

# FARM FORUM

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# THE CASE IH HAT-TRICK



Magnum 380 CVX  
2015



Maxxum 145 Multicontroller  
2019



Optum 300 CVX  
2017

The Maxxum 145 Multicontroller has been awarded Tractor of the Year 2019 and Best Design 2019 by convincing the jury with its ActiveDrive 8 transmission and 8-speed powershift, plus optimal power to weight ratio created by a compact design and powerful but fuel-efficient engine. So it's official: whatever type of tractor you need, from mid-range to high-horsepower, Case IH can offer three series of award winners – all ready to take on your challenges.



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**CASE IH**  
AGRICULTURE  
FOR THOSE WHO DEMAND MORE





# EDITORIAL



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## SUSTAINABLE SPOTLIGHT

### Dear Reader

As a business concerned with supplying the tools to produce food, fuel and fibre from the land, at Case IH sustainability isn't simply a 'buzzword'. The need to ensure that non-renewable resources are used as efficiently as possible is integral to our machine designs, and examples of this include our fuel-saving CVX technology. And our commitment to protecting natural assets particularly critical to agriculture, such as soil, water and clean air, is evident in Case IH hallmarks like our track expertise and Hi-eSCR2 emissions after-treatment.

But it's not just in the design of our products that we focus on sustainability. The manufacturing processes that create them are also part of our commitment, as are many other elements of how we work. Read on to find out more, including an interview with our parent company's head of sustainability planning and reporting.

Elsewhere you'll find features on customer approaches to sustainability, including the use of precision technology in Zimbabwe, and updates on our latest product developments, among them an exciting new AGXTEND product line that can help farmers take sustainable agriculture a step further.

Enjoy your Farm Forum.

### Peter Friis

*Marketing Director  
Europe, Middle East and Africa*

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# SUSTAINABILITY AND PRODUCTIVITY SIDE-BY-SIDE

## CASE IH TECHNOLOGIES TACKLE THE TASK

Farming faces a twin-headed challenge: to produce more food to feed a growing population, and to do so in a sustainable way that conserves resources and preserves our environment. Case IH developments are already helping meet those demands – and there are more to come.





**P**roductive farming depends on the efficient use of precious resources – basic elements such as healthy soils, water and air, and manufactured inputs, such as fertilisers, crop protection products and fuel, created from finite raw products. This is why productivity and sustainability are not incompatible, and why Case IH solutions for productive

farming are also those which are already having a positive impact on the sustainability of agriculture. Today, these technologies are becoming ever more closely integrated, for the benefit both of farmers and of the environment in which they – and the rest of the population – are a part.

This isn't a recent development. From our pioneering articulated tracked tractor introduction back in the mid-1990s, through automated steering systems to more recent data gathering and sharing developments, each innovation has been designed not only to benefit farm productivity, but also to help sustain the natural resources on which the world depends.





**"We are at an exciting new stage of development in the growth of our business."**



**INNOVATORS IN TRACK SYSTEMS**

Taking our innovative approach to track technology as an example, in 1996 we were the first to develop an articulated tracked tractor, the Quadtrac, that ensures maximum pulling power per litre of fuel, minimum compacted soil area and, via pivot steering, minimal soil disturbance when turning at row ends and headlands, eliminating the scuffing caused by differential steering with twin-tracked tractors. It also means reductions in compaction, water run-off, and requirement for additional fuel and wearing metal to rectify soil damage.

With the Magnum Rowtrac rear track development, in 2015 we again innovated by bringing an alternative, soil-friendly steering method to the 300-400hp tracked tractor bracket, complementing our established leadership in the sector above this. And, of course, our Axial-Flow combine line also benefits from our track expertise, permitting large, high-efficiency grain tank loads to be supported on long, narrow footprints to minimise soil impact.



**LEADERS IN MINIMISING FUEL USE AND EMISSIONS**

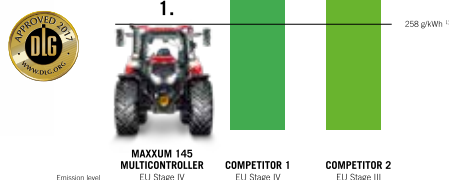
Our engines, sourced from sister firm FPT Industrial, are as efficient as they are productive, benefiting both users and the environment. A Case IH Maxxum 145 Multicontroller equipped with the three-range/eight-step semi-powershift Active Drive 8 transmission achieved the lowest specific fuel consumption ever recorded for a four-cylinder tractor in the PowerMix test conducted Germany's DLG) testing station, with an average figure of 258 g/kWh in the Field Work section of the test, almost 9.5% lower than the figure recorded by its nearest competitor.

We've also shown our commitment to clean air by being one of the first manufacturers to reveal how we will meet EU Stage V emissions legislation, unveiling updated Optum CVXDrive models at November's EIMA show in Italy. Working with our sister business FPT Industrial, our latest technology, covered by a total of 13 different patents, uses no exhaust gas recirculation, minimises fuel consumption and maximises combustion efficiency, while service interval extensions mean oil is used for longer.



**TRANSMISSION EFFICIENCY**

Of course, for an engine to put its power to the ground efficiently it needs a transmission to match. Case IH was among the first to introduce the fuel-efficiency benefits of continuously variable transmissions to the tractor industry, and our CVXDrive option is now available on models from the Maxxum to the Quadtrac and Steiger. By matching engine speed to workload, CVXDrive technology ensures the extraction of maximum performance from every litre of fuel, benefiting both the owner and the environment. But it's not just our top-of-the-range transmission technology that helps save diesel. Our Power Drive full powershifts and ActiveDrive semi-powershifts also help minimise fuel use, with the ActiveDrive 8, as fitted in eight-speed form to the Tractor of the Year 2019, the Maxxum 145 Multicontroller, providing the fuel efficiency of a semi-powershift transmission plus advanced features such as Autoshift automatic shifting.



# SUSTAINABILITY

IT'S PART OF EVERYTHING WE DO



REDUCE THE CONSUMPTION OF RESOURCES BY MOVING FROM FOSSIL FUELS TO A **RENEWABLE ENERGY SYSTEM**



INCREASE AGRICULTURAL PRODUCTIVITY TO **IMPROVE FOOD AVAILABILITY**



REDUCE **ENVIRONMENTAL IMPACT** AND OPTIMIZE **ENERGY CONSUMPTION** IN ALL COMPANY PROCESSES



INCREASE OPPORTUNITIES FOR EXCHANGING **IDEAS** AND **GOOD PRACTICES** WITH ALL **STAKEHOLDERS**

## PARALLEL PASSES WITH MINIMAL OVERLAP

Steering and guidance technology has obviously also had a huge impact on sustainable productivity. AccuGuide auto-steering, part of our suite of Advanced Farming System (AFS) technologies, minimises fuel and crop input use by guaranteeing parallel passes with minimal overlap down to as little as 2.5cm when used with RTK correction, and also aids efficient full cutting-width harvesting. Case IH's commitment to this technology is illustrated clearly through investment in our own RTK+ correction mast network, with recent enhancements including the addition of the European Galileo system to the satellite networks with which RTK+ operates, cutting the variability margin to 1.5cm and reducing the likelihood of signal loss even further.

The recent introduction of AccuTurn Pro means the same level of accuracy can be achieved on row ends and headlands, with the tractor steering itself precisely into the next pass. Not only do they make operation more efficient, but these steering technologies – plus Case IH ergonomic control design such as the Multicontroller armrest – also ensure the sustainability of employment in agriculture, making farming a more enjoyable and attractive occupation.

## REDUCING YIELD VARIABILITY, MAXIMISING HARVESTING EFFICIENCY

Case IH was also one of the pioneers in yield mapping, with our AFS system for Axial-Flow combines allowing lower- and higher-yielding field areas to be identified. Today, it's possible to sustainably increase yields by evening-out field performance through targeting those underperforming areas using variable rate technology for seeds and crop inputs.

And for harvest 2019, new Axial-Flow 250 series combines are available with new Harvest Command automation, which benefits sustainability as well as efficiency by automatically altering combine settings to minimise grain loss, maximise throughput per litre of fuel and ensure the maximum amount of high-quality, undamaged grain gets to the store.



## LINKING TECHNOLOGIES THROUGH DIGITALISATION

The benefits of these technologies are now being brought together by the power of digitalisation, further enhancing their contributions to both productivity and sustainability. With Case IH AFS Connect telematics, we already have the ability for farmers to monitor in real time, record and analyse the performance of their equipment, to maximise the individual efficiency of machines and hence the overall efficiency of the business and its inputs.

As just one example, knowledge of the exact location of tractors and combines can ensure grain transport is kept as fuel-efficient as possible. Data gathering and sharing allows dealers to identify potential areas for productivity gains in the field and improvements in operating technique that could further enhance machine and business efficiency, and ensure best use of valuable resources as a result. With a raft of new precision tools joining the Case IH product portfolio, such as SIMA 2019 Innovation Award-winning XPower 'digital herbicide' weed control technology that uses no chemicals, we are at an exciting new stage of development in the growth of our business providing productive yet sustainable farm equipment.



# TECHNOLOGY HELPS SUSTAIN ZIMBABWEAN SOILS



For one Zimbabwe farming operation, maximising the productivity of its land goes hand-in-hand with protecting and preserving its soils. Case IH machines and precision farming equipment are key tools in meeting these twin targets.

**S**hort seasons make timely field operations critical on Brink Bosman's farm in central northern Zimbabwe. That's addressed not only through the use of high-output Case IH tractors and equipment, but also by a suite of Case IH precision farming technologies the rest of the population – are a part.

Around 150km north-west of the country's capital, Harare, Lion's Den lies in the Makonde district of Mashonaland West province. It's from here that Brink farms 1,150ha of sandy clay loam through to heavy clay, growing corn/maize, soybeans and winter wheat.

"Irrigation helps significantly in sustaining our yields, but high output equipment operated using precision technology also helps," he explains.

"My son, Daniel, studied GIS/GPS technology in Iowa, USA, before becoming operations manager for a large farming corporation there. When he returned in 2015 we established a second company, BlueSky Farms, which he leads, farming about 2,700ha."

Soybeans and corn are established from November-December, with harvest during late April-May. With corn varieties maturing in 145 days and soybeans in

130, high-moisture harvesting followed by significant drying is necessary. Winter wheat, meanwhile, is drilled in May and harvested in October, maturing in around 135 days.

***There's a very small window between harvesting summer corn or soybeans and planting winter wheat."***

"Often we'll be doing both concurrently in the same field, harvesting with our two Axial-Flow 7140 combines, cultivating with our pair of Steiger 550 tractors using either a Case IH RMX790 disk harrow or a disk ripper, and sowing wheat with a Magnum 340 and Case IH SDX30 drill. Corn is planted with two Case IH 2150 24-row Early Riser planters, one equipped with DeltaForce downforce control, enabling us to no-till some fields."

"For applying fertiliser, our Puma 180 and twin-disc spreader broadcasts 450kg/ha of 6-28-23 plus 450 kg/ha of urea on corn and wheat fields, and 200kg/ha of 6-28-23 plus 200 kg/ha of MOP on soybeans. Corn and soybeans get 10kg/ha of soluble starter fertiliser through the Early Riser planters, and wheat tillering is boosted at drilling with

50kg/ha of urea via our Case IH 2230 air cart.

"With corn planted at 60,000 plants/ha, soybeans at 400,000 plants/ha and wheat at 120kg/ha, these husbandry regimes give us average yields for corn of 9-10t/ha, soybeans 3.5-4.0t/ha and wheat 7.5-8.0t/ha."

But it's precision technology that makes the most efficient use of seed and inputs, and helps minimise soil damage. Every tractor and combine is auto-steer capable, with a correction signal supplied by Brink's own RTK base station. Tramlines have remained in place for the past six years, and tractors share the same A-B lines for all field passes.

## MINIMISING WASTAGE

"All the tractors and combines have AFS Pro 700 terminals, which I and my operators find simple to use for managing a range of precision technology. With the Task Controller feature we can minimise fertiliser wastage by using boundary control when operating our Kuhn Axis fertiliser spreader via ISO-BUS. Our Early Riser planters have the Advanced Seed Information feature so I can monitor singulation, spacing and



other planting process aspects, while the liquid and seed feeds can be shut off to individual rows. And our Patriot 3230 self-propelled sprayers have AIM Command Flex technology for rate and individual nozzle control."

Brink switched brand in 1994, when the make he had been using couldn't meet his next order requirements, and his first purchase was three Magnum 7220s.

### LISTENING AND SUPPORTING

"Five years later I bought my first Axial-Flow combine, a 2388, and in 1999 added a Steiger 9350 RowCrop to our operation. Due to farmland being nationalised, I bought no more equipment until 2012, by when I felt the politics surrounding land had calmed and I could expand again. That year I decided to re-equip, and approached Case IH and a key competitor. However, the latter business wasn't keen to supply into this country machines with the specification I wanted. Case IH, on the other hand, visited me, listened to my requirements and confirmed they would support me in any way possible."

As a result, Brink traded the Magnum 7220s, Steiger 9350 and Axial-Flow 2388 combine for two Puma 180s, a Magnum 340 and an Axial-Flow 7130 – since replaced by a pair of 7140 models.

***The similar right-hand console on Puma, Magnum and Steiger tractors is a big advantage - an operator trained on one tractor can operate any other."***



Spraying duties are overseen by a pair of Case IH Patriot self-propelled sprayers.

With his operations gradually expanding, Brink has continued to renew and grow his Case IH fleet, and the main Patriot 3230 sprayer is soon to be replaced with a 4430, while the two 7140 Axial-Flows will be traded for a pair of 8250 models.

### SERVICE AND SUPPORT

"Agricon, our local Case IH dealer, provides excellent service and back-up, and the support from Case IH has been equally good," he says.

"I'm able to specify machines as I want them. And while one alternative manufacturer refused to sell me an RTK base station, even if I bought one of their tractors, Case IH was very willing.

"Another example was the Early Riser planter which, initially, wasn't sold here, meaning I had to purchase alternatives, with which we had some issues. I took an opportunity to meet with Case IH management to explain my problems, and the first Early Riser planter in Africa, our 24-row 2150, was shipped here 12 months later, and since then I've added a second. Case IH listen to what customers require – and act upon it."



The farm's Puma 180 and twin-disc spreader combination is used for applying fertiliser across corn, wheat and soybean crops.



Bosman Farms' fleet includes a pair of Axial-Flow combines and Steiger, Magnum and Puma tractors.

# DRONES BRING SMART FARMING TECHNOLOGY TO SPANISH FARMERS

Case IH's Precision Hawk drones are providing Spanish farmers with the vital information they need to optimise production and profitability.

In north-eastern Spain, farmer Ramón Acín, owner of Finca Bizcarra at Huesca, has become one of the country's leading soil mapping providers in agriculture. The data he collects from the soil, the air and satellites now helps to provide his own and other progressive farms with smart services, allowing them to operate more efficiently, more productively and more profitably.

Ramón is the region's largest farmer, with 310 hectares of irrigated land producing corn, alfalfa, peas, wheat and barley. Three years ago, he was selected to test Case IH Precision Hawk drones. He states:

**Using drone technology has provided me with a much better understanding of the soils on my own farm and on others too. Soil mapping, for example, has led to massive improvements in soil quality and in some areas enabled the rate of saltpeter fertiliser (potassium nitrate) to be reduced from 800kg/ha to zero.**

"Soil mapping should be the start because the type of soil influences its ability to retain nutrients and water, and to drain, so significantly. We can then add other layers of detail, such as crop vigour, irrigation and yield-map data to generate an accurate assessment.

"This year on my farm we are using this to apply herbicides only where necessary on 40 hectares of alfalfa, a crop where too much herbicide affects quality and productivity. Mapping highlighted that only 12 hectares needed herbicide treatment, saving €6,000 in chemicals - and reducing the environmental impact.

## JOINT VENTURE

A smart farming enthusiast, Ramón has been involved in precision agriculture since 2007 when he hired a drone to evaluate irrigation across 120ha of alfalfa. It cost him €2,000 but provided data which led to the entire irrigation system at Finca Bizcarra being upgraded. Ramón had calculated that the investment would pay for itself within five years.

Asked why he was chosen to test Case IH Precision Hawk drones, Ramón replies: "Maybe it's because I'm a precision farming 'geek'. I first used one three years ago and liked it very much. It is very user-friendly and easy to operate. I've been a Case IH customer since 2009 when I purchased a Puma 230 CVX from my local dealer, Talleres Ibarz in Huesca."

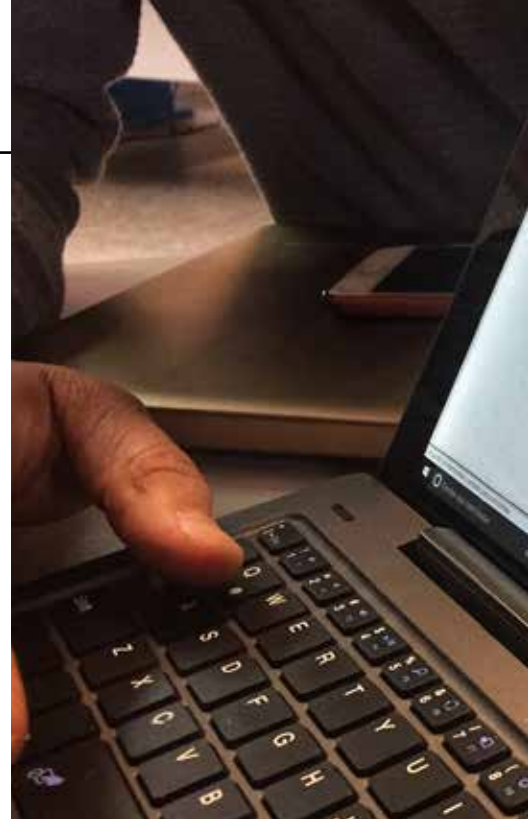
Ramón says that while GPS guidance is already well established on Spanish farms, only now are other precision technologies being adopted. While initially the focus was on high-value crops such as olives, almonds, tomatoes and grapes, it is spreading to extensive crops such as cereals and alfalfa.

"Drones have numerous applications," Ramón explains. "On my own farm in 2018 we carried out a plant-count from the air to assess damage caused by wild boar. In some areas the plant population was only half what it should have been: 50,000 per hectare instead of 95,000. We identified areas where the crop would not be economic, and reseeded only where it was worthwhile."

Finca Bizcarra recently joined forces with Greenfield, a company which provides soil mapping services linked to fully-integrated data provision, analysis and consultancy across Spain and Portugal. 'Agrarium', their joint-venture, operates throughout the Ebro Valley, with Ramón proving his equipment to collect data for Greenfield's analysts.

Ramón is working with Mario Díez, an agricultural engineer with Greenfield who specialises in automation. "Mario and I have learned from experience what works and what does not," Ramón explains. "Although this type of data is now widely available, the skill lies in managing and interpreting it to help farmers to determine, amongst other things, the correct rates of seed, fertiliser and herbicides, and to detect issues in growing crops and correct them quickly.

"We now serve many clients, mainly large, very professional farming businesses, and the more valuable the crop the easier it is for us to introduce our service."



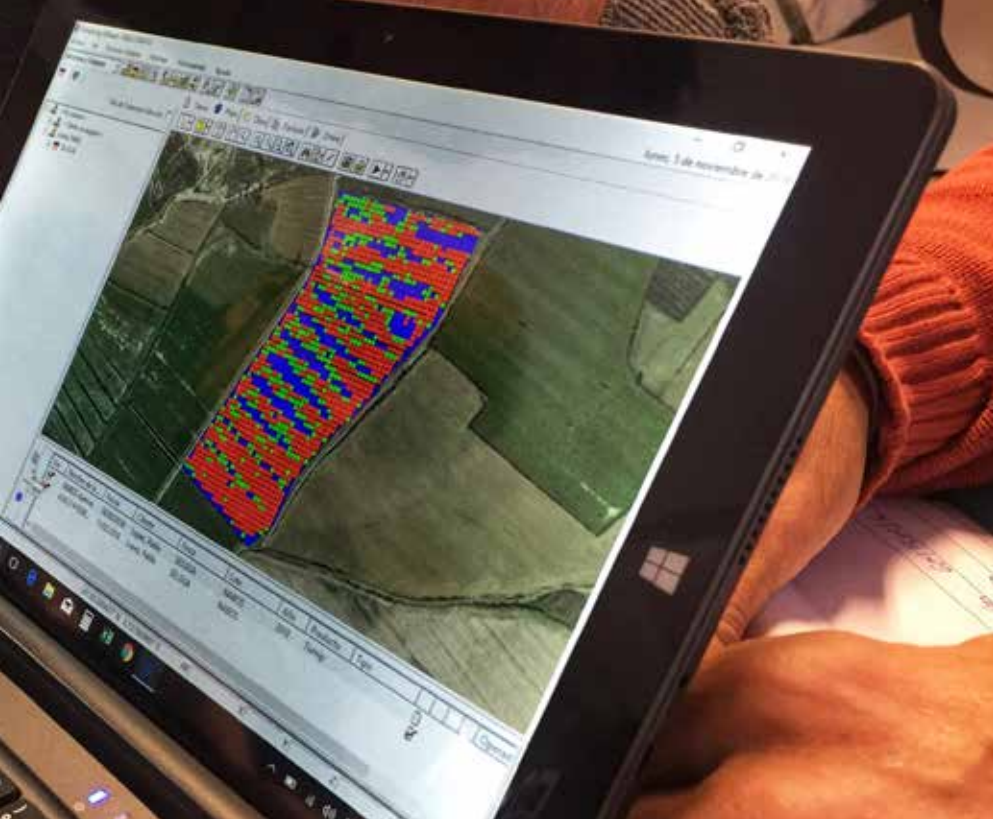




CROPS	AVERAGE YIELD
Corn (first crop)	17t/ha
Malting Barley	8t/ha
Wheat	8t/ha
Peas	8t/ha
Rape	3.5t/ha
Alfalfa	
Festuca	

**CASE IH MACHINERY**

- Puma 230 CVX
- Puma 160 CVX
- Farmlift 735



**TALKING FARMERS' LANGUAGE**

"Depending on crop phenology, we provide three services: historical data, real-time monitoring and harvest forecasting," Mario adds. "Our core service is non-invasive soil mapping and we charge around €45/ha. We even have an app for mobile devices that provides this information."

***We carry out 200 drone flights per year and can cover up to 200 hectares per day. Depending on the information required they carry RTK, multi-spectral thermal-imaging cameras to generate high-resolution images which show incredible detail."***

We can help our clients to achieve at least 5% higher gross margin through cost savings and higher productivity, up to 25% more on some farms. The benefits are obvious, particularly in high-value crops, so our market has been increasing by 10% each year.

"Smaller farmers and agronomists with land over a large area can also benefit because it allows them to study information remotely. It also allows clients to farm large areas with confidence. The next step will be to market our services to farmers who produce extensive crops, an exciting development because of the larger scale and potential."



From left to right: Javier (field operator for Finca Bizcaya and Agrarium), Ramón Acín (owner of Finca Bizcarra and co-founder of Agrarium), Mario Díez: agricultural engineer with Greenfield



# MAXXUM AWARD ADDS TO CASE IH TRACTOR OF THE YEAR TITLES

A pan-European judging panel has chosen the Case IH Maxxum 145 Multicontroller – the range’s largest four-cylinder model – as Tractor of the Year 2019, adding to the TOTY titles won in recent years by the Magnum 380 CVX and the Optum 300 CVX.

For the third time in five years, the design and engineering qualities of Case IH products have been recognised by the jury of the prestigious Tractor of the Year award, judged by a panel of farm machinery journalists from respected titles across Europe.

Despite a competitive entry field spanning machines from manufacturers across the industry, the Case IH Maxxum 145 Multicontroller was announced as the TOTY 2019 winner at an award ceremony held during November’s EIMA International 2018 in Bologna, Italy. With recent revisions to the Maxxum range having given the line a fresh new look, in a double recognition the same model also won the Best Design category, recognising the relevance of functionality and form in a modern tractor’s styling.

The largest in the line of 116-145hp (rated) four-cylinder Maxxum models, the Maxxum 145 Multicontroller was recognised by the judges for the efficiency and operational benefits offered by its key features, including

the ActiveDrive 8 eight-step powershift transmission and the Multicontroller armrest and joystick combination. ActiveDrive 8 is the most recent transmission introduction for Maxxum tractors, adding to the established ActiveDrive 4 four-step powershift and CVX continuously-variable options. The TOTY accolade completes a successful year for the new Maxxum, which was also awarded the 2018 ‘Machine of the Year’ title at the last Agritechnica, also judged by European agricultural magazine editors. It also adds to the Maxxum 145 Multicontroller’s previous achievements, including an average specific fuel consumption of 258g/kWh, almost 9.5 per cent lower than the 282g/kWh of its nearest competitor, in the field work section of the PowerMix test conducted by Germany’s DLG testing station.

ActiveDrive 8 is more than a simple semi-powershift, incorporating key efficiency-enhancing features such as Automatic Productivity Management, which helps achieve maximum efficiency

and productivity by allowing the operator to adjust the engine speed points at which the tractor automatically shifts gears, whether in Auto Field or Auto Road mode. It can also be set to progress automatically through any set of eight speeds in the field, and through all 16 gears in the top two ranges on the road. The transmission, along with other key operating functions, can be controlled through the tractor’s Multicontroller armrest and joystick, enabling fingertip operation of the machine and any implement.

## OPTUM 300 CVX: TRACTOR OF THE YEAR 2017

The Case IH Optum CVX, voted Tractor of the Year 2017, marked the introduction to the market of a totally new tractor class in the Case IH line-up, with a strong yet low weight design, to meet demands for customer requiring a 250-300hp tractor with a high power-to-weight ratio in a compact, manoeuvrable layout. Since its introduction, the Optum CVX line



2019

2018



2017

2016



2015

2014



has been expanded from two models to three, spanning the 250-300hp bracket, and has been an extremely successful seller among farmers and contractors across Europe and beyond.

With its front linkage and two-speed front PTO options, and its lighter weight than other models of similar output, the Optum has proven popular for work where high power is essential but weight less so — such as working with large mowers, where sward and soil protection are critical to ensure protection of future grass production.

However, the Optum design allows for simple ballasting for tasks jobs where traction and grip are particularly critical, such as heavy cultivations. Easy addition of rear wheel and front weights means the tractor can be weighted to make it as capable on such tasks as any ordinary model of this power, resulting in a tractor that can be operated at a weight that suits the work. And with unique features including a variable-pitch engine cooling

fan to help reduce fuel consumption by increasing cooling power only when necessary, plus an engine exhaust brake which helps boost stopping effort by up to 40 per cent, the Optum is as efficient as it is effective.

**MAGNUM 380 CVX:  
TRACTOR OF THE YEAR 2015**

The award of Tractor of the Year 2015 to the Case IH Magnum 380 CVX marked the introduction of two significant developments in the then-revised Magnum range that the 380 CVX has since headed. For the first time, the proven merits of Case IH CVXDrive continuously-variable transmission technology became available in the Magnum range alongside the proven PowerDrive powershift. At the same time, Case IH track expertise was integrated into a conventionally-steered tractor. With the Rowtrac rear track option, for

the first time farmers and contractors could benefit from tracked tractor grip and flotation combined with the gentle and precise action of conventional front axle steering, rather than the more aggressive and potentially soil-disturbing differential steering system used on twin-track crawlers in this power class.

Since its launch in 1987, the Magnum series has been subject to both continuous improvement and complete redevelopment, and the sales success of the range, particularly since the introduction of the CVX and Rowtrac options, has helped to further enhance performance and productivity, further reducing fuel consumption and emissions, improving operator comfort and minimising soil damage, to help maximise return on investment.



# INNOVATIVE AGXTEND PRECISION FARMING TECHNOLOGIES

## TAKE AGRICULTURE TO ANOTHER LEVEL VIA THE CASE IH DEALER NETWORK

The new AGXTEND range significantly expands the brand's precision agriculture portfolio and takes farming to the next level by providing applications solution to our customers, says Maxime Rocaboy, Product Marketing Manager, Precision Farming Solutions, Case IH EMEA.

**A**GXTEND is a suite of innovative, market-leading agriculture-focused technologies which provide our customers with exclusive cutting-edge precision farming solutions that will enhance the productivity and efficiency of their businesses. They significantly expand the range and scope of Case IH's precision agriculture offering and will eventually include a full range of precision farming solutions and connected services.

Competitor tractors, harvesting equipment and implements which meet technical compatibility criteria can also use these AGXTEND solutions.

Case IH Advanced Farming System (AFS) products include integrated guidance/steering solutions such as AFS AccuGuide™ and AFS RowGuide™, the AFS Connect™ farm/fleet management system, together with AFS software which allows you view, edit, manage, analyse and utilise data collected from your equipment and other sources. The in-

roduction of AGXTEND underlines our commitment to make it easier for customers to adopt and benefit from the latest, most innovative precision farming technologies. A specialist team within Case IH identified a range of technologies developed by companies who are specialists in their field. After extensive benchmarking to ensure that they represent the very best available, we worked closely with our partners to ensure that they provide the ideal solution for our customers.

### XPOWER

The Xpower, a unique system which uses electricity for weed control and pre-harvest desiccation of crops, won Case IH the bronze medal in the 2019 SIMA Innovation Awards. Powered by Zasso Group, a German company which specialises in weed control technologies using high-voltage power supplied by a PTO-drive generator on the tractor's rear linkage, Xpower kills weeds safely, efficiently and accurately without chemicals, eliminating issues such as chemical residues or soil and spray drift and destroying the plant right down to the roots. Booms of 1.2m to 3m are available.







**SOILXPLORER**

Developed by Case IH partner Geoprospectors GmbH, an Austrian company which specialises in soil sensing SoilXplorer is a contactless soil sensor which uses electromagnetism to measure soil conductivity 0-25cm, 15-60cm, 55-95cm or 85-115cm. The unit can be mounted on a tractor's front linkage and can be used for mapping fields, record soil heteroge-

neity and determine soil type maps, soil compaction and relative water content. Secondly this soil sensor can in real-time control a variable depth cultivation based on the site-specific soil condition and optimal tillage strategy. Working at full depth only where necessary saves fuel and wear metal, while also optimizing performance and output.



**CROPXPLORER**

Mounted on the tractor's front linkage, CropXplorer uses two highly-accurate optical sensors to measure crop nitrogen uptake and biomass. The highly accurate data is then processed, via algorithms, which calculate the crop's actual nitrogen requirement and automatically adjust the spreader on the rear linkage to apply precisely the right amount of fertiliser, liquid or solid. CropXplorer also includes a Map + Overlay mode, enabling yield potential maps to be used with on-the-go sensor measurements. The technology was developed by German company Fritzmeier Umwelttechnik. Despite its advanced technology, CropXplorer is easy to set up and use. It can be mounted on a standard front three-point hitch or front weight frame and requires no calibration. Control is via a dedicated terminal compatible with ISOBUS fertiliser spreaders as well as most non-ISOBUS spreaders capable of variable rate application.



**NIRXACT**

Developed by Case IH partner Dinamica Generale, an Italian leader in Near-Infrared (NIR) technologies the NIRXact crop/slurry sensor can be mounted on combines, balers, hay tools and other implements. Data is shown in real time on the in-cab display while the crop is being harvested rather than having to send a sample to a laboratory.

The system accurately measures yield, moisture and crop constituents, inclu-

ding ADF (acid detergent fibre), NDF (neutral detergent fibre), starch, ash and crude fat. This allows contractors to sell their services based on the number of tonnes harvested and farmers to maximise the selling price of harvested grain or adjust nutrition for dairy and beef cattle. On a slurry tanker or manure spreader, it allows the operator to monitor the amount of nitrogen applied and adjusts the rate at which slurry/manure is applied.

**FARMXTEND**

The FarmXtend app, a smart weather application which works with a complete set of connected field sensors, allows farmers to monitor in-field weather data and supports their decision-making for example helping them to decide when to spray crops.

Developed by AppsforAgri in the Netherlands, the sensors include the soil and crop sensor WeatherXact Plus connected weather station, which senses temperature and humidity at four different points: 1m above the ground, at crop level and at two depths in the ground, together with the RainXact Plus rain sensor and the SoilXact Plus soil moisture sensor.

The FarmXtend App differs from other systems in its use of powerful algorithms to determine disease pressure, based on temperature and humidity, for a variety of crops, sending alerts for important changes

and thereby identify the optimum spray application times.



AGXTEND is developing partnership with suppliers in early stage, but the initial five products, which are exclusive to the brand, are now available to order through our AgXtend certified dealers throughout Europe. The AGXTEND range will be developed rapidly and this brand new organisation is always looking to develop new and exclusive partnerships with manufacturers of innovative technologies which add value to our brand and enable customers to farm more efficiently.

**Increasing economic, environmental and labour pressures are encouraging progressive, forward-thinking farmers and agricultural contractors to adopt precision farming technologies which optimise machine performance, increase output and reduce fuel use while making the best use of crop inputs such as seed, fertiliser and agrochemicals."**

Maxime Rocaboy, Product Marketing Manager, Precision Farming Solutions, Case IH EMEA.

**COMPACT PREMIUM POWER:**

# MEET THE NEW VESTRUM CVXDRIVE



**M**aking its world debut at SIMA 2019 in Paris, the Vestrum CVXDrive tractor range brings Case IH continuously-variable transmission technology further down the power scale to the 100-130hp rated power, and 110 to 140hp max power, offering big tractor features and comfort in a compact package.

Positioned between the Luxxum and Maxxum ranges, the four Vestrum models suit mixed farms, mid- to large-sized dairy operations, contractors and highway operators. They feature a 4.5-litre turbocharged and intercooled engine from FPT Industrial using new HI-eSCR2 patented under-hood after-treatment technology to meet EU Stage V emissions legislation. With no regular maintenance necessary, operating costs are kept low. The engine and emissions package – comprising a new compact all-in-one after-treatment system containing the diesel oxidation catalyst, diesel exhaust fluid (AdBlue) injector and selective catalytic reduction system – are encased in new hood styling, mirroring the look of larger Case IH models.

The new CVXDrive transmission, which provides seamless travel up to 40 km/h

– achieved at low engine speed if using the Eco function – particularly suits applications involving large amounts of road travel or field work such as mowing, baling, light tillage and specialist operations where it may be beneficial to separate engine speed and forward speed.

**EASY STOPPING**

Double Clutch Technology (DKT) optimises performance and offers Active Hold Control capability, allowing easy stopping on hills and at road junctions without using the footbrakes. A new electronic controller manages the complete transmission for quicker speed change, improving efficiency at all speeds. Rear tyres up to 600/65 R38 can be fitted for maximum field and road performance.

A 110 l/min closed-centre load-sensing (CCLS) pump means that, with the hydraulic oil circulating only when requested by the operator, one pump is used for all functions without them affecting each other. Electronic control of the remote valves is an option, as is a loader-ready package for the Case IH LRZ 120 loader.

A new multifunctional front axle support frame means the front hitch and front 1,000rpm PTO options, when specified, are fully integrated into the tractor design. At the rear, Category 2 or 3N hitch lift capacity is 5,600kg, and up to seven mechanically- or electronically-controlled hydraulic remote valves are available, plus a power beyond function. Customers can choose their preferred quick coupler option on the front and rear three-point links, with Category 2 or 3N alternatives. Maximum flow rate is 110 litres/min. Standard rear PTO speeds are 540/540E/1,000rpm, with 540E/1,000/1,000E rpm and ground speed options.

**CAB COMFORT AND CONTROL**

With a four-pillar luxury cab, all-round vision and comfort are guaranteed. A common Case IH control layout and user interface means operators can quickly learn and get the best from their tractor. The right-hand Multicontroller armrest provides makes control easy and intuitive, while comfort is enhanced by automatic climate control, a deluxe operator seat and 360° lighting package.

MODELS	Maximum power ECE R120 <sup>1)</sup> @ 1,700 – 1,900 rpm (kW/hp(CV))	Rated power ECE R120 <sup>1)</sup> @ 2,200 rpm (kW/hp(CV))	Max. pump flow rate / System pressure (l/min / bar)	Max. lift capacity (kg)
VESTRUM 100 CVXDrive	81 / 110	74 / 100	110 / 200	5,600
VESTRUM 110 CVXDrive	88 / 120	81 / 110		
VESTRUM 120 CVXDrive	96 / 130	88 / 120		
VESTRUM 130 CVXDrive	103 / 140	96 / 130		



# ADVANCED TRAILER BRAKE SYSTEM IMPROVES TRACTOR STABILITY AND SAFETY

**D**esigned to provide significant safety benefits on low-grip surfaces, Case IH has introduced a unique, patented Advanced Trailer Brake System option for tractors with CVXDrive continuously-variable transmission that represents a major advance in operator safety when using a tractor with braked, trailed equipment.

Particularly beneficial when working on gradients, turning or reducing speed, especially where the tractor is drawing heavy equipment such as a loaded trailer, the system is of considerable

value on icy or wet roads, and on sloping field surfaces. Enabled via the Case IH AFS Pro 700 terminal, when engaged the system recognises any slowing of the tractor resulting from the operator pulling back on the Multicontroller or reducing pressure on the foot throttle pedal. It then automatically applies the appropriate trailer brake pressure needed to balance the deceleration force on the tractor with the momentum exerted by the trailer, ensuring optimum stability, braking performance and safety.

Initially, this option on the new Puma 185 - 240 CVX tractors with pneumatic trailer brakes, the Advanced Trailer Brake System can also be retrofitted to older models, and will be made available on other Case IH Puma, Maxxum and Optum tractors with CVXDrive.



# FARMLIFT CAPABILITY AND SPEC BOOSTED

**A** number of the key models in the Case IH range of Farmlift telescopic loaders are updated for 2019, benefiting from greater lift capacities, updated transmissions and new features designed to improve operator comfort.

The Farmlift 632 model becomes the 633, with maximum lift capacity raised by 100kg to 3,300kg, while the 635 is replaced by the 636, which also gains 100kg in lift capacity to take its maximum to 3,600kg. The 735 model, meanwhile, is superseded by the 737, with its maximum figure rising by 200kg to 3,700kg. Farmlift 633, 737 and 935 models can now be had with either a manual 4F/3R transmission or a 6F/3R semi-automatic option. The Farmlift 636 and 742 feature a 6F/3R fully automatic transmission. All top speeds are 40kph, while a memory power shuttle feature selects the last-used forward and reverse gear when changing direction.

Electronic modulation enhances shifting and shuttling smoothness, while a more efficient torque converter helps attain top speed faster and deliver more tractive

power. Other new features include automatic steering alignment when changing modes, an auxiliary pressure release switch for remote hydraulic valve actuation, two automatic lubrication system options, a new heated air seat option and tilt/telescope steering column.





Alessandro and Francesca Bortolin

# ITALIAN FAMILY'S ORGANIC OPERATION EXPANDS TO MEET GROWING DEMAND

The Bortolin family, who farm in Italy's Veneto Region, thought initially that organic production might be something of a niche market, but now it forms a substantial part of their growing business.

Organic production certainly brings better prices for the products that it produces, but working without agrochemicals, artificial fertilisers and other conventional inputs also generates more work. "A lot more work", emphasises Mario, the second generation of the Bortolin family to farm at Costa di Rovigo, some 60km south west of Venice.

When his father, Remo, founded the Bortolin Company 50 years ago it was just a small dairy farm with 10 cows. Today, Mario is responsible for the overall management of a farming company which has grown substantially, and he oversees the

arable side of the business, while brother Giovanni looks after the administrative and technical functions.

Mario's children are the third generation to be involved in the family business, 31-year-old Francesca managing the growing organic dairy operation while her brother, 30-year-old Alessandro, takes care of their large fleet of farm machinery while overseeing the family's involvement in another business venture.

Employing 15 staff, the Bortolin Company now farms 1,200 hectares. Double cropping on some areas enabling them to grow 400ha of wheat, 400ha of maize, 400ha of soya, 100ha of sunflowers and 50ha

of alfalfa annually, all of which are produced organically. Around half the herd is fed a home-produced organic ration. For the last five years the Bortolin Company also has been part of a consortium which operates two biogas plants in the region.

## ORGANIC BENEFITS

According to Francesca, each cow produces about 2 to 3 litres a day less on average than might be achieved under a conventional system, but the benefits of being organic include a higher milk price, together with the fact that cows are healthier and live longer under this system.





## HERD FACTS

- 650 cows
- Milked twice a day
- 16+16 milking parlour
- 70,000 litres per week
- Average per cow of 30 litres per day

"The price which we receive for our organic milk is approximately 15 per cent higher than it would be for non-organic, and we sell it to a wholesaler who supplies a number of outlets. One of them is an important Italian company which specialises in sourcing organic food products and distributing them to 1,000 stores in all regions of the country.

"Fifty per cent of organic products consumed in Italy are imported, many from Spain, Greece and Romania, so more and more farms in our country are converting to organic production as there is a large and growing market.

"Farming organically requires a lot more labour and, because we cannot use artificial fertilisers or agrochemicals in our production system, a range of cultures are required to increase the level of bio-diversity and maintain the soil in good condition. For example, as part of this approach we have expanded the range of crops that we grow to include sunflowers and oilseed rape.

"We have to use more mechanical methods with an organic system, which mean more passes over the fields. We save on agrochemicals but invest more in other ways, such as mechanical weeding of crops, all of which take more labour, use more fuel and significantly increase the number of hours for which our machines operate.

### QUADTRAC'S HIGH OUTPUT

"We have used Case IH equipment for 15 years, our first purchase being a Quadtrac 450 which we bought because we needed more power to improve the timeliness of field operations. Our alluvial soils are very fertile but only give us a very limited time window in which to establish crops, while the timing of other operations such as mechanical weeding is also very important. The Quadtrac provided a very high output, could work even after heavy rain, was very light on the ground and represented a significant step forward for the business.

"Since then we have traded and purchased three more Quadtracs, a 535, then the 600 and 620. These last two are the models which we use currently for a wide range of operations, including ploughing, levelling, tillage, seedbed preparation and spreading waste water, alongside our newest purchase: a Magnum Rowtrac 380 CVX.

"We like the Case IH equipment because of its affordability, operating economy and high level of operator comfort; in my view driving a Quadtrac is like being on holiday! When we farmed conventionally our Quadtracs used to work about 1,000 hours per year, but since we switched to organic farming that has increased to 1,400 hours". Alessandro says.



"We started farming organically to increase the value of what we produce on the farm and initially regarded it as something of a niche market, but it has grown substantially, and I see that trend continuing," Mario Bortolin concludes.

*Driving a Quadtrac is like being on holiday"*



# DUTCH AGRICULTURAL CONTRACTOR RELIES ON AFS TECHNOLOGY

Case IH have been at the forefront of precision farming technologies for many years and our Advanced Farming Systems (AFS) now benefit customers throughout the world, including Dutch agricultural contractor Loonbedrijf Tuller.

The use of precision farming technologies is often associated with large arable enterprises, but increasingly they fulfil a vital role for livestock farms and agricultural contractors, such as Loonbedrijf Tuller in the central Netherlands.

This progressive family-owned business relies on Case IH AFS to optimise the speed, accuracy and efficiency of their contracting operations, including cultivations, grass/maize harvesting and earth moving services which it provides to farms, primarily dairy, within a 10 to 15km radius of Bathmen, a municipality of Deventer. The average dairy farm here has 100 cows, about half the national figure, but that is changing as the number of farmers declines and others scale-up their operations.

"We've never had much arable farming here," explains Bertjan Slaghekke who with his wife, Erika, runs the business which her parents, Henk and Dirkje Tuller, founded in 1958. "It's primarily small dairy farms

which cannot afford or justify specialised machinery and don't have the labour to do the work themselves, so they rely on us. One of our greatest challenges is the small fields: the average maize plot in this area is 2.8 hectares, which makes all the operations associated with growing and harvesting much more time consuming and complex than where farms and fields are larger."

To optimise operational efficiency, productivity and accuracy Loonbedrijf Tuller use the latest machinery and technologies, including Case IH AFS which has been at the forefront of precision farming for over a decade.

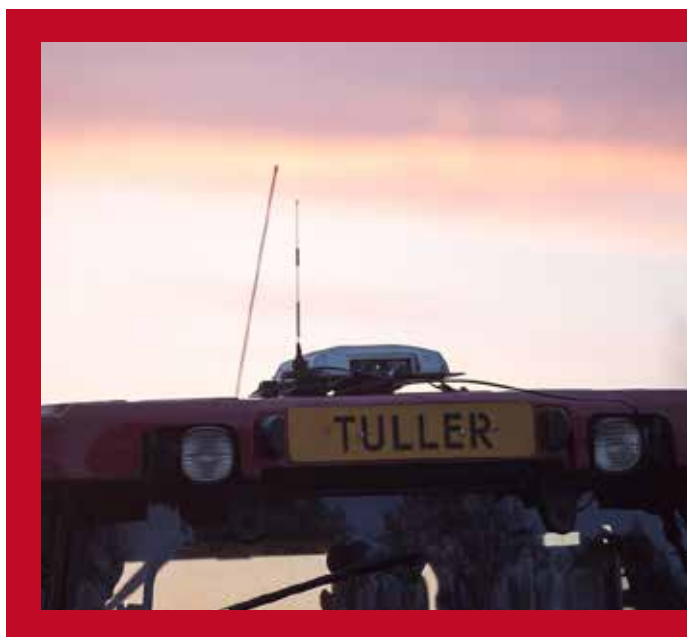
### VITAL FOR COST-EFFICIENCY

"Precision farming technology has become vital in order to operate efficiently and deliver high-quality services cost-effectively," Bertjan states. "Our first machine with GPS was a sprayer that we bought in 2010 because we felt this type of technology would

benefit our business and customers. Our operators took to it well because it made their lives much easier, and since then we've increased the use of these technologies."

A long-established Case IH customer, Loonbedrijf Tuller has purchased 31 tractors bearing the famous red and black badge since 1988. All of those purchased since 2009 have AFS control screens, the latest the AFS Pro 700 model linked via a 4G signal to an AFS 372 GNSS receiver and DCM-300 base station.

"Our first AFS-equipped tractor was a 2013 Case IH Puma 230 CVX, then a 2014 Puma 160 CVX, Bertjan adds. "That's when we began using the AccuGuide™ integrated guidance system to improve the speed and accuracy of field operations, such as fertiliser spreading and maize drilling. For the last three years we've used task maps to control fertiliser application and will extend their use to other operations because this technology offers so many benefits, such as enabling



## LOONBEDRIJF TULLER'S TRACTOR FLEET

MODEL	YEAR
Maxxum 5150	1994
MX 170	2000
Maxxum 140	2009
Puma 195 CVX	2009
Puma 195 CVX	2010
Puma 165 CVX	2011
Puma 180	2011
Puma 230 CVX	2013
Puma 160 CVX	2014
Maxxum 110 CVX	2015
Puma 200 CVX	2017
Optum 270 CVX	2017
Optum 270CVX	2018





The largest tractors on Loonbedrijf Tuller's fleet are two Optum 270 CVX models which were purchased in 2017 and 2018 from Case IH dealer Latrago in Goor.



automatic section control on the sprayer, fertiliser spreader and slurry injector.

"Our tractors average 1,000 hours per year but the more powerful they are, the more they do. Our first Optum 270 CVX has done 1,500 hours per year, mostly pulling a 22.5m Schuitemaker Robusta 225 slurry tanker and 8.70m Schuitemaker Exacta 870 injector with 48 tines."

The company's services include variable-rate fertiliser spreading with a Rauch AXIS M EMC-W 30.2 mounted on a Case IH Maxxum 110 CVX and establishing maize with an AFS-controlled 10-row Becker planter pulled by a Puma 160, which runs on dual wheels to minimise soil compaction, while the growing crop is kept clean using a GPS-guided inter-row weeder. Loonbedrijf Tuller also carries out grassland seeding/reseeding with a 6m Vredo AgriTwin, operates a Krone BigPack square baler with weighing technology, runs three Krone silage trailers and three Krone ZX430 GD self-loading silage trailers with

weighing installations, plus a chopper with NIR (Near Infra-Red) sensing.

**UNIQUE MEASUREMENT SERVICE**

"Everything we harvest is weighed, which provides very accurate information that we pass on to our customers. Currently we are the only agricultural contractor in this area to do this," Bertjan states. "When harvesting maize, for example, we can measure the total yield from each field and every hectare. We've been doing this for four years and are unique in providing customers with an accurate overview of crop yields on an Excel spreadsheet. Having that information gives them a much greater insight into crop performance and enables the precise amount of nutrients to be applied to the following crop."

***Precision farming represents the future and so we are excited by the new Case IH AGXTEND range of technologies."***



Bertjan Slaghekke with some of his company's fleet of Case IH tractors

*Some of our key sustainability targets have direct benefits for farmers as well as for the wider population and environment."*



Annalisa Citterio,  
Head of Sustainability, CNH Industrial

## ACTIONS TO MATCH WORDS – OUR COMMITMENT TO SUSTAINABILITY

Farm Forum speaks to Annalisa Citterio, Head of Sustainability Planning and Reporting at Case IH's parent, CNH Industrial, about how our business puts into practice its promises on sustainable conduct, and why they should matter to farmers.

### WHY DOES CNH INDUSTRIAL HAVE A SUSTAINABILITY POLICY AND HOW IT IS IMPORTANT?

Over recent years, rather than a simple policy we have developed a sustainability approach. Sustainability is central to how we do business – the way we conduct ourselves and the influence of our actions on those around us. It's about creating long-term value for all stakeholders in our Company – those who work for us, who buy our products, and who are influenced by what we do. That's why it's integral to all we do – socially, economically, and in how we anticipate and manage risks. And as the world becomes increasingly aware of the importance of sustainability, the so-called socially-responsible investors and ratings agencies also place good environmental and social management high on their list of important criteria – companies with a strong sustainability management system present a lower risk and the likelihood of better long-term performance.

### COULD YOU OUTLINE THE CNH INDUSTRIAL APPROACH TO SUSTAINABILITY?

From a manufacturing perspective, our focus is on maximising the efficiency of our processes and limiting our environmental impact as a result, from reducing energy consumption to minimising waste production. But of course, we also consider the impact of our products. Here we are working in multiple ways, from lowering our machines' fuel consumption and emissions to researching alternative fuels and even, via concepts such as the Case IH Autonomous Concept Vehicle (ACV), investigating the ability to make the most of ideal soil and weather conditions while minimising the need for unsociable hours.

But it's also directly about our people, ensuring their safety and wellbeing. We also engage the people outside our Company, assisting our suppliers and our customers to also act sustainably. Moreover, we are able to provide aid

to communities in natural disaster situations, through the construction equipment manufactured by one of CNH Industrial segments. From a local community perspective, we also contribute to helping and supporting those around us and across the wider world, in all the fields in which we are engaged, in areas as diverse as education and water management.

### HOW DO THE DOW JONES SUSTAINABILITY INDICES WORK AND WHY DOES CNH INDUSTRIAL SUCCESS IN THEM MATTER?

It matters because it means our sustainability efforts are proven by an independent party, recognised worldwide by socially-responsible investors, creating value for our Company. CNH Industrial has been named industry leader in the Machinery and Electrical Equipment industry in the Dow Jones Sustainability Indices (DJSI), for Europe and globally, for the past eight years. More than 2,000



# 8 YEARS IN A ROW INDUSTRY LEADER



2018 MARKS THE 8<sup>TH</sup> CONSECUTIVE YEAR THAT CNH INDUSTRIAL IS A CONFIRMED INDUSTRY LEADER IN THE PRESTIGIOUS DOW JONES SUSTAINABILITY INDICES WORLD AND EUROPE.

companies are invited annually to participate in the assessment, and are questioned in economic, environmental and social dimensions, through more than 100 questions. CNH Industrial was first of the eligible companies in its industry, scoring strongly in all three dimensions.

## HOW DOES CNH INDUSTRIAL ENGAGE WITH ITS STAKEHOLDERS – SUPPLIERS, CUSTOMERS AND OTHERS WHO COME INTO CONTACT WITH ITS BUSINESS – TO PROVE ITS SUSTAINABILITY COMMITMENT AND ENCOURAGE OTHERS TO ACT SIMILARLY?

It's important that we work together. Many large supplier companies will often have similar standards and internal procedures to our own, but we ensure every supplier is aware of our commitment to sustainability by requiring them to meet the principles included in our supplier code of conduct. We also meet them, offer training and ensure they complete a sustainability self-assessment questionnaire. This isn't just a way to assess them, but also engage with them, promoting highest sustainability standards.

We also identify those who may have more significant sustainability risks and we perform audits at their sites, jointly identifying areas for improvements and projects to be implemented with the aim to increase their sustainability standards.

## WHAT DOES THE COMPANY DO TO ENCOURAGE ITS EMPLOYEES TO ACT SUSTAINABLY?

The key is communication – getting across our way of thinking in an easy-to-understand manner. We use a number of ways to communicate our goals, using examples of how our manufacturing processes and our products are sustainable. For example, through the Sustainable Everyday video campaign, available on the Intranet and screened on monitors at its sites, the Company promotes sustainable behaviours that employees can adopt both at home and at work. Another example is during

the celebration of World Environment Day that took place last year: we invited employees to submit their favourite nature photos for a special feature on the Company's Intranet called How Do You Reconnect to Nature? Employees worldwide submitted more than 300 images, with the final published photo gallery receiving more than 1,000 likes.

## HOW WILL CNH INDUSTRIAL INVOLVEMENT IN NEW FUEL TECHNOLOGIES THROUGH ITS CONSTITUENT BUSINESSES SUCH AS FPT ULTIMATELY HAVE A ROLE TO PLAY IN ITS SUSTAINABILITY?

Through our work on alternative fuels we are looking to lower the environmental impact of all our vehicles across CNH Industrial brands, particularly with regard to emissions. On that basis, we have ongoing projects researching the viability of fuels including biomethane, biodiesel and compressed natural gas, and we already have machines working with the latter. Alternative fuels are already here.

## WHAT IS CNH INDUSTRIAL DOING TO MINIMISE THE AMOUNT OF WASTE CREATED IN MANUFACTURING AND DISTRIBUTION OF WHOLEGOODS AND PARTS?

We have different key targets where this is concerned. The Company's commitment to optimising waste management in manufacturing processes is shared across plants, which seek solutions that facilitate waste recovery and minimise material sent to landfill. The targets in this area are to improve the waste recovered and to reduce the production of waste (both hazardous and non-hazardous) per production unit. Moreover we are working with suppliers on packaging design and the use of lighter materials to optimise efficiency and minimise waste. Landfill is the last option for any waste materials.

## COULD YOU EXPLAIN THE WORK THE COMPANY IS DOING IN LESS-DEVELOPED COUNTRIES TO SUPPORT SUSTAINABILITY AND EDUCATION, SUCH AS THE CASE IH COLLEGE SUPPORT PROGRAMME IN GHANA?

As just one example of our global activities, in Ghana Case IH is currently collaborating with local third parties to develop a project to increase the employability and efficiency of agricultural technicians, contract farmers and agricultural machinery operators. By promoting agricultural mechanisation we aim to help increase efficiency, yields and food security, and, through the creation of entrepreneurial opportunities, prevent migration of young farmers from rural to urban areas, so tackling the issue of an ageing farmer population. It will also enable the creation of more efficient irrigation and climate-smart management practices, such as the use of solar powered pumps, thus minimising environmental impact.

This is just an example: we promote an open dialogue to ensure that the legitimate expectations of local communities are duly taken into consideration, and voluntarily endorse projects and activities that encourage their economic, social, and cultural development.

Moreover, we act in a socially responsible manner by respecting the culture and traditions of each country, and by operating with integrity and in good faith to earn the trust of the community.

## FINALLY, WHAT ARE THE BENEFITS TO CASE IH CUSTOMERS OF THE CNH INDUSTRIAL OVERALL COMMITMENT TO SUSTAINABILITY?

Our priority is to deliver products of the highest standards of safety, performance and sustainability. Farmers of all types depend on the environment for the very existence of their businesses, and some of our key sustainability targets – maximising fuel efficiency, for example – have direct benefits for them as well as for the wider population and environment.

AMERICAN FAMILY FOCUSES

# ON FARMING SUSTAINABLY

Soil erosion, nutrient retention and water shortages and quality are issues which face farmers around the world. Farm Forum joined a Case IH customer visit to the USA and found out how one family farm manages them.



The Brandes family's agriculture focuses on the preservation of soils and protection of water for future generations.



A Rowtrac version of the Steiger Quadtrac 400 helps minimise soil trafficking and crop damage in rowcrops.



The family has long relied on Case IH and its forebears to help meet its agricultural and environmental obligations.



Jeff Johnson: "Protecting our natural resources is something we take very seriously, for the future of our family and others."

protecting precious natural resources for future generations.

Seed and commercial corn (maize), soybeans and wheat are grown across the 2,200ha – part owned by various family members, part contract-farmed – run by the Brandes family. Evan and Roxanne Brandes farm with their daughter Carly and her husband Jeff Johnson, plus their other daughter Cortney and her husband Beau Bearnes. Evan's brother Roger and his wife Sharon, plus their son Kane and his wife Julie, are also partners, and all have individual responsibilities in the cropping and beef cattle operation, plus off-farm interests. Completing the picture, the next generation is represented by a younger son from each side.

**FAMILY EXPANSION**

With the operation having grown along with the family, farming for a sustainable future has long been central to business planning, stretching back to when Evan and Roger farmed with their father

before later buying him out. Recognising the need to preserve the environment around them for future generations, they were early investors in equipment such as modern, efficient irrigations systems. Today, the latest family generation has extended this by adopting smartphone control technology to manage its modern irrigator fleet.

"Our soils, deposited over time by the Platte River, range from silty clay to sand and gravel, meaning variability in consistency, natural nutrient content and water-holding capacity," explains Jeff Johnson.

"Maintenance of nutrient levels, soil structure and drainage are challenging, while the shallow profile of some soil areas means dry springs can cut moisture buffers. Conversely, the flat land means that, in some areas, drainage can be poor.

"The family has always farmed with these characteristics in mind – the need to protect and preserve soil nutrients, structure and drainage. As time has

**W**ith ten members involved, the Brandes and Sons farming business is a true family operation – and its location in Merrick County, Nebraska, with its often shallow soil profile overlying a huge natural underground water source, means the family are only too aware of the importance of sustainable farming in



## BRANDES & SONS

### LOCATION

Merrick County, Nebraska, USA

### AREA FARMED

2,200ha

### SOIL TYPE

Loess silty clays to sand and gravel

### CROPPING

880ha seed maize, 480ha commercial maize, 840ha soybeans, plus wheat in some years

### LIVESTOCK

200-head suckler cow herd

### TRACTORS

Case IH Steiger Rowtrac 400, Magnum 335, Magnum 315 x2, 7230, IH 1066 plus Farmall 450 and 300 for light yard duties

### COMBINES

2x Case IH Axial-Flow 9230 with 12m grain/bean heads and 12-row corn heads

Much of the family's farmed area lies above the Ogallala Aquifer, a massive natural groundwater reservoir.



progressed we've been able to adopt new technologies to help, particularly as we are sited above a particularly significant natural resource that we want to protect for generations to come."

### NATURAL WATER RESOURCE

Much of central and west-central Nebraska sits over the Ogallala Aquifer, a massive natural groundwater reservoir, and farmers can tap into this via the Platte River Valley's natural and man-made waterway network. Almost all the family's land can today be irrigated using pivot systems operated via smartphone for precise scheduling of water and liquid fertiliser application.

In the 1960s the Brandes family began adopting minimum tillage to boost organic matter and enhance moisture and soil retention. Centre-pivot irrigator technology, introduced in the 1970s, saw this later combined with ridge-till, cultivating only the crop rows ahead of establishment. This has since developed into full no-tillage, retaining surface residue to prevent soil and moisture loss.

While especially focused on extracting maximum value from rainfall and applied water, the family is also dedicated to maximising the efficiency of applied and existing nutrients, not only to get the most out of crop performance but also

to protect local drinking water quality by minimising leaching risk. Grown as a corn/bean break crop every other year, wheat's rotational role is primarily to help here by scavenging residual nitrates from seed corn production, with soybeans planted directly between the wheat rows when the latter flower in spring.

"This keeps nitrogen in the growing cycle and reduces chances of it leaching into groundwater," points out Jeff.

"Where wheat doesn't follow corn, turnip cover crops, established once male corn rows are cut out of seed corn fields, scavenge nitrates. Our suckler cows make good use of the turnips at the season's end."

The gradual move to no-till has seen a rise in the water-holding capacity of the soil, with both rainfall and irrigation water penetrating more thoroughly in no-tilled fields.

"The only place we may see a degree of water gathering is in the wheel tracks of the centre-pivot irrigators, which shows the difference between trafficked and untrafficked land. No-till aids water retention in the soil profile for later in the season, and encourages deeper plant rooting, while reducing irrigation demand."

### EMPHASIS ON SOIL PROTECTION

The family has further improved soil structure by using RTK technology and a Rowtrac version of the Case IH Quadtrac 400 articulated tracked tractor, with 610mm-wide tracks spaced at 3m to minimise trafficked areas. The business's main wheeled tractors, all Case IH Magnum models, are run on wide-spaced, narrow-profile dual wheels for the same reason. Jeff says:

***As we're using the articulated Rowtrac to work wide and shallow rather than deep, we can get sufficient power to the ground from narrow tracks."***

"Articulated steering and the narrow track width, plus RTK-aided auto-steering enables us to keep within the crop rows, limiting damage to both soil and crop. Coupled with running front track units on our 9230 Axial-Flow combines, this helps to complement our other measures aimed at soil, moisture and nutrient retention.

"We're lucky enough to sit above a hugely beneficial natural resource in the Ogallala, and the responsibility of maintaining its level, minimising nitrate leaching, preventing soil compaction and run-off and keeping our energy use to a minimum are duties we take very seriously, for the future of our family and others."



## SUCCESSFUL LAUNCH INTO BRAZIL FOR STEIGER

# CASE IH FLAGSHIP MAKES ITS MARK

In the short time since the Steiger range was introduced to the top of the Case IH tractor range offered on the Brazilian market, sales have developed strongly.

The gradual development of the Brazilian market for high-output farm equipment means Case IH has only recently been able to add its flagship Steiger tractors to its product offering in the country.

But despite their short time in the sector, the articulated machines have quickly become a strong seller in their category, justifying the decision to bring them to Brazil.

The move has meant that Case IH now offers over 20 tractor models on the Brazilian market, covering a comprehensive power band from 60 to 620hp, providing solutions to the requirements of all types of farm and offered alongside combines, cane and coffee harvesters, planters and self-propelled sprayers.

While the Steiger product range is in its early days in Brazil, with a sixty-year history in articulated tractor manufacturing and a global reputation the name is well-known around the world for its high-horsepower machines, and this helped the product line quickly gain traction in the marketplace, suggests Silvio Campos, Case IH Product Marketing Director for the LATAM (Latin America) region.

"Our market research showed there was a lack of high-horsepower tractors available on the Brazilian market, and we created a strategy to bring Steiger here," he explains.

### INCREDIBLE RESULTS

"There are farm businesses increasingly seeking this type of tractor

to cover large areas more efficiently, and that's been borne out by the sales success we've had. The results have been incredible, helped by the fact we are one of the few brands that offers this type of articulated tractor in the country. That has fully justified our vision, and we can now service the needs of large-scale farmers even better."

**It's the scale of Brazil's farm enterprises that makes high-capacity equipment so essential to their efficient operation,**

points out Lauro Rezende, Product Marketing Specialist at Case IH

"That's just as true of combines as it is of tractors, and recently we have also seen the same trend in larger, stronger





high-output planters for crop establishment. They, of course, require large tractors for maximum output, so given this market trend Case IH is ahead of the competition with high-power tractors to pair with them."

Featuring models from 370 to 620hp, the Steiger range was designed to provide maximum power for tough field tasks requiring high workrates, and offer all hydraulic power needs of modern implements. Besides Steiger, Case IH offers Magnum, Puma, Farmall and Quantum ranges on the Brazilian market.

#### FROM THE DOCTOR'S SURGERY TO THE FIELD

Farmer and doctor Celso Macedo Kossatz's passion for the land led to him leaving the clinic for the field. After 16 years working as a gynaecologist, he switched from medicine to agriculture, and has now been working in full-time farming for over two decades. Operating a successful business under the K2 Agro Group name, he sells his produce to one of the largest agricultural cooperatives in the country.

"Although I farmed part-time while I was a doctor, the thought I would turn to agriculture full-time never crossed my mind, but I fell in love with the business," says Celso.



Celso Macedo Kossatz and his son Cássio de Oliveira Kossatz

"It was very hard at first, as I had always worked as a doctor and really enjoyed my profession. Then another interesting option in agriculture came along. I was fulfilled in both careers, but I end up choosing to take the farming path, and I don't regret it."

K2 Agro Group's business performance is also linked to the efforts of Cássio, Celso's son, who became interested in his father's work. He studied agronomy and later worked in precision agriculture in North Dakota, USA. Upon his return to Brazil he transferred his knowledge to the family's farms in Ponta Grossa, Ipiranga and Tibagi, all located in the countryside of the state of Paraná. With Cássio's new knowledge and application of precision farming know-how, yield performance of soybean, corn, wheat and barley crops has increased significantly.

***One of the machines that made a major contribution was the Case IH Steiger 420 tractor we acquired in 2017 through CNH Industrial Bank financing,"***  
says Celso.



"The 420hp model was purchased to pull high-output equipment such as a 27-row planter. Previously we had operated the same implement behind a lower-powered tractor, and although it coped ok, fuel consumption was heavy.

"We bought the Steiger 420 primarily with the aim of improving fuel economy, and it quickly proved to have been a wise decision, bringing significant operational gains. It is more powerful, stronger, and can perform effectively regardless of the terrain, resulting in considerable fuel consumption savings. Since its arrival we have reduced fuel consumption by between 20 and 30 per cent over what we were achieving with the tractor that formerly worked with the planter. That's a significant amount."

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