

LET'S CELEBRATE THE WINNERS

Resource magazine has once again sponsored the AE50 Award program, celebrating companies for their recent developments in agricultural, food, and biological systems. From the many entries submitted in 2021, an expert panel selected the products, showcased on the following pages, for recognition. The award-winning products are those ranked highest in innovation, significant engineering advancement, and impact on the market served.

The products represent the diversity of agricultural and biological engineering, as well as the variety of companies that continue to bring advanced technology and exciting innovations to the marketplace. This year's AE50 recipients join the ranks of many who have been honored for their ingenuity in product development—saving producers time, costs, and labor, while improving user safety as well.

The AE50 Awards had their beginning in June 1984, in a special issue of ASABE's *Agricultural Engineering* (now *Resource*), in which 25 new techniques, inventions, and innovations were showcased. The featured items were



drawn from product information solicited by the Society and screened by a panel of engineers.

From this focus on identifying innovative technology, two years later the AE50 Award program was born. As the announcement stated, "Acceptance in the marketplace is the highest accolade any new agricultural product can receive. But for innovative developments in the last 12 months, a singular honor is to be named one of the year's Agricultural Engineering 50 outstanding innovations." Product nominations poured in. An enlisted panel of experts reviewed the entries, and in 1986 the first AE50 Awards were presented.

Interest in new technology and innovative applications of existing technology remains constant. Over the years, many award-winning products were patented and their names trademarked. Some were further improved as technology advanced, and with time, won another AE50. But the most important yearly constant: all winning entrants continually strive for excellence, and we are pleased to honor their work with the highest honor in the only awards program of its kind. Congratulations to the winners!



1775NT 24Row30 PLANTER

Deere & Company
Moline, Illinois, USA
deere.com/en/

The 1775NT 24Row30 Planter Model Year 2022 update increases onboard seed and fertilizer capacity while reducing soil compaction. New commodity tanks include a 30-bushel increase in onboard seed capacity and 150-gallon increase in liquid fertilizer capacity over last year's model, with a main frame tracks option that reduces ground pressure under the center section by 70% compared to tires. The track system provided from the factory includes toe-angle adjustment and load sharing capability, reducing heat generation at high speeds and on uneven surfaces. When the planter is in road-transport configuration with seed and fertilizer tanks half-full, the tracks can travel continuously for up to 2 hours at 20 mph.

B-SERIES

SCO2, LLC.
Little Canada, Minnesota, USA
sco2.net

SCO2's technology combines hybrid cold-press and supercritical CO₂ extraction in one step. The patent-pending technology utilizes the chemistry of supercritical CO₂ extraction with the mechanics of hydraulic pressure to produce precision botanical extractions in minutes instead of hours. Real-time remote pressure and temperature monitoring, and the internal linear position sensors within the hydraulic rams provide positional feedback and accuracy. Systems are automated to be user-friendly. Operation is simplified and streamlined, requiring minimal pre-processing with no grinding or milling required. The raffinate exits as a compressed puck, saving valuable operator time, space, and material handling steps. Available in five standard models that process between 16 to 500 pounds of raw material

per hour, SCO2's technology enables powerful high-volume solvent free extractions for 24-hour industrial production.

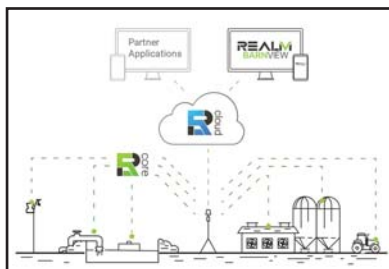




BARN VIEW

RealmFive, Inc.
Lincoln, Nebraska, USA
realmfive.com

RealmFive's Barn View is a livestock-centric product suite including powerful enterprise-level application software, drop-in connectivity, and plug and play wireless monitoring devices that include feed, water, air and effluent components. RealmFive Barn View brings a dashboard view across all types and vintages of livestock barns, often located in rural sites, with robust connectivity and extremely easy device installation. More than 90% of swine barns in North America are not connected to the internet, making it difficult for producers to take advantage of efficiency gains that come from access to standardized data across their enterprise. Barn View is a solution for operations consisting of a mix of barn vintages and controller types. Barn View can seamlessly connect to RealmFive's EcoSystem of connected solutions for agronomy, irrigation, inventory, compliance, and logistics.



C770 COTTON HARVESTERS

Deere & Company
Moline, Illinois, USA
deere.com/en/

The C770 Cotton Harvesters provide productivity, technology, and efficiency for cotton growers. The CP770 with the PRO16 HS row units can harvest more than ten acres per hour while reducing cotton losses. The CS770 cotton stripper with the new SH12F 12-row folding stripper header can harvest up to an extra 100 acres per day in dryland cotton. Both machines are equipped with a cotton handling system that reduces wrap and hauling costs up to 8% on the picker and 12% on the stripper. The cab on these harvesters is equipped with the latest technology that automatically shares data with the John Deere Operations Center. These changes, combined with the JD14P engine from John Deere Power Systems and hydraulic system, provide increased productivity while reducing fuel usage by up to 20%.

CASE IH® FAST RISER 6100 3-SECTION FRONT-FOLD PLANTER

Case IH
Racine, Wisconsin, USA
caseih.com

The 27-row 45-cm row spacing Case IH® Fast Riser 6100 is a 3-section front-fold corn/soybean/cotton planter designed for use in Brazil for growers and contractors that must transport on public roads. One operator can convert from a 13-m planting width to a 3.2-m regulatory road transport width from the tractor cab in one minute. Two lubrication points save hours of maintenance per planting season. A 5,440-L seed capacity increases productivity. Equipped with a 3-section hydraulic wing down force system and agronomically designed row unit, this planter is designed to help increase yield potential and cover more acres.



CASE IH PATRIOT® 50-SERIES SPRAYERS

Case IH Agriculture
Racine, Wisconsin, USA
caseih.com

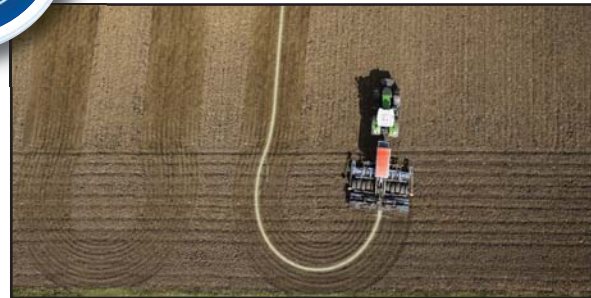
Patriot 50-series sprayers are the first full-line redesign of the Case IH Patriot® sprayer line in 15 years. The entire machine, from tires and suspension, through engine and drivetrain, machine structures, cab, spray system, vehicle electronic and hydraulic architectures, has been redesigned. The common theme with other Case IH flagship equipment is designing around a range of integrated, connected solutions. This allows next steps toward remote management and optimization of machines, data, diagnostics, agronomic inputs, and other valuable resources. It also provides the platform for future integration of evolving chemical application and vehicle control technologies. These technologies will further improve consistency and accuracy of application, reduction of inputs through precision agriculture, and micro-site management. This is accomplished while increasing machine efficiency, autonomy, safety, and operator comfort.



CROP CHASER 1000

Amity Technology LLC
Fargo, North Dakota, USA
amitytech.com

The Crop Chaser 1000 is a multi-crop capable, single-tank dump cart that utilizes hydraulically controlled independent front and rear live floor chains to provide operators with maximum control over the unloading process. Similar to a traditional dump cart, the Crop Chaser 1000 utilizes independent hydraulic remotes to control the lift and tilt functions, while the addition of the front and rear live wall floor chains increases the machine stability while unloading and adds increased control for optimized truck box loading. Whether it is silage, beans, corn, sugar beets, or a variety of other product, the Crop Chaser 1000 will increase harvest logistic efficiency. An automatic unload detection scale system and tracks are standard equipment.



FENDT TI HEADLAND

AGCO Corporation
Duluth, Georgia, USA
agcocorp.com

Fendt is introducing a reverse turn (Y-turn and K-turn) alongside the existing fully-automatic turn types to allow tractor operators to automatically turn three-point mounted implements on small headlands. The current automated turn types such as keyhole or U-turns require a large headland or the implement cannot finish the row in a straight line. With the Y-turn, on entering the headland, the sequence starts automatically, the tractor brakes and automatically reverses, and at the end of the headland the tractor and implement run seamlessly back into the next wayline. The K-turn is especially suited to turning on slopes, which tractors with rear attachments can climb while reversing. This turn type helps stabilize both the tractor and implement.

FENDT® 300 VARIO®

AGCO Corporation
Duluth, Georgia, USA
Fendt.com/us

The Fendt® 300 Vario® consolidates the innovations and features of Fendt's higher horsepower offerings into an expanded wheeled tractor product line in North America. This latest generation includes four models ranging from 100 to 132 rated horsepower in the three configurations from Power and Profi up to Profi+. The fourth-generation Vario features the smart power-boost concept Fendt DynamicPerformance on the Fendt 314 Vario, which provides up to 10 rated horsepower more power on demand. Superior driving and working comfort were first in mind when designing this platform. The system delivers maximum ride comfort and ease of use with its VisioPlus™ cab, the optional FendtONE™ operator's station, a self-levelling suspended front axle, optional cab suspension, Fendt Cargo loaders, and a variety of Fendt Smart Farming solutions.



FENDT® ROGATOR® 900 SERIES APPLICATOR

AGCO Corporation
Duluth, Georgia, USA
agcocorp.com

The Fendt® Rogator® 900 Series Applicator is a self-propelled, rear-mounted boom applicator with dual-position, adjustable crop clearance for use from pre-plant to tall crops. The machine adjusts between standard (56-60 inches) and high clearance (72-76 inches) in less than 45 seconds with the push of a button. It can be equipped with liquid, dry pneumatic or dry spinner delivery systems, which can be switched in as little as 2 hours. The result is a single, versatile solution for year-round application of liquid or dry crop nutrients, crop protection products, and seeding of cover crops, replacing multiple machines and optimizing equipment investment. This applicator's design and versatility allow better control of timing and method of applying products to help optimize yields and the investment in crop care products.



FLEX MINI

RealmFive, Inc.
Lincoln, Nebraska, USA
realmfive.com

The Flex Mini VTH wireless monitoring device utilizes wireless data acquisition technologies to collect and transfer data into RealmFive's Barn View software suite. Flex Mini monitors for in-barn temperature and humidity, and detection of feed outages. The Flex Mini VTH mounts to livestock barn feed lines within five minutes, continuously measures vibration, and distinguishes between operating conditions such as "full" and "empty". Alerting capabilities allow livestock owners to rest assured that their animals are well-fed and comfortable, regardless of the remoteness and size of their operation. Data from the Flex Mini VTH combined with feed level data enables swine managers to remotely differentiate between feed outage events versus "bridged" feed situations. Flex Mini leverages years of wireless technology that has been developed to handle tough agriculture conditions like those found inside animal barns.



FLEX-FLO XD ULTRA UNLOADER

AGCO Corporation
Assumption, Illinois, USA
automatedproduction.com

The XD Ultra unloader is a new boot and modular unloader system for livestock applications. The XD Ultra's durable design allows for smooth material flow from a feed tank to a multitude of feed conveying options. The 50% bigger XD Ultra boot opening increases feed flow and reduces bridging events. Tests of the XD Ultra show the wear plate last at least four times longer. The XD Ultra can be fitted with remote flow control gates with a bolt change. The configuration options mean farmers will be able to find a great fit for their farm. The XD Ultra unloader increase in useful life, improved flow, configuration offerings, and the option to add automation mean that the XD Ultra unloader is a major improvement from other unloaders.

FRONT CLOUD CONNECT MONITORING DEVICE

RealmFive, Inc.
Lincoln, Nebraska, USA
realmfive.com

The Front Cloud Connect utilizes world-class wireless data acquisition technologies to interface with a variety of environmental and field sensors and provides a connection to the RealmFive View data platform. Front provides a highly reliable and cost-effective connection interface for a SDI-12 soil moisture sensor, leaf wetness sensor, and full weather station suite sensor inputs (exact inputs depend on model of Front). The device was designed to require no tools for installation. The solar powered device has three communication options including a wireless connection (requires a separate RealmFive gateway), direct cellular connection, and a cellular gateway option. Over-the-air firmware updates allow Front's communication settings and configurations to be modified after purchase. The cellular gateway option is truly unique, offering users the ability to surround a Front device with up to 50 wireless sensors.



HAGIE™ STS20

Hagie Manufacturing Company
Clarion, Iowa, USA
hagie.com

The Hagie™ STS20 boasts a 2,000-gallon (7570 L) solution tank, packaged into an efficient layout and paired with precision technologies. The STS20 covers 80 additional acres per tank fill compared to a 1,200-gallon (4540 L) sprayer at 10 gallons per acre, increasing productivity and reducing the need to fill the sprayer as often. The STS20 incorporates common intuitive operator controls found in other John Deere equipment and comes standard with Category 4 active carbon filtration. Increased speeds up to 25 mph paired with an STS20 specific suspension design provide increased productivity while maintaining operator comfort. In the factory, the modular machine design reduces labor time up to 35% compared to the previous STS models.



HDF HINGED FRAME FLEXIBLE CUTTERBAR DRAPER

Deere & Company
Moline, Illinois, USA
deere.com/en/

HDF drapers offer ground following capability for on-and-off-ground harvesting, enabling producers to recover more crop while meeting the high capacity needs of today's combines. HDF



supports the harvesting system by combining a flexible cutterbar with a hinged frame and hydraulic suspension. HDF suspension decouples combine dynamics from the header, enabling more consistent cut height in all harvestable terrain. Adjustments needed for both on and off ground harvesting are integrated into the combine cab for easy operator control when paired with a John Deere X or S Series Combine. An optional integrated low-speed transport system aids field-to-field logistics, and a new "wing leveling" feature returns wings to a pre-set "flat" or "smile" position for headland turns. HDF is available in cutting widths of 35, 40, 45, and 50 feet.

HORIZON™ ULTRA TRACTOR CAB

CNH Industrial
New Holland, Pennsylvania, USA
agriculture.newholland.com/nar/en-us



The Horizon Ultra cab has been redesigned from the ground up to meet the customers' most demanding expectations: A new cab frame sets a record as the quietest in the industry with a measurement of just 66 dBA. All-round visibility is aided by enlarged glass areas, front and rear cameras and at night there are 24 LED lights to

maintain visibility. The high-capacity climate control includes dual fans and zone control, while multiple storage solutions include a large cooled compartment and a host of electrical power supplies. The driver is more connected than ever, information is displayed on a 12-inch tablet-like monitor and the unique CentreView steering wheel display, while all tractor operations are controlled from the SideWinder Ultra armrest.



HYDRAULICALLY ADJUSTABLE WINDROW MERGER ON THE KUHN FC 9330 D RA

Kuhn North America
Brodhead, Wisconsin, USA
kuhn-usa.com

The hydraulically adjustable windrow merger on the KUHN FC 9330 D RA is one of the most flexible merger systems in the triple mower conditioner segment. The belt speed and position are set from the cab, allowing customization of the windrow width from a narrow 5 foot 11 inches to a wide 11 foot 10 inches. Each merger conveyor can be individually folded up out of the way to make wide windrows without merging. The self-contained hydraulic system compensates for hilly terrain with the help of an onboard inclinometer to control the belt speed. Operators can manually adjust belt speeds or activate the automatic feature to allow the machine to make the correct adjustments when needed, ideal for less skilled operators.

INTEGRATED EXACTRATE™ LIQUID FERTILIZER SYSTEM

Deere & Company
Moline, Illinois, USA
deere.com/en/

John Deere's 8RX with ExactRate™ tractor tanks builds on the industry-exclusive 4-track row crop tractor and 1775NT planter capabilities by integrating 1,600 gallons of fertilizer capacity (1,000 gallons on the tractor, 600 gallons on the planter). The ExactRate™ Liquid Fertilizer Transfer System is a John Deere designed, manufactured, and dealer supported solution that allows customers to apply fertilizer during planting—when timing is most critical—while maintaining vehicle width, exceptional visibility, and ease of entry/egress, all with fully integrated system controls. At full capacity, the integrated tank systems provide customers up to 80 acres per fill when applying at 20 gallons per acre. In addition, tracks on both tractor and planter maintain low ground pressure, minimizing soil compaction while precisely placing seed and fertilizer.





JOHN DEERE 9R SERIES MY22 TRACTORS

Deere & Company
Moline, Illinois, USA
deere.com/en/

Large acre grain producers start earlier and run later to complete spring seeding/planting work in optimal seeding/planting windows. Their tractors pull wider implements faster and more precisely than ever before. John Deere 9 Series tractors feature an additional 20 engine horsepower and increased max ballast to 67,000 pounds. A clean sheet design JDPS 13.6L engine from 390 to 590 engine horsepower was built for performance, serviceability and reliability. A new cab is designed with industry leading LED lighting and comfort features on par with the finest automobiles. John Deere 9 Series tractors paired with John Deere Precision Ag Technology helps farmers drive farm management changes to improve yields, lower costs, and farm more acres in less time.

M1170NT SELF-PROPELLED WINDROWER

MacDon® Industries
Winnipeg, Manitoba, Canada
macdon.com



The MacDon® M1170NT provides the power and field performance of an M1 windrower, while allowing for a smooth and fast ride of 23 mph (37 km/h) between fields and fitting within road regulations. Transition from the field stance of 150 inches (382 cm) to the narrower road transport of 136 inches (346 cm) is accomplished at the push of an in-cab

button. On-screen prompts guide the user through the process. The sliding leg mechanisms used for the front and rear axles have undergone vigorous testing to ensure their durability. The Narrow Transport (NT) option allows for easier trailering for longer hauls. The M1170NT provides the flexibility to get more easily from field to field, while laying some of the widest windrows for optimal dry down.

MACDON FD2 FLEXDRAPER®

MacDon® Industries
Winnipeg, Manitoba, Canada
macdon.com

The new FD2 FlexDraper® headers (30 to 50 feet) are designed to deliver increased harvesting productivity across a wide variety of crops and conditions. The ClearCut™ high speed cutting system with its patented geometry, 25% more cutting area and new drive system deliver up to 30% faster ground speeds. The header frame accommodates industry-leading 50-inch-deep side drapers to ensure smooth crop flow, increasing combine capacity up to 20%, which is of benefit in bulky crop conditions. The 70% increase in wing flex range enhances ground following capabilities. The optional ContourMax™ system with forward positioned wheels allows ground following to produce a consistent stubble height up to 18 inches. The self-contained EasyMove™ Transport system requires less effort, and converts more quickly from field to transport.



MASSEY FERGUSON 8S

AGCO Corporation
Duluth, Georgia, USA
agcocorp.com

The Massey Ferguson 8S Series (five models, 210 to 290 rated engine HP) features a new Protect-U™ design, which allows more than nine inches of separation between the cab and engine, provides a freer flow of fresh air to improve cooling performance, offers increased visibility and significantly reduces cab noise and vibration. The new cab frame features a forward-leaning shape similar to vintage Massey Ferguson tractors from several decades ago. The cab interior trim and texture are completely updated with a new multi-function joystick and intuitive control layout. The dual-clutch Dyna E-Power transmission provides stepless shifting with the mechanical efficiency and price of a powershift transmission. Substantial improvements have been made to hydraulic performance and the HVAC system.





MASSEY FERGUSON DM 367 FQ-RC FRONT MOWER

AGCO Corporation
Duluth, Georgia, USA
AGCOCorp.com

The DM 367 FQ-RC by Massey Ferguson is a front 3-point hitch mounted mower with rubber conditioner rolls. The heavy-duty one-piece welded steel RazorEdge™ cutterbar features a wide disc diameter to ensure high output and reduced power consumption in heavier crops, resulting in a lower cost of ownership. The design of the mower linkage means the mower is pulled instead of pushed. The use of pulled bars, steering rods and cylinders with ball joints ensures exceptional three-dimensional ground adaptation for perfect forage production with minimal loss. Direct attachment to the tractor linkage without an 'A' frame results in a shorter front overhang for better stability and comfort. Foldable protective covers for transport and a wide opening front cover allows easy access to the cutterbar and quick-change blades.



OMNiDRIVE™

Raven Industries
Sioux Falls, South Dakota, USA
ravenprecision.com

OMNiDRIVE™ is the first Driverless Ag Technology for grain cart harvest operations. It allows users to monitor and operate a driverless tractor from the cab of the harvester. OMNiDRIVE™ is an easy-to-integrate aftermarket system that installs on several current tractor models. With OMNiDRIVE™, users can create a field plan, establish and modify stage locations, adjust speeds, monitor location activity, and command the tractor pulling a grain cart to sync with the harvester as it offloads on the go. OMNiDRIVE™ will then return the tractor to a user-defined unloading area. After unloading, OMNiDRIVE can re-sync and is ready to deploy the next mission. OMNiDRIVE™ is operated via an intuitive, tablet-based user interface.

OPTIWRAP® OWR 6000

Kuhn North America
Brodhead, Wisconsin, USA
kuhn-usa.com

The KUHN OptiWrap® OWR 6000 inline round bale wrapper offers wrapping productivity with pre-stretchers that have a 70% stretch ratio to minimize film and fuel use. The IntelliWrap™ system controls the process and allows the operator to adjust film layers, seam layers, load delay, and bale dimensions. The OWR 6000's stretch ratio provides more efficient plastic utilization and better bale compression, reducing plastic cost. IntelliWrap controls, combined with the optional FilmSense™ system, can adjust pusher and hoop speed to maintain the target layer count even if a stretcher runs out or tears film

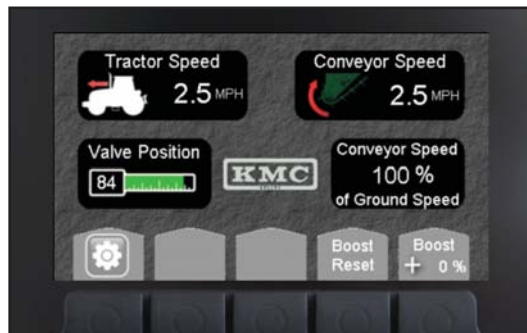


during the wrapping cycle. The BaleEye photoelectric sensor detects a bale on the loading platform without using mechanically moving parts. The OWR 6000 features dual industrial-grade polymer non-pneumatic hoop drive wheels for optimal hoop traction in adverse conditions.

PEANUT INVERTER AUTO SPEED CONTROL

Kelley Manufacturing Company
Tifton, Georgia, USA
kelleymfg.com

The KMC Peanut Inverter Auto Speed Control system increases the efficiency of a peanut digger-shaker-inverter by automatically adjusting the speed of the conveyor to match the desired percentage of forward ground speed of the implement as defined by the user, ensuring a smooth transition of the peanut crop from the digging blades onto the shaking conveyor. The KMC Peanut Inverter Auto Speed Control allows the operator to set the ideal conveyor speed based on peanut variety and soil type, reducing crop loss by up to 50%. Operator fatigue is reduced by simplifying, and sometimes eliminating, manual conveyor speed adjustments required by changing field conditions that are typical of peanut digging.





PERMANENT CROP ANALYZER™

Smart Guided Systems
Indianapolis, Indiana, USA
SmartApply.com

The Permanent Crop Analyzer™ is a Utility Vehicle add-on kit that uses LiDAR to scan permanent crops; inventory tree statistics, tree location, track or section boundary, and density statistics; provide yield estimates; and forecast chemical savings using the Smart-Apply® Intelligent Spray Control System™. The Permanent Crop Analyzer™ uses a wireless Android tablet interface, operated by the grower or as a dealer service. It produces a location-based inventory including tree height, width, and a foliage density index per tree. The chemical savings analyzer compares the grower's current spray usage to a density-



based spray system, outlining where and how chemical savings are possible. Using historic density heat maps, the grower identifies growth concerns, making data driven decisions. Comparing density heat maps to harvest yields allows for year-over-year comparisons, and estimations of current year yield.

QUICK CHANGE BLADE FEATURE FOR PROSERIES™ OPENER

Deere & Company
Moline, Illinois, USA
deere.com/en/

The Quick Change Blade feature is a product enhancement for the ProSeries™ Opener that dramatically reduces maintenance time and labor costs needed to replace the opener disks.



The opener disk can be replaced with minimal tools and part removal through the use of a sculpted gauge wheel arm. ProSeries™ Openers are available on all John Deere no-till air seeding tools and were introduced in 2018 as a major upgrade to the 90 Series Opener. The Quick Change Blade feature builds on the improvements made to serviceability, durability, reliability, and function including the removal of two grease points, improved boot and seed tab, more aggressive closing wheel, thinner and more flexible press wheel and improved seed boot mounting of the ProSeries™ Opener, making it more reliable and easier to service.

QUICKE® QE-COMMAND WITH Q-COMPANION

Ålö USA Inc.
Simpsonville, South Carolina, USA
quicke.org

The Quicke® QE-command smart front loader control with Q-companion includes payload weighing, automation of work cycles, end position damping, and the ability to limit implement heights and tilt angles. A color display with on-screen instructions and a built-in product manual makes it simple to use. Settings are stored on individual implements, offering a "set and forget" experience. Although packed with functions, the system is designed to suit non-experienced operators. The loader is fitted with a tilt angle and lift height sensor, two



hydraulic pressure sensors and an ECU. The cab is fitted with a color display as well as the joystick. Advanced motion planning is used to allow pre-programmed implement

positions, useful during limited visibility. Bluetooth and a free phone app facilitate material weighing data transfer and storage.

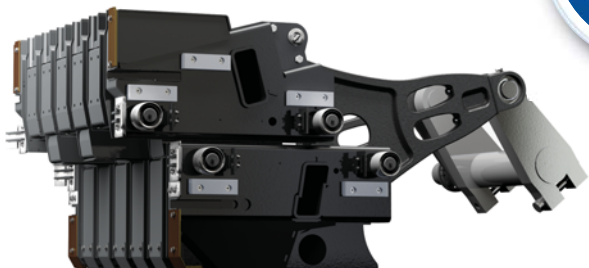
REVEAL

Precision Planting™
Tremont, Illinois, USA
precisionplanting.com

Reveal™ is a frame-mounted, floating residue management system for row crop planters that uses a trailing, internal gauge wheel to control the depth of the cleaning tines and two airbags to adjust how aggressively the row cleaner maintains contact



with the ground. Reveal is frame-mounted to isolate its weight and adjustment pressures from affecting the planter's row unit dynamics. The internal gauge wheel is used to set a consistent depth of the cleaning tines by running on the cleaned dirt, not on top of the residue. Reveal is equipped with two air bags, one for down pressure, and one for lift pressure to make necessary adjustments to the aggressiveness of the row cleaner wheels.



SB 1290 iD TWINPACT

Kuhn North America
Brodhead, Wisconsin, USA
kuhn-usa.com

The KUHN SB 1290 iD TwinPact plunger offers higher bale densities without the need for a dramatically heavier baler and substantial increase in horsepower required to operate the baler. The split plunger design intelligently applies the force of a standard 3x4 square baler to half the area, twice. Combined with the longer bale chamber and nine hydraulic cylinders on the iD baler, this system increases bale density. The baler runs smoother with a smaller flywheel and overall baler structure compared to competitive units, decreasing the horsepower needed to run the baler while making higher density bales. The combination of fewer, denser bales with lower fuel consumption offers a lower cost of operation for making heavy, high-quality bales that get more weight on a truck, decreasing transport costs.



SEE & SPRAY™ SELECT

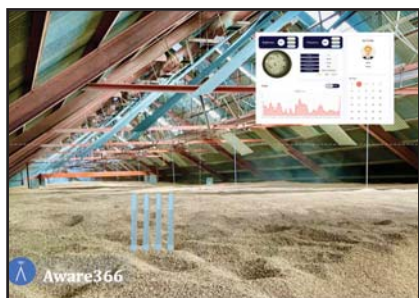
Deere & Company
Moline, Illinois, USA
deere.com/en/

See & Spray™ Select enables spot spraying of weeds on fallow ground and is John Deere's first offering using this technology provides a factory-installed and machine-integrated solution for farmers. See & Spray Select uses camera and control technology to differentiate color on fallow ground, detect weeds and spot spray them. This targeted spray application has similar hit rates as broadcast spraying while applying 77% less herbicide on average. Farmers can reduce input costs or utilize more expensive, complex tank mixes to manage weeds. Built upon the John Deere ExactApply™ foundation, See & Spray Select provides a single machine with seamless switching between target spray and broadcast applications while providing optimal performance, diagnostics, and data management through Operations Center.

SMART INSECT EARLY DETECTION AND NOTIFICATION SYSTEM

Aware366 LLC
El Macero, California, USA
aware366.com

The Smart Insect Detection System achieves early detection of insects and monitors environmental conditions in agricultural and food products, such as cereal grains and nuts, during storage and transportation. It captures insects through novel insect traps as they emerge, remotely monitors their activities, and sends notifications to facility managers for appropriate action. Data on the environmental conditions of the products are used for prediction of insect occurrences and better management. Information can be stored locally and on the cloud, and accessed through apps. This technology provides an innovative solution to problems caused by insect infestation, including product and quality losses, chemical use, food safety concerns, and high management cost.



SMART SOIL TECHNOLOGY™

Kuhn Krause, Inc.
Hutchinson, Kansas, USA
kuhn-usa.com

KUHN Krause Smart Soil Technology™ uses AEF certified ISOBUS electronic control to bring complete, on-the-go adjustment and multiple function fine tuning on the Excelerator® XT into the tractor cab for the first time. Smart Soil Technology™ provides "preset only mode" with up to eight user-defined presets, which can be saved, allowing the operator to make multiple adjustments simultaneously with a simple touch of a button. Preset only mode can be activated to limit adjustment selections only to the saved presets when the machine is operated by a less skilled operator. The AEF certified ISOBUS software provides true plug and play compatibility with other certified displays and provides a truly compatible system from one brand of tractor to another without the need for additional equipment.



SMARTDEPTH™

Precision Planting
Tremont, Illinois, USA
precisionplanting.com

SmartDepth™ is a depth calibration and control system for row crop planter row units that can function as an automatic depth control system when paired with SmartFirmer for moisture-based automatic depth adjustment. SmartDepth replaces the factory standard T-handle depth adjustment with an electronic actuator that connects to the depth adjustment mechanism in the row unit. Smart Depth gives growers the ability to ensure that every row unit is accurate in its depth setting through a pre-plant calibration process. The grower can adjust depth on the go from the cab manually, or set SmartFirmer in-furrow moisture targets on the 20|20 display to control the depth automatically.



T-SERIES AG-BAGGERS

RCI Engineering, LLC
Mayville, Wisconsin, USA
ag-bag.com

The T-Series Ag-Baggers feature increased capacity while improving serviceability and transportability. The T7170 and T7060 replace a legacy line of Ag-Baggers and are the first production Ag-Bag® machines to be manufactured by RCI Engineering since the acquisition by RCI of Ag-Bag from CNH Industrial America in November 2019. Major advances include a rotor with more than double the number of teeth and a new pattern to improve capacity and bag density. A single, 12-inch wider conveyor allows delivery of more crop to match the improved capacity of the rotor. A forage distributor, longer tunnel, sweeping tunnel cleanout, longer cables, reversed transport system, integrated hydraulic lift, and streamlined operator control system contribute to making a machine for producers to grow their operations through increased capacity, serviceability, and transportability.



TEROS 21 GEN 2

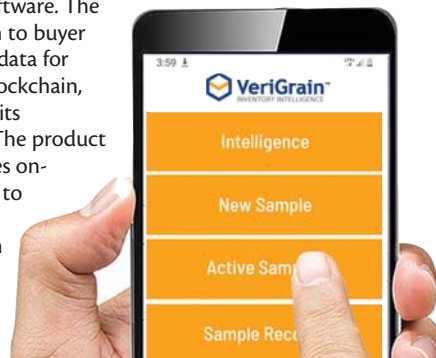
METER Group, Inc.
Pullman, Washington, USA
metergroup.com

TEROS 21 is the first full-range, maintenance-free water potential sensor. It takes a critical parameter that was once difficult to measure and makes it easy and affordable. Water potential is crucial in understanding water availability to plants, slope stability in soil, and potential for landslides. Developing an accurate easy-to-deploy sensor is vital to improving the ability to measure and understand important soil properties. The TEROS 21 Gen 2 boasts an improved circuit, a more robust microprocessor, and an improved measurement range. These improvements now allow the TEROS 21 Gen 2 to measure all the way from near saturation to air dry, finally making it a true full-range water potential sensor.

VERIGRAIN AUTOMATED SAMPLING AND DATA MANAGEMENT SYSTEM

VeriGrain Sampling Inc.
Saskatoon, Saskatchewan, Canada
verigrain.com

VeriGrain is an automated sampling and data management system. Grain samples are collected using two connected hardware components: a Sample Extraction Module located in the grain flow and a ground level Sample Management Module. Accurate cross-cut samples are pneumatically conveyed to the storage receptacle, collected, and stored in bar-coded containers. The sample data are entered into an app, which determines the optimal sampling interval, tracks grain quality and quantity, interacts with labs to obtain sample analysis, analyzes grain inventory to assist with marketing decisions, and allows the data to be shared with buyers and other farm management software. The app provides bin to buyer traceability and data for sustainability, blockchain, and carbon credits determination. The product platform includes on-board capability to determine grain characteristics in real time.





VX240 HARVESTER

Flory Industries
Salida, California, USA
Goflory.com

The Flory VX240 is a new tractor powered nut harvesting machine that incorporates a waterless, filterless, dust suppression system to reduce the dust emissions generated by the harvesting process. This machine uses a three-stage dust suppression system that is compact enough to fit in an orchard and is capable of moving over 12,000 CFM of air while continuously removing debris and dust on the order of thousands of pounds per hour. While typical mobile dust suppression systems rely on water sprayers to reduce dust from air, this machine eliminates the need for a substantial amount of labor and logistics involved in operating water trucks and filling tanks.



W200 SERIES SELF-PROPELLED WINDROWERS AND PLATFORMS

Deere & Company
Moline, Illinois, USA
deere.com/en/

The new W200 Series M & R self-propelled windrowers offer producers a variety of horsepower options and new features, like TouchSet™ in cab controls. TouchSet provides operators with the ability to adjust swath flap and forming shields from the cab with the press of a button. The TouchSet pre-set library suggests settings based on crop type and allows for custom settings. The four new SPW models build on the success of the previous W200 series from John Deere with an increased model lineup and new functionality. R Spec models offer higher transport speeds and increase windrow width options. The M, R, R400, R500, and D600 options provide producers with operator environment, horsepower, speed, cut, and conditioning options. The new W200 Series self-propelled windrowers offer a solution to meet any hay producer's needs.

WD5 SERIES SELF-PROPELLED WINDROWER

Case IH Agriculture
Racine, Wisconsin, USA
caseih.com

WD5 Series Windrowers allow producers to get to the field faster and muscle through the tough spots, all without sacrificing harvest quality or operator comfort. Transport speeds up to 30 mph and cutting speeds up to 20 mph together with simplified operations and innovations such as Field Cruise and the Triple Windrower Attachment bring peak efficiency to the operation. These windrowers also feature integrated Advanced Farming Systems (AFS) technology, including the AFS Pro 700 display, to manage auto-guidance, control key machine functions and monitor windrower performance. WD5 Series Windrowers set the bar for innovation, technology and comfort, delivering high-efficiency hay production cutting after cutting. The all-new drive-by wire ground propulsion and steering system makes road transport and field work effortless for a more relaxed operator experience.



Will your company introduce a new product in 2022?

If you have a new product, we might be celebrating you here next year! If your company will bring a new product to market for 2022, consider nominating it for an AE50 award. ASABE is proud to sponsor AE50, the only awards program of its kind, celebrating product innovations in the areas of agricultural, food, and biological systems. Our online nomination process begins in August, check our website (www.asabe.org/AE50).