinders in the latest generation can be operated with high combustion pressure. At a maximum of 2,000 bar, the injection pressure is within a moderate low-wear range (competitors using EGR need an injection pressure of up to 2,500 bar).

HI-eSCR engines have a new electronic control system for the engine and exhaust post treatment in which all engine and SCR functions are integrated. By dispensing with exhaust recycling during the combustion process, fuel consumption is lowered and engine wear reduced so that the maintenance intervals can be extended to 600 hours. This means lower operating costs and less downtime.

THE LATEST TECHNOLOGY MAKES IT POSSIBLE

The following patented systems evolved during a new integrated development program:

– Closed-loop control system for precise injection of AdBlue
– Adaptive injection based on NOx and ammonia sensors
– Thermally insulated high turbulence mixing
– Improved exhaust temperature regulation

The networked system is monitored and controlled by integrated sensors. The exhaust post treatment system monitored by a closed control circuit has been designed as a compact, lightweight unit.

INNOVATION HIGHLIGHTS IN HALL 5

CASE IH AT AGRITECHNICA 2013

CASE IH STAND IN HALL 5, STAND B15: TOP MEETING POINT FOR EVERYBODY LOOKING FOR EFFICIENT AND COST-EFFECTIVE SOLUTIONS / MORE THAN 20 TOP INNOVATIONS / CASE IH PRESENTS TWO OF THE MOST POWERFUL TRACTORS IN THEIR CLASS

YOUR FARMING **NETWORK**
AGRI**TECHNICA**2013

"Efficient Farming – tractors, harvesting technology and Precision Farming solutions for tomorrow's agriculture" – it is under this motto that Case IH presents its stand at Agritechnica. Never before has the agricultural machinery manufacturer presented such a wide range of innovative highlights. More than 20 innovations, including five new tractor series, will be on display. The presentation is rounded off with an exciting selection of information and entertainment on the latest fuel-saving engine technology, interesting financing possibilities through to synergies within the Fiat Industrial Group from which farmers can also benefit.

CASE IH EXTENDS DIGITAL INFORMATION OFFERING

TRACTORS AND HARVESTING TECHNOLOGY GO IPAD

NEW APP PROVIDES INFORMATION ON TABLET PCS ABOUT CASE IH PRODUCT TECHNOLOGY / CHOOSE FROM FULL PRODUCT RANGE OF TRACTORS AND HARVESTING TECHNOLOGY AVAILABLE FROM CASE IH EUROPE / SPECIAL ACCESS FOR CASE IH DEALERS / PREMIERE AT AGRITECHNICA

Especially for tablet PC users, Case IH offers an additional information channel: using the new Case IH app you can now view key information on the Case IH tractor and harvest machinery product range conveniently and easily using your iPad. In addition to technical information relating to performance data, configurations and equipment details, comprehensive information in the form of photos and videos is also provided.

EASY NAVIGATION

Just select the desired model using the 3-D wheel. Detailed information on each model is provided in image-form, hot-spots and info points with description texts and close-up photos.
Then there are brochures, magazines, photos and videos that can be viewed in full-screen mode on your iPad. A new comparison function is also interesting. Here you can compare the key machine data of two different Case IH models.

EXCLUSIVE INFORMATION FOR DEALERS

It is not only customers who can use the new Case IH app as a source of information. Case IH dealers can enter a password-protected area to access special dealership information. This means that sales staff throughout Europe always have the information they need in digital form close at hand.

A dedicated program ensures that content is updated completely automatically on an ongoing basis.
The app is available from the Apple App Store - just enter 'Case IH Europe' to download the English version free-of-charge.

INNOVATIONS ON AXIAL-FLOW® COMBINES

EFFICIENT THRESHING!

FOR THE 2014 SEASON, CASE IH PRESENTS NEW PRODUCT FEATURES FOR THE FAMOUS AXIAL-FLOW® COMBINES: OPTIMISED CLEANING SYSTEM, HIGHER FEED CAPACITY OF CLEANED GRAIN, NEW UNLOADING AUGER TUBE AND A NEW CAB CONCEPT.

The optimised cleaning system starts with more effective channelling of the air flow. Together with a steeper angle of the lead-off plate under the lower screen and the larger cross-conveyor auger, cleaning performance will be increased especially for maize and damp grain. The entry area to the grain elevator has been enlarged and the elevator paddles are now fitted with a back plate so increase the volume that can be conveyed. The grain tank filling system has also been adapted to the higher capacity of the cleaning system to provide an all-round concept for increasing productivity.

The new cab features, among other things, a revised, sleek, multifunction lever with which the driver has everything under control. The right-hand console, which has also been upgraded, contains an ergonomic layout of controls and a rail for mounting the AFS monitor, a cup holder and office equipment, all within easy reach. Many practical storage areas – implemented in brushed chrome on the luxury version – have been added. Drivers can easily connect up and use their iPad and iPod and under the passenger seat there is a practical, portable refrigerator to keep food and drinks cool.

In future you can also control straw placement from the cab. Four different settings can be selected at the press of a button: chopped straw distributed over the whole header width, chopped straw deposited in a swath (e.g. for balers without a chopping rotor), wide distribution of long straw for faster drying, and long straw placed in a swath.

To make parking, driving on roads and unloading on the move easier and safer with wider headers, Case IH has introduced new options with an extremely high-performance 8.8 metre-long folding auger.

The driver controls the folding and unfolding sequence using just one switch in the roof of the cab, which takes place rapidly and reduces the length of the machine for road transport and parking.

For the best view during unloading, this optional 8.8 metre auger pivots through 95 degrees; when folded, the auger does not protrude past the side panels of the combine access to the rear service deck remains unrestricted. The 8.8 metre system is indispensable with headers 12 metres or more wide.

The new – unique throughout the industry – pivoting outlet chute is available as an option for high-performance unloading augers of any length. It enables the driver to conveniently set the flow of grain from the cab and move the chute into the right position. As a result the tractor and trailer no longer have to be re-aligned alongside the combine.

NEW DETAIL SOLUTION ON THE 130 SERIES

For the new model year there are a number of interesting detail solutions on the new Axial-Flow® 130 series. In response to the demand for additional lighting for greater distances, there is now new Distance LED lighting on the exterior mirror arms and wide-angle LED lights on the mirrors. These provide better illumination of the header in particular. Both lights can be adjusted individually so that drivers can set them up exactly as they need them. They are operated using a rocker switch in the cab roof.

The grain tank unloading system is now connected to the driver's seat sensor. If the driver leaves the seat for longer than five seconds, the unloading system switches off automatically. The driver must return to the seat before the process can continue.

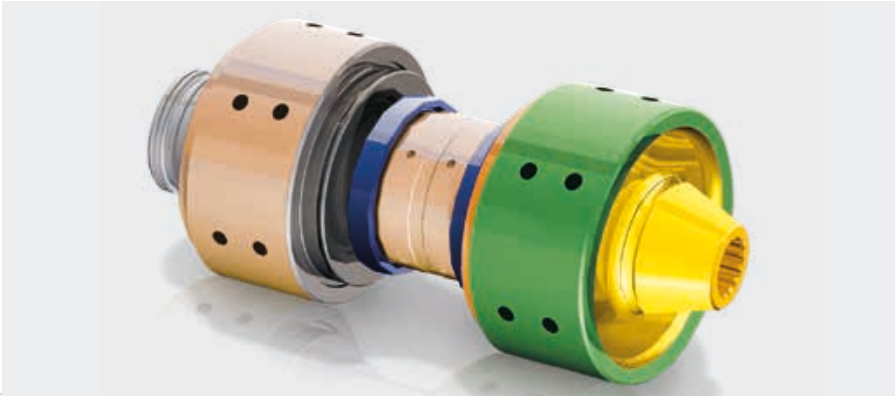
MAXXUM CVX EFFICIENT POWER INFINITELY-VARIABLE:
MULTI-ROLE AND COST-EFFICIENT

AS A HIGHLIGHT FOR AGRITECHNCIA 2013, CASE IH EXTENDS THE MAXXUM SERIES WITH THREE NEW MODELS WITH CONTINUOUSLY VARIABLE TRANSMISSIONS. THE MAXXUM 110 CVX, 120 CVX AND 130 CVX REPRESENT THE VERY LATEST ALL-PURPOSE TRACTORS FOR THE WIDEST RANGE OF TASKS FEATURING POWERFUL ENGINES AND COMFORTABLE CABS.

These models follow the trend in continuously variable transmissions and extend the CVX offering in the medium power class with 4-cylinder engines. We took a closer look at the new Maxxum.

EFFICIENT TRANSMISSION TECHNOLOGY

The Maxxum CVX models are equipped with proven CVX transmissions with double-clutch technology. These transmissions operate completely continuously between zero and 50 kph and offer outstanding overall efficiency in two mechanical operating ranges. Hydraulic power is available uniformly across the whole speed range of the tractor and requires less than 25 percent of total power output. 50 kph Eco Speed is achieved at a reduced engine speed of 1,750 rpm (40 kph at 1,600 rpm).



TOP! – MAXXUM CVX WITH DCT

The gear change between the two operating ranges takes place automatically using the double clutch. The double-clutch technology ensures that frictional losses are minimised for maximum efficiency.

FOR CONVENIENCE AND MORE EFFICIENCY

Maxxum CVX tractors are also equipped with Case IH Automatic Productivity Management (APM), a system already proven highly effective with the larger Case IH tractors. APM automatically reduces engine speed if less power is currently required.

ENHANCED SAFETY

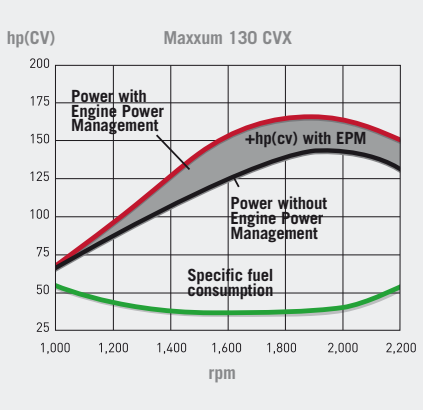
All new Maxxum tractors also feature an active stop control system. This system ensures the tractor can remain safely stopped on hills, regardless of whether it is with or without a load, and without having to operate the clutch.

POWERED BY MODERN ENGINES

The new Maxxum CVX tractors are powered by rugged engines with turbochargers and intercoolers. These 4-cylinder engines have a capacity of 4.5 litres and all models feature electronic common rail injection. The engines deliver a real power boost – ten percent higher performance at a reduced engine speed of 1,900 rpm. This enables a noticeable reduction in fuel consumption.

SHOWING THE WAY TO THE FUTURE.

The new Maxxum CVX series is equipped with Efficient Power. This means that each engine has the Case IH-built SCR system (Selective Catalytic Reduction). They are optimised for efficiency so that maximum torque is reached at an engine speed of just 1,500 rpm. Maxxum tractors are also equipped with an engine management system that makes up to 22 hp available above rated power.



COMFORTABLE CAB

The new Maxxum CVX series is supplied with a Surround Cab, offering one of the most comfortable tractor working environments available on the market today. The cab is the largest in its class and provides exceptionally good visibility through a total glazed area of 5.78 square metres. The four-pillar design and integrated roof window offer an uninterrupted view with a 105 degree field of vision to the front, which is ideal for working with a front loader. With a noise level of just 69 decibels, Maxxum tractors are also equipped with the quietest cabs on the market.

NEW GENERATION OF MULTICONTROLLER

The new Maxxum CVXs are fitted with the latest generation of the Case IH Multicontroller. This has been improved even further in terms of operation and ergonomics. For example, you only need to press one button to change the direction of travel. New backlit keys ensure safe operation at dusk and during night work. In addition, the surface of the control keys has been enlarged and new soft pads promote easier operation.

LIFTING POWER – MORE POWER FOR WORKING WITH THE HYDRAULICS

As a real all-rounder, the Maxxum is also equipped with a very flexible hydraulics system. An axial piston pump delivers high flow rates of up to 125 litres per minute - including pressure and flow rate regulation when required. The rear hitch is capable of lifting up to 7,864 kg while the front hitch lifts up to 3,100 kg. Up to seven electro-hydraulic remotes enable the operation of a wide spectrum of equipment.
Up to four hydraulic connections are available at the rear with up to three mid-mounted.

NEW: MORE EFFICIENT CONTROL OF FRONT HYDRAULICS

A new control system for the front hydraulics makes it easier to operate front-mounted machinery. Two hitch heights can be pre-programmed so the automatic float regulation system automatically switches to float mode as soon as the relevant working position is reached. This is ideal for working with front-mounted mowers, for example.

NEW: IDLING SPEED CONTROL

The system for controlling idling revs is also an innovative development. A newly-developed software function reduces fuel consumption even further with operating costs reduced accordingly. Idling speed is automatically reduced from 850 rpm to 650 rpm 30 seconds after the driver leaves the cab, providing neither the electronic remotes nor hitch are in operation.

CLIMATE CHANGE:

WINNERS, LOSERS – AND MORE UNCERTAINTY

CLIMATE CHANGE AND THE INCREASING CO_2 CONTENT IN THE ATMOSPHERE AND MORE AND MORE FREQUENT WEATHER EXTREMES HAVE BEEN A SUBJECT OF DISCUSSION FOR YEARS. SOME STATEMENTS ARE SUBJECT TO EVEN GREATER UNCERTAINTIES. WHAT DO THE CHANGES THAT HAVE ALREADY BEEN PROVEN TODAY MEAN FOR AGRICULTURE IN EUROPE AND WORLDWIDE?

FarmForum put forward some questions to Prof. Dr. Frank Ewert from the University of Bonn, who is concerned with the effects of climate change on plant production, land usage and food supply reliability. The subject of climate change has many sides to it – and scientists are not unanimous on all accounts: to what extent is detectable global warming caused by us humans, or to what extent does natural variability have an effect, as already often observed during the Earth's history? The increase in atmospheric CO_2 levels and the resulting increase in temperatures are certainly provable and also the weather extremes with unusually high temperatures and drought as well as too much precipitation are also measurably on the increase.

The changes have winners and losers: among the winners are C3 plants, to which belong – with the exception of maize – most of the plants farmed throughout Europe. For them, more CO_2 in the atmosphere means increasing availability of a growth factor that directly influences photosynthesis and biomass production. Specialists reckon that the doubling of atmospheric CO_2 levels forecast by the end of this century could enable up to 20 percent more yield for C3 plants. C4 plants, which due to their different metabolism are more or less already CO_2 saturated, hardly benefit from an increase in atmospheric levels.

TWO SIDES OF A COIN

For farmers in southern Europe - parts of Spain for example - who previously struggled with prevailing drought, the rising temperatures and increasing weather extremes represent a serious threat. The risk of drought-related loss of yield and total crop failure is increasing considerably in these regions, while in northern Europe - Finland for example - new areas of land could be opened up for farming. Increasingly long vegetation periods could make arable farming an interesting economic proposition in regions previously used for forestry, and winter crops could replace some spring/summer varieties.

Specific plant types also belong to the winners; the grape Cabernet Sauvignon, for example, as well as soya beans could become interesting for new farming areas. However, not all winners from this development are welcome. It is to be expected that as the regions for certain vegetation expand, so will the influx of foreign pests and diseases to these areas. The potential for damage is high because indigenous plants generally do not possess the resistance mechanisms to cope with new pests and diseases.

UNCERTAINTY ABOUT EXTREME EVENTS IS GROWING

A core problem associated with climate change is the increasing variability of the weather. Extreme events that exceed all experience gathered in previous years present farmers with a growing number of challenges. In some countries and regions it is virtually impossible to forecast because phases of excessive heat, drought or intensive precipitation rarely stretch across a whole country, let alone a whole continent, like the drought in the Midwest USA last year and the catastrophic flooding in south and east Germany this year.

On top of that, climate change and variations in the weather have caused a measurable shortening of the vegetation period in recent decades. Investigations into oats, for example, show that the harvest time has moved forward by around 2 weeks over the last 50 years. Shortening the vegetation time in this does of course reduce the phases of growth and harvest yield as well, although this negative effect has been more than compensated for over time with improved production technology, new strains of plant, fertilization and plant protection. But, the effect remains – leaving a challenge for future breeding to optimise the start and duration of yield-effective growth phases and more efficient usage of natural resources.

HOW CAN FARMERS RESPOND TO CHANGING CONDITIONS?

One aspect has already been mentioned: the work done by breeders, who in future will continue to play a decisive role in the success of arable farming. Questions relating to root growth, root depth and intensity and the water absorption of root systems concern a sector that is receiving more and more attention. The same applies to transpiration efficiency of individual species and types, for the effectiveness of the photosynthesis mechanisms of C3 and C4 plants, for resistance to harmful organisms and especially for resilience against stress caused by heat and drought.

Prof. Dr. Frank Ewert,
University of Bonn

Countermeasures are also offered by agricultural technology: water utilisation efficiency can be increased by minimising harvest losses, for example. Technical seed time shortening as well as the intensities of tillage processes offer solutions about which some research is still required.

From the farmer's point of view, a possible way could be in wider diversification – although this may present economic difficulties initially. A wider spectrum of types of plants farmed and a more diverse sequence of crops would represent a better distribution of the weather risk to plants with different weather requirements, different main growth phases and development phases and as a result different susceptibilities to extreme weather events. However – and this is currently very much the reality – diversification on this scale usually involves considerable economic cutbacks. To what extent the formation of local cooperations, monitoring and marketing structures could help and to what extent harvest insurance or even government systems to cushion weather-related risk would make sense or even be deemed essential, will be revealed in the coming years and decades and will require research in its support.

CASE IH STARS IN BBC SHOW

PRIME TIME TV CAPTURES LATEST TRACK TECHNOLOGY IN ACTION

ESSEX FARMER TOM BRADSHAW, WHO FEATURED IN SEPTEMBER'S BBC PROGRAMME 'HARVEST 2013', CHANGED HIS ENTIRE FLEET TO CASE IH AFTER EVALUATING THE BENEFITS OF TRACKS.

Picture: www.aerialvue.co.uk, Dave Halton, Paul Carr

One of the farm's two Case IH Axial-Flow 9230 combines harvesting wheat and unloading into a trailer pulled by a Puma 230 CVX

Tracks are unbeatable for maximising traction and minimising ground pressure, but provide numerous other benefits, says Tom Bradshaw. BASIS and FACTS qualified, a soil expert and Nuffield Scholar, he has become a household name in farming circles after appearing on BBC 2's 'Harvest 2013'.

The focus of 'Cereals: The Seeds of Life', Tom farms with his father David at Fordham, where their Fletchers Farm extends to 165 acres, but through various contract farming agreements they produce 3700 acres of combinable crops.

A Nuffield Scholar who studied soil fertility and fertiliser use efficiency in Australia, Argentina, New Zealand and the United States, Tom passionately believes that the soil holds the key to breaking the yield plateau which has existed for three decades.

"We want to be recognised as doing an excellent job of producing crops and generating good returns for clients," says Tom. "A key part of that is to treat the soil as a living ecosystem and look after it. Tracks are vital on larger machines to ensure that we can farm cost-effectively with minimum adverse impact on the soil."

MAJOR CHANGES

Tom's interest in the soil led to two major events during the last year. The first was to change his approach to machinery, the second taking part in Harvest 2013. Whilst many farmers might have shied away from the spotlight Tom decided to take on the challenge.

"The film crew's first visit was in October 2012 when we were drilling, in January they filmed our new Case IH Quadtrac ploughing and then re-

Tom Bradshaw pictured beside his Puma 230 CVX, which has an exceptional power:weight ratio and is light enough for top work but can be weighted-up for draft operations. The farm also operates a Case IH Puma 160 CVX which fulfils a range of duties.

turned to capture rape coming into flower, wheat in ear and crops being inspected. During harvest the presenters, Philippa Forrester and Gregg Wallace, were with us for three days. The programme set out to portray what how crops are produced and the reaction has been very positive. It has certainly raised our profile, but meant a lot of people are looking over the hedge!"

COPING WITH EXPANSION

In the early days of their contract farming business the Bradshaws relied on second-hand machinery. The prime movers, a 325hp Steiger Panther 325 and 280hp Fiat Versatile 44-28, offered simple, cheap horsepower, and were supported by different makes of smaller tractors. Having started with a Claas Dominator 98 combine, they traded up to a Lexion 480.

"By 2009 we were struggling to harvest 2500 acres with one combine," Tom explains. "We had a Case IH 9010 Axial-Flow® on demonstration in 2010 and liked its simple, straightforward design, but it wasn't available on tracks which I felt were essential. We ended up buying a Lexion 580 TerraTrac and having run a tracked combine wouldn't want anything else because they provide much better header stability, minimise transport width and reduce compaction.

"In 2013 we had a major rethink of our machinery. We operated several brands: Claas combines, a Challenger 865, 435hp Steiger STX 435 wheeled tractor, John Deere 7530 and a Claas 697. Everything was out of warranty and ma-

The Bradshaws' Quadtrac STX 550 operates with a range of implements, including this 8m Vaderstad Rapid drill.

jor problems with the combine and Challenger meant big expense, so we decided to standardise on one brand. Only Case IH offered exactly what we wanted and our local dealer, Doe Power in Sudbury, worked hard to gain the business. We sold the Lexion 580 privately, part-exchanged everything else and purchased two tracked Case IH 9230 Axial-Flow combines with 35' headers, plus a Quadtrac STX 550, Puma 230 CVX and Puma 160 CVX.

TRACKED BENEFITS

"We have been delighted. The Quadtrac is a big advance over our previous twin-track tractor and much kinder to the soil. It has worked with a seven-leg Keeble subsoiler, 10-furrow Dowdeswell reversible, 6m power harrow, 6m Vaderstad Top Down cultivator and an 8m Vaderstad Rapid drill.

"By the time we finished drilling this year's winter-sown crops the Quadtrac had done over 800 hours. It's good to drive, performance and output are very impressive and it treads very lightly. The four individual track units greatly reduce scuffing compared with a twin-track machine, so we don't need to cultivate headlands simply to level the land, saving time, expense and soil damage.

"The Quadtrac puts its power down so effectively that no wheeled tractor can compete and because it is less than 3m wide we don't need an escort when moving it on the road. The track system has been well proven and is the basis of that used on the Axial-Flow® combines, so we were confident they would be very reliable and significantly reduce compaction.

"The two Axial-Flows made harvest much more flexible and improved timeliness: we were really pleased with how they performed. They harvested 3750 acres, starting with winter barley on1st August and finishing the winter wheat on 30th August, having operated flat-out whenever it was dry enough. They are simple, straightforward, do the job very effectively and will allow us to expand. Ernest Doe Power's back-up has been exceptional.

"The last year has certainly been eventful. Our investment in Case IH machinery has paid off and 'Harvest 2013' was an amazing, once-in-a-lifetime experience that will live long in the memory."

More information about the series, together with clips from the show, can be found at www.bbc.co.uk/harvest

TV presenter Philippa Forrester (second left) and the production team in one of Tom Bradshaw's fields during June.

“400 HORSEPOWER TOTAL CONTROL”

Edward Hitchcock and Ian Boughton, Pelham Farming, Stocking Pelham, Herts

NEW MAGNUM CVX: MORE POWER MEANS MORE PRODUCTIVITY

The Magnum’s highly efficient constantly variable transmission is already winning praise. Trying its smooth and even pull on mole draining and subsoiling, Edward found it 29% more fuel efficient than a similar sized competitor. “It’s not just power, it’s efficient power,” he says; we couldn’t put it better ourselves. Meet one in the field yourself - ask your local Case IH dealer for a trial. Find them at **www.bit.ly/caseihdealers**.

NEW – WITH CVX TRANSMISSION

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"A SIGNIFICANT STEP FORWARD"

ESSEX FARM BENEFITS FROM LATEST AXIAL-FLOW® TECHNOLOGY

BOLTON FARMS AT BOREHAM, WHICH TOOK DELIVERY OF A NEW CASE IH 9230 AXIAL-FLOW® COMBINE IN JULY, BENEFITED FROM CONSIDERABLY GREATER OUTPUT AND EASIER OPERATION THIS HARVEST COMPARED WITH THEIR PREVIOUS 9010 AXIAL-FLOW®.

The 9230 is the flagship of the new Axial-Flow range, which comprises three 130 Series machines, the 5130, 6130 and 7130 from 299hp to 415hp, together with the 230 Series combines, the 7230, 8230 and 9230 from 449hp to 571hp. All are powered by efficient Case IH FPT Tier 4 SCR engines which deliver average fuel savings of 10%.

These high-output combines incorporate a number of new features and improvements which were developed by Case IH following extensive consultation with farmers and contractors, including both existing customers as well as users of other brands, to make them even more productive and intuitive. The new cab, standard on all new Axial-Flow models, sets the industry standard in terms of convenience, comfort and ergonomics, while all incorporate an upgraded CAN-BUS electric system which enables Case IH to offer impressive new features. These include new unloading technology which incorporates an electrically-folding auger, an exclusive pivoting spout to improve the accuracy of trailer filling, together with industry-leading residue-management technology that reduces the operator's workload and increases productivity.

To make on-the-go unloading more comfortable and safer, as well as simplifying storage and transport, Case IH offer 8.8m and 10.4m high-capacity, folding augers. Controlled from the cab, the 8.8m auger folds to 95° and can be used with headers up to 12m, while the 10.4m auger folds to 135° for use with headers up to 15.25m.

The new industry-exclusive pivoting spout option allows the operator to accurately adjust the grain stream using a button on the multi-function lever, allowing perfect filling of trailers. The spout can be positioned precisely where needed instead of repositioning the entire tractor-grain trailer combination relative to the combine. This reduces the risk of spilling grain or the tractor/trailer coming into contact with the header and means that the tractor can avoid running on swathed straw, leaving it in perfect condition for baling. When the unloading auger is disengaged, the spout automatically and quickly pivots upwards to prevent grain from dribbling out. Powered grain tank covers, controlled from the cab, further increase convenience and reduce downtime.

All models incorporate the state-of-the-art AFS Pro 700 display for yield monitoring and machine/guidance control, the system being compatible with all Case IH equipment.

FEATURE PACKED

Features such as these appealed to David Bolton and his son, David, who farm 800 acres of their own and another 800 acres on contract, with help from a Case IH Quadtrac 535 for primary cultivations and drilling. This year they harvested 550

David Bolton Junior (L) and David Bolton Senior

Case IH has continuously improved the Axial-Flow combine, which delivers excellent performance over a range of crops and conditions, helping to protect both yields and crop quality.

acres of oilseed rape, 70 acres of spring barley and 1400 acres of winter wheat.

"We couldn't fault our previous 9010 in any way - it was very reliable, easy to maintain, delivered a good sample and was comfortable, but the 9230 is a significant step forward," David explains.

One of the main reasons the Boltons waited for the new model was because of the new Case IH deluxe chopper package, which features in-cab adjustment of the chopper knife bank and rear rotor discharge door. Enabling the speed of the chopper to be adjusted from the cab, it also makes it possible to switch from 'chop' to 'swath' mode in less than a minute without opening any covers, so the operator stays clean.

If the emergency stop button on top of the multi-function lever is pressed, the counter knife bank will fully retract, providing additional protection for the chopper and counter knife against foreign objects. Less need to reset the counter knife blades manually also maintains the quality of chopping and spreading.

The deluxe chaff spreader option, which includes in-cab adjustment of the spread distance and distribution, is fitted to the Boltons' Axial-Flow and is, says David, really useful, particularly on windy days because it allows crop residues to be evenly distributed, making subsequent cultivations easier and more effective.

Supplied by Ernest Doe Power at Fyfield the 9230 was first used to harvest oilseed rape, its extra power being immediately noticeable and the 571hp engine providing much greater harvesting performance, even though the 30' header is no wider than the one on the Boltons' previous 9210.

The high-capacity, folding auger with pivoting spout option

"We found the new header much better at following ground contours and it didn't dig into the ground, which saved time as well as reducing the risk of mechanical damage and contamination of the sample. The other big difference is the operator environment. The previous machine was very good, but visibility from the new, larger cab is much better, as is the interior design and layout. The 9230 allows you to make so many more adjustments from the cab, which saves time and makes it much easier to operate the machine at optimum efficiency. We are delighted with the 9230. The improvements it incorporates, particularly software and electronics, make an enormous difference. The decision to change was well-founded."

AFTER THE HARVEST

WINTER SERVICING IS KEY TO OPTIMISING MODERN COMBINE PERFORMANCE

WINTER SERVICING OF COMBINE HARVESTERS BY AN APPROVED DEALER WITH THE EXPERIENCE, KNOWLEDGE AND EQUIPMENT TO DO THE JOB CORRECTLY AND EFFICIENTLY WILL PAY FOR ITSELF THROUGH INCREASED PERFORMANCE, RELIABILITY AND LOWER OPERATING COSTS.

Paul Freeman and Matthew Pratt of Case IH

"Harvest represents the culmination of the farm's entire year's work and in many cases combinable crops account for their total revenue, so maintaining the combine to the highest possible standard makes sound commercial sense. Trying to cut corners will ultimately prove a false economy," states Product Specialist Paul Freeman.

Whilst the use of state-of-the-art electronic systems has dramatically increased the performance, output, reliability and comfort of modern combine harvesters Mr Freeman emphasises that it has also made correct servicing more important than ever to ensure they continue to operate to their full potential.

"Axial-Flow combines have the simplest mechanical configuration of any modern combine, providing them with a significant edge in terms of efficiency, performance and reliability, together with lower servicing requirements and maintenance costs," Paul Freeman states. "However, they should always be serviced by an approved dealer, who will address any potential issues before they become a problem, install routine upgrades and update the operating software."

Whilst some owners may think that they can carry out the annual service themselves, or get the job done by a local mobile fitter, Matthew Pratt, After Sales Area Manager, cautions that maintaining a modern combine correctly involves much more than just cleaning the machine, changing the oil and replacing the filters.

"A key part of the post-harvest servicing schedule that Case IH dealers carry out is to ensure that the power-plant, drive system and other mechanical components operate at optimum efficiency, but servicing and updating the combine's electronic systems is now equally important, requiring specialist knowledge and equipment," Mr Pratt emphasises.

"The Electronic Service Tool used by our dealers enables any technical issues to be detected and rectified quickly, so the customer benefits from fast, efficient servicing, which minimises downtime and costs. During the service the dealer will also update all the on-board software, which will greatly optimise the combine's operating efficiency, performance and working life, delivering a greater overall return on investment."

"Combines that have been dealer-maintained have fewer call-outs during harvest, saving the customer significant downtime and cost at a critical time of the year. Regular servicing by the dealer will also create a detailed history for the machine, making it more attractive to a potential purchaser and enhancing its second-hand value."

The Case IH Axial-Flow® range currently includes six models, the 5130, 6130 and 7130 from 299 – 415hp, together with the 7230, 8230 and 9230 from 449 – 571hp. The range incorporates a new cab which creates the ultimate in operator environment, together with cutting-edge unloading technology that includes a folding auger and industry-exclusive pivoting spout option to improve trailer filling accuracy.

“HOW I KEEP MY COOL AT HARVEST”

David Bolton (Junior), Bolton Farms, Essex

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Combining has never been so easy. Now you can have fingertip control of everything from the augur spout to guidance and yield monitoring, an extra-adjustable air suspension seat and the reliability that only comes with Axial-Flow technology. Ask your Case IH dealer about our outstanding offers - click on **www.bit.ly/caseihdealers**.

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