

Additional resource: Sensor based technologies

Review of ISOBUS sensors and control systems

Tillage and sowing

Purpose	Sensor system	Sensing elements	Benefits
Analysis of soil structure and real-time control of cultivation depth and sowing rate	- Topsoil Mapper	Electromagnetic induction	<ul style="list-style-type: none"> – Increased operation speed during cultivation. – Continuous improvements in soil quality. – Online mapping of soil parameters. – No contact with the soil.
Seed rate and blockage monitoring	- BlackEye sensor together with XEEDGATE 2.0 – ISO ART	Seed flow, vehicle speed	<ul style="list-style-type: none"> – On-the-go calibration of the seed rate. – Improved seeding quality. – Saving of time and inputs. – Real-time control. – Dust and waterproof
Seed rate control	- Drill and Planter Controller – Quaddrill – IntelliAg® MVT – Artemis – Universal Seeder Control together with ECU BRIDGE ISOBUS	Seed flow, fan speed, vehicle speed, hopper level, satellite-based position data	<ul style="list-style-type: none"> The same as above and, – Ease of calibration between crop types/varieties resulting in maximum accuracy. – Fan control. – Tramline and headland management. – Fill level control.

Fertilisation and plant protection

Purpose	Sensor system	Sensing elements	Benefits
Biomass estimation for N fertilization	– CROP SENSOR® ISARIA® – GreenSeeker® PACKAGE	Canopy light reflectance	<ul style="list-style-type: none"> – Controlled distribution of fertilizer for all stages of the plant growth.



			<ul style="list-style-type: none"> – Reduced costs. – Determination of the fertilizer rates by using the current crop condition. – Map overlay is possible.
Liquid rate and blockage monitoring	<ul style="list-style-type: none"> – SafeGuard™ and ISOMod – Liquid Blockage Monitor System 	Liquid flow, vehicle speed	<ul style="list-style-type: none"> – No calibration required. – Immediately alerts the operator in case of a blockage. – Not affected by liquid type. – Alerts operator regardless of the lighting condition.
Boom control	<ul style="list-style-type: none"> – RiteHeight – UC7™ – Distance-Control – AutoBoom® XRT 	Distance to the ground and canopy, slope and angle	<ul style="list-style-type: none"> – Reduces spray drift and improves spray coverage. – Minimizes the chance of booms hitting the ground. – Allows faster driving also in the dark. – Follows the soil surface in an uneven, open canopy.
Sprayer control	<ul style="list-style-type: none"> – ISOBUS liquid module – SPRAYER-Controller MAXI – IC18 ECU – Hawkeye® Nozzle Control 	Liquid flow, vehicle speed, pressure	<ul style="list-style-type: none"> – Precise application rate in a variety of conditions. – Accurate droplet size and placement while maintaining the proper volume of the application. – Improved pressure consistency and reaction time across the boom.

Yield monitoring

Purpose	Sensor system	Sensing elements	Benefits
Root and vegetable yield monitoring and mapping	<ul style="list-style-type: none"> – RiteYield® 	Mass, vehicle speed, position	<ul style="list-style-type: none"> – Low-cost sensors. – High accuracy. – Durable as well-designed components that require little maintenance. – Quick calibration. Tare calibration is very simple and easily repeated as needed.
Grain yield monitoring and mapping	<ul style="list-style-type: none"> – Quantimeter – YieldTrakk – ISOBUS Yield Monitor – ISOBUS Ceres 	Volume, grain moisture content, vehicle speed, position	<ul style="list-style-type: none"> – Real-time yield mapping. – Relatively easy installation. – High accuracy. – Automatic header control to improve yield data accuracy.

			<ul style="list-style-type: none"> – Complete “on-the-go” yield information on one screen, including yield spot rate. – Visualization and mapping of the yield during harvesting.
Hay tonnage and moisture monitoring and automatic preservative application	– Harvest Tec 600 Series	Moisture	<p>Accurate moisture sensing is a critical factor in the preservative application system.</p> <ul style="list-style-type: none"> – Applying the correct amount of preservative guarantees peak hay quality during storage.