

The combine that thinks for itself

“The clever bit is the software that identifies what’s wrong and automatically adjusts settings to deliver a cleaner sample.”

Machinery Combines

The new John Deere S700 Series combine harvester made its first public appearance at an event in Notts last month. *CPM* was there to see what’s new.

By Jim Gerrard

John Deere’s new S700 range of combine harvesters replaces the variable-stream rotor S600 range, launched in 2012, and brings with it some new and quite astonishing harvesting technology.

Known as the ‘Automated Combine’ it’s fitted with Deere’s latest ICA2 (Integrated Combine Adjustment) harvesting automation equipment. Through the use of camera detection, ICA2 can now monitor six harvesting and grain quality parameters at any one time and identify problems or changes in the crop being harvested. What’s more, it’ll automatically alter the settings of the combine to adapt to the conditions, without the operator having to lift a finger.

“Our previous harvesting technology, ICA suggests ways to optimise performance based on operator priorities,” notes combine specialist Charles Grey. “Independent tests show it can improve utilisation of the combine’s built-in capacity by up to 20%.

Two special cameras

“ICA2 uses two special cameras mounted on the clean grains and returns elevators. The clever bit is the software that monitors for cracked grain, foreign and unthreshed material, identifies what’s wrong and automatically adjusts concave and other settings to deliver your target performance.”

Previewed at Agritechnica in 2015, this latest harvesting technology earned the company a silver medal and will be rolled out with the S700 range in the UK in time for harvest 2018. ICA2 will be an option on the S770, S780, S785 and S790 combines, and according to Charles is John Deere’s “next piece in the puzzle of automation.”

Alongside ICA2, Deere has introduced a whole new operator interface on the S700 combines which has already been used on some tractors. The GSD 4600 is

a 10in (25.4cm) display, replacing the previous 2630 7in (18cm) version. “This works just like a mobile touchscreen device, with a unique swipe functionality to scroll from screen to screen,” says Charles.

The new CommandPro joystick features up to seven buttons that can be set exactly for what the operator requires. The arm it sits on includes extra features such as a phone holder, two USB ports, cigarette lighter socket and a rail to store an iPad. ▶



Two special cameras, mounted on the clean grains and returns elevators, monitor for cracked grain, foreign and unthreshed material.

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Combines



The new 10in display sits next to the CommandPro joystick featuring up to seven configurable buttons while the arm it sits on can connect to other tech.

- ▶ Four re-configurable buttons have been added, as have two manual switches.
A new calibration system has also been



The software monitors the image from the camera (left) and automatically decides on necessary adjustments to maintain quality parameters (right).



fitted, featuring three active weigh cell pads in the combine's grain tank. These automatically calibrate the crop being harvested to help achieve a more accurate yield estimate and saves corn carters having to weigh loads and report back to the combine driver to calibrate the yield monitor.

The combine will automatically keep calibrating throughout the job so the accuracy improves. The cells require at least 3t of grain to triangulate and measure the reading, while five loads are needed initially to gain an accurate estimate. The technology acts effectively as an on-board weighbridge, will be

available as an option on the S700 and can be retrofitted to S600 combines manufactured from 2012 onwards.

Draper drive

Improvements to the new 700D Draper combine headers, which replace the 600D range, are designed to cope better with the greener and taller crops of Europe, primarily oilseed rape, says Charles Grey.

There's no traditional auger on the top-of-the-range Draper header. Instead, a large belt carries the cut crop evenly and consistently across the header, head first, and into the machine. There's an auger above the belt to help deliver bulky crops

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New variable-chamber balers pack in more



Two rams, fewer chains and more chamber rollers are among improvements that deliver 15% better bales, says Mike Baker.

New V400 Series variable-chamber round balers are coming in for the 2018 season which will work more efficiently and productively in all crop conditions, says John Deere baler specialist Mike Baker.

An extra hydraulic ram now operates the back door, with the other ram dedicated to maintaining bale tension. The number of chains in the mechanism has been reduced from seven to four and three chamber rollers get the crop started more effectively than the one the machine had before.

Along with re-routed pipework, the baler has been designed to "work harder for longer and bale density has increased by 15%", says Mike. The new series of balers will be available from an entry level baler, V451G, with a four-tine bar Rotoflow pick-up. The V451M and V461M are for higher volume use and can be fitted with the 13-knife Maxicut pick-up. The V451R and V461R, are designed for high volume use, with a 13 or 25-knife Maxicut pick-up available.



You can push the new beefed-up Draper header to deliver better performance on OSR, notes Charles Grey.

consistent feed and ensures a perfect delivery for the rotary combine," states Charles. "The 700D brings a 10-15% performance improvement compared with standard header. You can push the combine more without running the risk of large lumps passing through." The Draper 700D header comes in 7.6-12.2m widths. ■

such as OSR to the centre, and these have increased in size to 46cm, rather than 30cm previously. Other modifications

include stronger slip clutches, a "beefed-up" driveline and improved seals.

"The Draper header delivers a more

