

Resource
Magazine's

**OUTSTANDING
INNOVATIONS
2003**



AE50



AE50 2003

Products winning the 2003 AE50 awards represent the best and the brightest developed throughout the world for the agricultural, food, and biological systems industries.

The innovations highlighted in this issue were chosen from numerous entries in the competition sponsored by *Resource*. The judges who chose the winners represent all factions of the agricultural, food, biological, and related systems engineering professions. The expert panel selected the best of products first introduced to the marketplace during 2002. These products are expected to save producers time, costs, and labor while improving user safety.

Problem solving is a major goal in designs whether one is developing a better way to spread manure, water a golf course, or monitor weather conditions. Environmental concerns must also be factored in while keeping production and operating costs low.

The annual AE50 program has been honoring

engineering achievements for more than a decade. Past winners include companies of all sizes throughout the world.

Many of the new ideas are patented and their names trademarked. Some may become household words in the future. Others will be improved upon as technology advances.

From improved tractors and implements to computer software and high-tech electronic measuring devices, the 2003 AE50 winners cover a gamut of devices. The AE50 is the only awards program of its kind to reward companies for developments in specific areas of agricultural, food, and biological systems.

For information on how to enter next year's competition, contact Sandy Rutter at 269-429-0300 ext. 345 or rutter@asae.org.

Information on the AE50 and *Resource* magazine is also available on the ASAE Web site at www.asae.org.

AE50 OUTSTANDING



INNOVATIONS 2003

● Pocket-IRD Handheld Interface Device furnishes immediate data view, review, and more



The Techmark Pocket-IRD Handheld Interface software and hardware allows for the automatic synchronization of impact data and location from the Impact Recording Device (IRD) and provides instant viewing of the data. Immediate feedback on location and intensity of impacts – that could potentially damage produce during handling – allows the users to quickly identify and correct the produce handling equipment. This capability translates to higher quality produce with lower levels of damage and disease for the consumer. Produce harvesting and packing companies can access and view the pertinent impact information in color – in the field or the packinghouse. The securely stored data can be uploaded from the flash memory card to a personal computer for

future data analyzing and printing. Verbal and written notes for each impact can be added for a more comprehensive report. Individual client information can be set up and specific equipment transition points can be labeled for continued future testing.

Techmark, Inc., Lansing, Michigan, USA; 517-322-0250, www.techmark-inc.com

● GreenSeeker® Variable Rate Application System addresses nitrogen use efficiency



The GreenSeeker® Variable Rate Application System developed by NTech Industries, Inc., in cooperation with Oklahoma State University, is a sensor-based variable-rate fertilizer application system that can increase nitrogen use efficiencies in field crops by addressing spatial and temporal variability. The GreenSeeker® sensors detect crop potential yield and total nitrogen in the plants and uses that information to adjust top-dress nitrogen application rates "on the go" with real time sensor data. The GreenSeeker® system is not dependent

upon a GPS signal for application location, but can use GPS to develop an "as applied" map. The equipment is designed to be integrated onto new, and retrofit, self-propelled and pull-type applicators. The system features simple operation allowing an operator to insert set-up information through a compact-flash card. Once in the field, the system can be engaged and the system operated conventionally. The GreenSeeker® Variable Rate Fertilizer System will include an in-cab printer that can be used to print field summaries for customers.

Ntech Industries, Inc., Ukiah, California and Stillwater, Oklahoma, USA; 888-728-2436, www.ntechindustries.com

AE50 OUTSTANDING



INNOVATIONS 2003

● Model 6000 Orange Harvester offers unique horizontal shaking action

The Korvan Model 6000 Orange Harvester is a continuous pick, canopy shake-and-catch harvesting machine developed for the Florida orange industry in conjunction with the Florida Department of Citrus. Picking is accomplished using the new Dynamax shaking system, a unique horizontal shaking action which dislodges fruit. This fruit is then caught, conveyed, and cleaned on the harvester. Finally, fruit is deposited into a field truck moving through the grove with the harvester. This machine is capable of harvesting mature orange trees up to 6 meters (20 feet) tall and planted in rows. Built around a four wheel carriage, the machine has all-wheel drive. It has front and rear steering and crab steering to allow easy maneuvering through an orange grove.

Machines work in pairs, harvesting both sides of the row canopy, maximizing fruit harvested and caught.

Korvan Industries, Inc., Lynden, Washington, USA; 360-354-1500, www.korvan.com



● 1895 Separate Fertilizer Placement Air Drill applies seed and fertilizer in no-till, single pass



John Deere now offers the 1895 Separate Fertilizer Placement (SFP) Air Drill, which is designed to simultaneously apply seed and fertilizer with a single pass, no-till operation. This tool allows seed and fertilizer to be placed in separate furrows with minimal soil and residue disturbance. Because the seed and fertilizer are physically separated, high volumes of nitrogen may be applied without affecting seed germination. Users also save time, labor and fuel costs, and tractor wear by applying seed and fertilizer in a single pass eliminating a separate fertilizer application operation. The ability to function in no-till conditions provides the added advantage of moisture and residue conser-

vation – a big benefit in dry climates. The 1895 SFP tool utilizes John Deere's patented active hydraulic down-pressure system for consistent penetration and is compatible with the 1910 Commodity Air Cart.

John Deere Seeding Group, Moline, Illinois, USA; 309-765-8000, <http://seeding.johndeere.com>

AE50 OUTSTANDING



INNOVATIONS 2003

● MP Rotator™ gives high uniformity, conserves water, and reduces runoff

The MP Rotator™ is a multi-stream sprinkler with an adjustable arc and adjustable radius resulting in matched precipitation rate and eliminating the need to change nozzles. MP Rotator™ technology makes possible high uniformity and low application rates which alleviate runoff problems associated with steep slopes and tight soils. Lower application rates allow for a system design with fewer valves and smaller pipe sizes than large sprinkler or sprayhead zones. A water-conservation tool, the MP Rotator™ saves water and energy by reducing runoff and providing higher uniformity than conventional sprinklers in its range. This product simplifies design and management by matching the precipitation rate of the other sprinklers in the field or orchard. The MP Rotator™ is a product for new designs with the ability to retrofit existing systems providing a low cost solution to problems caused by low pressure, windy conditions, and poor spray uniformity.

Walla Walla Sprinkler Co., Walla Walla, Washington, USA; 509-525-7660



● Mobile Cabinet Dryer with air duct drying system easily on-the-move



The mobile cabinet dryer was developed since the drying of fruits, vegetables, and herbs can be an interesting business, but often the investment is too much for a single farmer as the dryer would not be adequately utilized due to the seasonal nature of crops. Therefore this mobile cabinet dryer was designed, which is assembled on a trailer and can be easily towed and used in a "Rent a Dryer" system. The dryer is equipped with 50 trays and has a capacity of up to 300 kilograms (803.7 pounds) a day. By an innovative, registered air duct system, drying is entirely uniform and consistent on all trays. No continual supervision and repeated changing of the trays' positions is necessary as with comparable dryers. Different types of dryers are available that use electricity, gas, oil, or waste as the energy source.



Agrartechnik Hohenheim,
Stuttgart, Germany; 49-711-459-2856,
www.ats.uni-hohenheim.de

AE50 OUTSTANDING



INNOVATIONS 2003

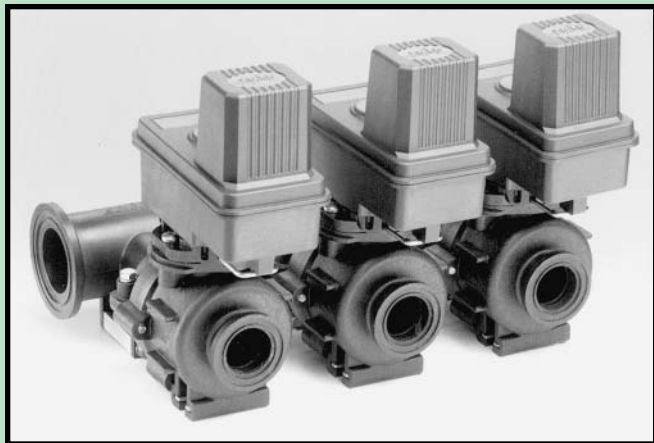
● Variable Rate Piston Metering Pump for precision agriculture applications

The Variable Rate Piston Metering Pump is a positive displacement-metering pump capable of adjusting its output during operation to allow for continuous and dynamic variable rate application rate adjustments of liquid fertilizer during application. This new pump design uses a proprietary, patent-pending, dynamic reverse rotating dual eccentric to adjust the pumps output and, therefore, application rate. This capability allows the operator to make infinite application rate changes within a 1 to 5 range while the pump is in operation in the field. Rate changes are made directly from an electronic controller located in the tractor's cab. The mechanically based Variable Rate Piston Metering Pump is ground-driven with electronic support and requires no additional hydraulics, radar, bypass valves, flow meters, or alternative drive systems from standard positive displacement metering pump systems. This system may be linked to independent compatible electronic platforms using GPS and field prescription maps for site-specific application of liquid fertilizer, i.e. precision agriculture.

CDS - John Blue Co., Huntsville, Alabama, USA; 800-253-2583,
www.cds-johnblue.com



● 356 Trunion Valve offers control of chemicals on field, highway, or roadside with trunion design



The 356 Trunion Valve was developed by the Mobile Systems Division of Spraying Systems Co. to control the application of agricultural chemicals in crop production. The high flow rate and corrosion resistance also makes it ideal for fertilizer applications and the application of de-icing solutions and other highway and roadside spraying applications. The trunion design maintains the ball in the center of the valve using upper and lower bearings. This reduces the chances of stem leakage. A unique "spoon"-style ball has sealing on one side only. The result is half the number of sealing components to wear out, and no "dead" areas to trap liquid and contaminants that can degrade the shut-off quality. The quick-release drive head is completely

sealed and welded to eliminate leakage. The gear motor uses double wall construction to ensure permanent lubrication and add strength. The electronics are encapsulated for superior corrosion resistance.

Spraying Systems Co., Wheaton, Illinois, USA; 630-665-5000, www.teejet.com

AE50 OUTSTANDING



INNOVATIONS 2003

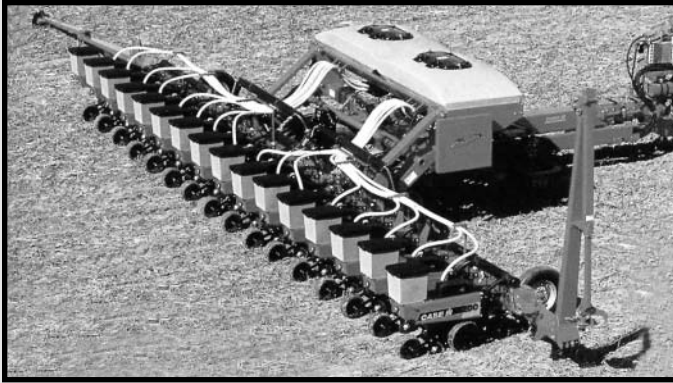
● 2210 Compact Utility Tractor proves less is more

The John Deere 2210 Compact Utility Tractor offers the performance, versatility, and safety features of larger compact tractors in a smaller, value-priced package. Rated at 17 kilowatts (23 gross engine horsepower), the 2210 comes standard with a two-speed hydrostatic transmission, mechanical four-wheel drive, rear and mid power-take off, three-point hitch, ASAE S478-certified ROPS, and operator presence safety system. Operator productivity and convenience is enhanced via forward and reverse Twin Touch® foot pedals, electro-hydraulic power take off actuation, and an isolated three cylinder diesel engine which greatly reduces tractor vibration. Other unique features include in-mold painted reaction injection-molded urethane rear fenders, and an industry-first: a blow-molded footdeck. Both components are ultra-violet and dent- and rust-resistant, greatly enhancing tractor durability. The limited Category 1 three-point hitch is compatible with the John Deere iMatch™ quick coupler system which allows easy attachment and removal of any implement that meets ASAE S278.6.



John Deere Commercial Products, Grovetown, Georgia, USA; 706-854-4040, www.deere.com

● Bulk Fill Seed Delivery System with no moving parts



The Bulk Fill Seed Delivery System is designed specifically for the CNH Pivot Transport planter. The fan entrains seed in the airflow from each tank, carrying it to the individual row seed meters. Specially designed mini-hoppers incorporate a self-regulating airflow shutoff that maintains a 1-liter (1.06 quart) volume of seed at each meter with no moving parts. The system is completely mounted on the planter structure with the tanks centrally positioned over the planter's large deck. Coupled with large tank openings, the operator can fill the system with neither walkways nor railings. Cleanout is simple with a

large, hinged door at each tank bottom. The system delivers multiple seed types over a wide population range. The design eliminates the need for any towed unit, allowing for excellent visibility at all times and the zero-wear parts significantly reduce maintenance costs.

CNH, Burr Ridge, Illinois, USA; 630-887-2345, www.caseih.com

AE50 OUTSTANDING



INNOVATIONS 2003

● Vibration Reduction Suspension (VRS) 2000 furnishes smooth ride via damper system

The VRS 2000 is a vehicle seat air suspension that utilizes semi-active damper technology and a low natural frequency (LNF) air spring system to provide superior vibration isolation during normal vehicle operation while maintaining excellent ride control during rough terrain inputs. A specially tuned Motion Master® semi-active damper system, developed by Lord Corporation for the VRS 2000 seat, allows for continuous real-time automatic damping force adjustments based on terrain inputs. The LNF air spring system further enhances the seat ride by providing a lower resonant frequency and improved isolation at critical vehicle vibration frequencies. The Motion Master® damper utilizes a magnetorheological (MR) fluid that changes apparent viscosity when exposed to a magnetic field. By varying the strength of the magnetic field around the damper piston orifice, the viscosity of the MR fluid can be changed from that of a light oil to a heavy paste. The controller continuously monitors the motion of the suspension and updates the damping requirements at the rate of 500 times per second.

Sears Manufacturing Co., Davenport, Iowa, USA; 563-383-2800, www.searsseating.com, www.motion-master.com



● **110 Tractor Loader Backhoe corners versatility along with U.S. patents**



The 110 Tractor Loader Backhoe (TLB) is a compact agricultural tractor capable of sustaining heavy loader and backhoe usage yet retains agricultural tractor versatility. The machine was designed to maximize versatility, productivity, visibility, and operator comfort. To maximize customer versatility, the front loader for the TLB is compatible with existing skid steer implements, and the backhoe is compatible with existing compact excavator attachments. The backhoe dismounts easily with the operator on the seat, quickly converting the tractor for use with standard agricultural tractor three-point hitch and power take-off implements. An intelligent Power

Management System provides maximum hydraulic power to attachments and transmission without risk of stalling the engine. The backhoe operator can easily reposition the machine during trenching operations using a thumb lever on the left fender while remaining in the backhoe operating position. Innovations to hydraulics, backhoe mounting, visibility, and transmission controls have earned several patents.

Deere and Company, Moline, Illinois, USA; 866-993-3373, www.deere.com

AE50 OUTSTANDING



INNOVATIONS 2003

● **Armstrong Solar Powered Water Pumping System offers low-tech simplicity**

The patented Armstrong solar powered pumping system answers many of the long-sought solutions for the global, 1.2 billion-dollar livestock watering and agricultural irrigation industry. Although advances in reliability of non-conventionally powered water pumps have increased with costs over the last 25 years, Armstrong has substantially improved efficiency. For example, the Model 80 (2-meter/80-inch Flywheel) produces 19.76 liters (5.22 gallons) per minute, at 9 meters (30 feet) head and only uses

178.65 BTUs (52.38 watts). Other manufacturers have improved durability, but Armstrong addresses not only durability and efficiency, as each Armstrong system employs a manual override for emergencies. The unique simplicity in design suits farmer, rancher, and developing countryman. With this low tech, highly reliable system, concern of climbing a tower for maintenance or waiting on service personal has been virtually eliminated. Equipment costs are reasonable, the energy is free, and the system is environmentally friendly.



Armstrong Energy, LLC, Hutchinson, Kansas, USA; 877-916-4266, www.armstrongsolarpump.com

● BEELINE Steering Assist® Controller offers high flexibility and easy remote serviceability



The BEELINE Steering Assist® Controller is a fully integrated, hands-free steering product designed to conform with the reliability and cost requirements of agricultural machinery original equipment manufacturers (OEMs). The integration of a dual frequency global positioning system (GPS) receiver, L-band Omnistar correction receiver, ISO11783 capability, and the GPS/INS steering controller into a single unit has enabled significant cost reductions and reliability improvements making the technology attractive to mainstream agricultural OEMs. The distinct technology feature of the unit is the use of the inertial navigation system (INS) as the primary real-time position sensor while using GPS for real-time calibration. The unit is upgradeable via satellite from its base GPS accuracy level of sub-meter, to decimeter, through to centimeter performance for high value farming applications. Comparable hands-free steering-assist products do not currently offer this level of integration, flexibility, and remote serviceability to the OEM and their customers.

BEELINE Technologies, Inc., Westminster, Colorado, USA; 303-457-9333 ext. 222, www.BEELINE.ag

AE50 OUTSTANDING



INNOVATIONS 2003

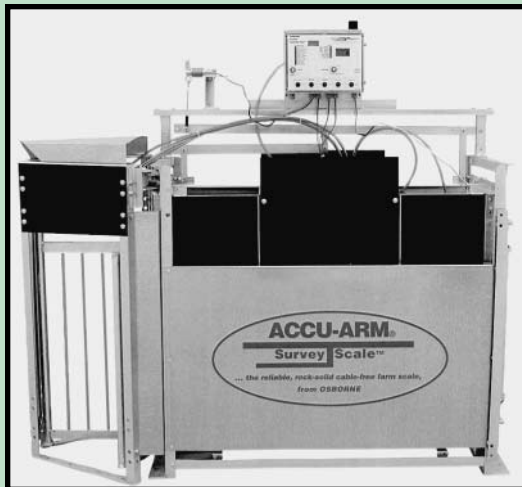
● New Holland TG Series Tractors give more horsepower and more comfort

The TG Series leads the New Holland tractor line into the next generation of style and performance. With increased horsepower across the range (170 to 240 power take-off horse power/127 to 179 kilowatts), this four unit family extends upward past the Genesis line it replaces. The redesigned SuperSteer™ front axle, with its 279-millimeter (11-inch) longer wheelbase, improves 152-centimeter (60-inch) tread setting maneuverability to best in class and when combined with the AutoComfort™ seat, provides the most comfortable ride in the industry. The optional TerraGlide™ suspended front axle improves ride quality, tractor stability, and tractive efficiency. All front axles are available with the Terralock™ hydraulically locking front differential option and front duals are available with any axle on the larger two models. Increased hydraulic flow up to 257.4 liters (68 gallons) per minute is available with the New Holland exclusive MegaFlow™ system. The cab interior volume is increased to 109.5 cubic feet (3.1 cubic meters), increasing operator comfort and visibility.



New Holland North America, Inc., New Holland, Pennsylvania, USA; 888-290-7377, www.newholland.com

● Survey Scale™ for the Weight Watcher™ System incorporates ACCU-ARM® weighing technology



The Osborne Survey Scale™ automatically measures animal weights and weight statistics for a group of animals. The Survey Scale uses the patented ACCU-ARM® weighing system, modified with the Integrated Function Control Plus™ (IFC+) and optional pneumatic sort gates, spray markers, and radio frequency identification (RFID). The IFC+ manages weighing operations as animals voluntarily enter the Survey Scale in a Weight Watcher™ growth management system. The IFC+ reports individual weights, group weight-distribution statistics, and daily growth as changes in median and quartile weights for the group. The IFC+ also controls automatic sorting and marking of animals using their weights, group-weight statistics, and user-defined operating values. With optional RFID, individual growth curves for all animals are recorded and monitored for nonlinear deviations. The Survey Scale can also report its information and receive new instructions from a remote PC equipped with Daily Weigh software.

Osborne Industries Inc., Osborne, Kansas, USA; 800-255-0316, www.osborne-ind.com

AE50 OUTSTANDING



INNOVATIONS 2003

● 1790 Front Fold Planter offers several configurations with narrow road transport width

The new 1790 Front Fold Planter from John Deere is a 3-section flex planter offered in 23R15, 24R15, 31R15, 32R15, and 24R20 configurations with a narrow road transport width. The narrow transport width is achieved through the use of offset front-fold pivots and vertical fold row units with increased fore-aft stagger. The 1790 frame configuration also offers improved serviceability, improved residue flow, and more frame flexibility for excellent ground following ability. The frame also has a short hitch for better maneuverability while planting, and increased under frame clearance during transport. A 1,590-liter (420-gallon) tank is available on 9-meter (30-foot) models and most models have the ability to tow an additional 7571-liter (2000-gallon) nurse tank. In addition to the new frame, markers, and fertilizer system improvements over the previous models, the 1790 offers the increased productivity of the Central Commodity System (CCS) Seed Delivery and the new Pro-Series Row Unit.



John Deere Seeding Group, Moline, Illinois, USA; 309-765-7280, www.deere.com

● Freedom Series 3210 Citrus Harvester saves time, avoids fruit damage



The OXBO Freedom Series 3210 Citrus Harvester is a tractor rear semi-mounted continuous canopy shaker used to remove fruit grown for processed juice. Suited for use in older and mixed tree age groves, the 3210 quickly removes fruit and drops it to the ground. Fruit removal requires only 14 seconds per tree with no lost time between trees. The harvester mounts to a rigid tractor sub frame and has a hydraulically adjustable rear axle width for stability. Automatic frame leveling maintains effective fruit removal over varied grove terrain. Operator or automatic control of

shaker position into the tree with manual shaker height control makes high removal possible. The harvester's four rotating sweeps gently move fruit from the wheel tracks avoiding damaged fruit. Shaker and ground speed are adjustable to achieve fruit removal above 92 percent. The harvester saves up to 20 cents per box cost of fruit harvesting over manual in-tree removal.

OXBO International Corp., Byron, New York, USA; 585-548-2665, www.oxbocorp.com

AE50 OUTSTANDING



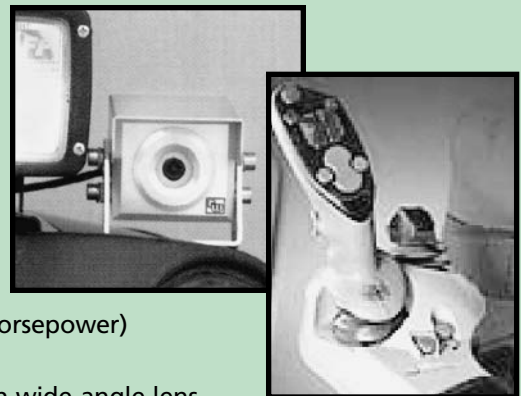
INNOVATIONS 2003

● Implement Control replaces monitors, controllers

● VARIO® Camera gives optimum view of surroundings

AGCO Corporation's FENDT™ Variotronic Implement Control operates implements precisely without the need for additional monitors or control boxes and gives operators a simpler way of operating implements – with the touch of a button. A memory box containing operating software is mounted to the implement. The memory box connects to the tractor by a cable and ISO 11783 plug. The operator controls the implement using the tractor's multi-function joystick through the CAN-BUS system. Controls are displayed and changed using the innovative VARIO® terminal. FENDT™ Variotronic Implement Control is standard in all VARIO® Series tractors 82-179 kilowatts (110-240 horsepower) equipped with the Variotronic terminal.

The optional FENDT™ VARIO® Camera (available in all series) with wide-angle lens gives operators a convenient view of anything and everything. Connect up to 12.2 meters (40 feet) of cable for an optimum view of any operation or situation on the tractor or implement. View the picture as "rearview mirror" or as "actual" image in the VARIO® terminal.



AGCO Corporation, Duluth, Georgia, USA; 800-767-3221, www.fendt.com/index_us.html, www.agcocorp.com

● New Holland CR Series Twin Rotor® Combine features higher capacity and productivity



The New Holland CR Series Twin Rotor® Combine is a twin rotor combine harvester featuring higher capacity and productivity with comfort and convenience. The CR twin rotors are longer than previous models and have been redesigned to provide smoother flow and increased separating area. The exclusive Twin Rotor™ design provides matched-width feeding, giving a thinner crop mat and even grain distribution for better separation and greater capacity. The full-width grain pan and self-leveling cleaning system reduce grain loss when working both on level ground and on slopes of up to 17 percent. The Harvest Suite™ cab provides ultimate operator comfort. The all-new electrical/electronic system features an Advanced Stone Protection (ASPT™) system which electronically detects and mechanically

ejects stones without impeding crop flow. In addition, it features Automatic Crop Setting, which will adjust the combine rotor speed, concave position, cleaning fan speed, and sieve settings to preset positions.

CNH, New Holland, Pennsylvania, USA; 717-355-1121, www.newholland.com

AE50 OUTSTANDING



INNOVATIONS 2003

● StreamJet-3 Fertilizer Tip hosts unique baffle system to lower flow rate variations

The StreamJet-3 Fertilizer Tip manufactured by Spraying Systems Company applies solid streams of liquid fertilizer to crops at evenly spaced intervals. The solid streams reduce leaf burning when compared to broadcast applications and a unique baffle system reduces flow rate variations between the streams. The StreamJet-3 also employs a retained, color-coded metering orifice which can be easily removed without tools. By utilizing the 15 degree offset used in the TeeJet caps, streams may cross without interference allowing for a variety of height to width ratios on the spray boom. All tips are made from a polymer material for excellent chemical resistance while the molded exit orifices provide greater stream integrity when compared to drilled holes. The StreamJet-3 tip is offered in nine color coded sizes ranging from .06 liters per minutes at 3 bar (0.15 gallons per minute at 40 pounds per square inch) to 6 liters per minute at 3 bar (1.50 gallons per minute at 40 pounds per square inch).

Spraying Systems Co., Wheaton, Illinois, USA; 630-665-5201 ext. 1330, www.teejet.com



● Legacy 6000 system enlarges cab space and multi-product control



The Legacy 6000 brings together Mid-Tech's CAN-based, distributed control system, Mid-Tech's Fieldware mapping software, and Mid-Tech's Swath XL light bar guidance function into a single, Windows CE-based computer. The Legacy 6000 replaces up to three or four separate consoles freeing valuable real estate in the vehicle cab, decreasing operator workload, and lowering the total electronics system cost. The Legacy 6000 features a back-lighted, transfective, color display giving excellent visibility in all light conditions. The operator inputs information into the Legacy 6000 using sealed soft keys and a multi-layered, self-guiding menu. The system will control up to four products simultaneously, using Mid-Tech CAN control modules. A prescription map can be used to control the rate of any product. The Legacy 6000 maintains a complete record of its operations. This record can be transferred by PCMCIA card for later reporting or analysis on an office computer.

Midwest Technologies Illinois, LLC, Springfield, Illinois, USA;
217-753-8424, www.mid-tech.com

AE50 OUTSTANDING



INNOVATIONS 2003

● Grand L30 Series Tractor incorporates power with user-friendly features and upgrades

The new Kubota Grand L30 Series Compact Tractors incorporate features normally found on large agricultural machinery and in the automotive industry to create a powerful, user-friendly tractor. Two representatives of this technology are the information display panel (IntelliPanel) and ECU-controlled, multiple speed GST transmission. The new IntelliPanel Dash is the focal point of the Grand L30 Series advanced electronic system. It displays traditional monitoring functions, gear selection, trip meter, travel speed (programmable to match standard and optional tire sizes), precise power take-off speed, service intervals, safe starting procedures, warning information, and self diagnosis (which shows and records for service retrieval error codes relating to malfunctions). Coupled with the tractor ECU, it controls operation of the solenoid and proportional reducing valves for effortless one-touch shifting of the proven Glide Shift Transmission. All of this plus many more upgrades were accomplished while maintaining a price competitive with traditional compact tractors.



Kubota Tractor Corp., Torrance, California, USA; 888-458-2682, www.kubota.com

● CH3500 Sugarcane Harvester caters to cab driver



The Cameco CH3500 harvests sugarcane plants into billets for easy transport to the mill. The CH3500 was specifically designed with the customer's needs in mind and is offered in wheeled or tracked versions. An all-new tilting cab affords the operator unparalleled comfort and visibility to the rear of the harvester. The cab tilt feature gives the customer access to the new Tier 2 certified 8.1-liter (2.1-gallon), 251-kilowatt (337-horsepower) engine and all major hydraulic components. New cradle stops, feedroller bearings, and chopper bearings are all easily serviceable from outside the machine. The new hydraulic system design has given the CH3500 a 40 percent reduction in hydraulic hoses as well as a 50 percent

reduction in hydraulic fittings. In addition to its advances in serviceability, the CH3500 is unmatched in harvesting performance. Its design offers customers throughout the world reduced fuel consumption with higher productivity all while delivering cleaner cane to the mill.

Cameco, a John Deere Co., Thibodaux, Louisiana, USA; 985-447-7285, www.camecosugar.com

AE50 OUTSTANDING

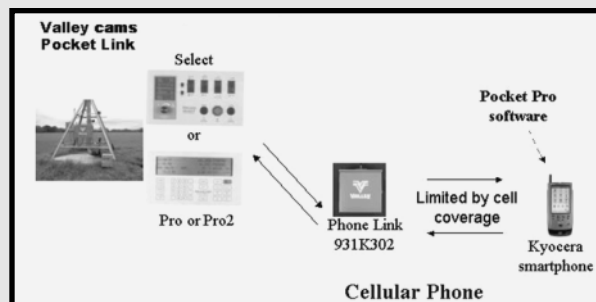


INNOVATIONS 2003

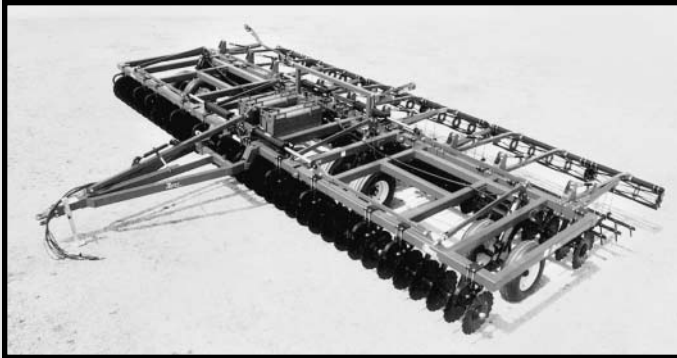
● Valley cams Pocket Pro allows irrigator to check and control myriad settings and options

The Valley cams Pocket Pro is a software package for the Kyocera smartphones that have a Palm OS PDA incorporated to provide monitoring and control of center pivot and linear irrigation equipment. Using the graphic interface of a PDA allows an irrigator to easily check the status of percent timer, application depth, hours per revolution, direction of travel, position in the field, water on or off, pivot or linear on/off, and auxiliary relay diagnostics. The operator may control start or stop, select the direction of travel, start or stop the water (if equipped) change endgun settings, auxiliary relays on or off, and set service road stop. Specific items monitored and controlled are dependent on the functions supported by the control panel.

Valmont Industries, Inc., Valley, Nebraska, USA; 800-VALMONT, www.Valmont.com



TURBOTILL™ Models 2200TT and 3000TT enhances vertical tillage



The TURBOTILL is a new vertical tillage tool that gets its name from two ranks of patented TURBO coulters. Vertical tillage can reduce or eliminate variations in soil density associated with normal horizontal tillage practices. Slanted flutes enter the soil perpendicular to the ground for maximum cutting performance and exit parallel to the soil surface for controlled soil release. The TURBOTILL can be used for residue management in the fall or in the spring to expose soil, enhance seedbed warming, dry out soggy fields, or penetrate hard soil for easier planting. The machine sports other unique features including

automatic self-leveling and dual-function hydraulic cylinders that fold the machine for narrow transport and also provide constant across-the-frame weight transfer in working position. Several finishing attachments are available to match any soil or crop residue condition. Three-section folding models are available in 56- or 76-centimeter (22- or 30-foot) working widths.

Great Plains Manufacturing, Inc., Salina, Kansas, USA; 785-823-3276, www.greatplainsmfg.com

AE50 OUTSTANDING



INNOVATIONS 2003

SC-900 Soil Compaction Meter nabs site-specific penetrometer data

The Field Scout™ Model SC-900 Soil Compaction Meter was developed by Spectrum Technologies as a tool to capture site-specific compaction data. The meter features a load cell for sensing cone index, an ultrasonic depth sensor, a built-in data logger, and an RS-232 data port. Soil compaction is the "silent thief" of potential crop yield. Soil compaction prevents moisture infiltration, reduces fertilizer and chemical utilization, and hinders crop growth. Research shows that soil compaction reduced corn stands by 20 to 30 percent, plant vigor by 30 to 50 percent, and yields up to 60 percent. The SC-900 gives users a convenient and reliable tool to track this important parameter. The design of the cone penetrometer is consistent with ASAE Standard S313.2. In addition to downloaded data files, an LCD screen and control panel display field data to the user.



Spectrum Technologies, Inc., Plainfield, Illinois, USA; 815-436-4440, www.specmeters.com

● CaseIH AFX 8010 Axial Flow™ Combine promises durability and long life



The AFX 8010 Axial Flow™ Combine is a new generation combine harvester featuring higher capacity/productivity including excellent durability, comfort, and convenience. Harvesting system drive's durability is enhanced by the use of CVT rotor and header/feeder drive systems. Extensive use of gearboxes, drivelines, and hydraulic drives further advances the long-term durability of this combine. The full-width grain pan and self-leveling cleaning system reduces grain loss when working on level ground or slopes of up to 17 percent. The all-new cab provides ultimate operator comfort. The AFX touch screen monitor is adjustable so the operator can select the most comfortable position to program and view the desired functions. The electrical/elec-

tronic system controls an electric shift ground drive transmission and a header-height system that provides superior header flotation offering stubble height and pressure compensation modes. The AFX rear axle design allows the guide wheels to tuck forward for superior turning radius.

CNH, Davenport, Iowa, USA; 563-285-1157, www.caseih.com

AE50 OUTSTANDING



INNOVATIONS 2003

● I690CCS Soybean Special Air Drill promotes metering accuracy

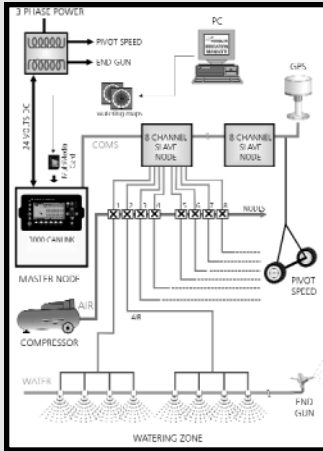
The John Deere 1690CCS Soybean Special is the bean machine made to get the customer ahead of tight schedules. It combines mobility, speed, economy, and productivity in machine widths that complement your planter. Seed tanks are mounted on the air seeding tool, shortening the machine as compared to a tool-cart combination for improved maneuverability. The new ground-driven volumetric metering system ensures metering accuracy to speeds of 12.9 kilometers per hour (8 miles per hour). The machine is built tough for less maintenance. Integration of tanks onto the tool reduces overall cost and horsepower requirements to make the 1690CCS more economical.

Large central tanks, wide widths, and fast operating speeds mean increased productivity. Standard features include in-cab rate adjustment, accurate seed counting monitor, low level bin sensor, half-width disconnect, and choice of three metering wheels. Optional features include rear auxiliary hydraulic couplers and platform-mounted fill lights.



John Deere Seeding Group, Moline, Illinois, USA; 309-765-8000, www.johndeere.com

● Farmscan Canlink 3000 changes pivot systems to site-specific, variable-rate systems



The Farmscan Canlink 3000 Center Pivot Irrigation Controller converts existing pivot irrigation systems into site-specific, variable-rate water application systems. The system enables area specific watering under center pivots by cycling sprinklers on and off according to a predetermined prescription and guided by GPS positioning. Additionally, it

controls end gun function and pivot rotational speed for optimized efficiency. Variable rate irrigation enables growers to apply water according to crop requirement, topography, and soil variation. It conserves water by shutting off watering where pivot overlaps occur and where there are non-crop inclusions in the field. The system ensures minimal water use and maximum efficiency. Maps and information can be transferred over a mobile phone link or other data link.

Computronics Corp. Ltd., Bentley, Western Australia, Australia; +61-89470 1177, www.farmscan.net

AE50 OUTSTANDING



INNOVATIONS 2003

● Root Hog Harvesting System introduces walking platen concept

The Root Hog Harvesting System brings a new method for digging bare root shrubbery in the ornamental nursery stock industry. This new system utilizes a unique walking platen configuration located under the pick-up head. The walking platen concept cleans the soil from the roots while elevating the plants to a conveyor. This concept is simple in design with no mechanical components having contact with the soil. Because the plants are lifted and dropped back onto the pick up head, there is a much better cleaning effect of the roots. Plant root entanglement to the moving elements is minimized by the lift-carry-and-drop effect of the Root Hog Harvesting System. This particular model is for harvesting greenhouse grown nursery stock, but the concept would be universal to all bare root harvesting needs.

Faulring Mechanical Devices, Inc., North Collins, New York, USA; 716-337-3682



● WatchDog™ WeatherTracker™ logs and stores growing season's weather history



Spectrum Technologies developed the WeatherTracker™ family of weather recorders as user-friendly devices to capture, process, and store weather history throughout the growing season. These powerful recorders present historical weather data, degree-day calculations, and plant disease alerts without a computer interface. Knowledge of "site-specific" weather conditions is important for making intelligent and cost-effective decisions relative to crop growth and pest management. Environmental conditions can affect crop yield, insect phenology, and plant disease epidemiology as well as field operations. Each battery-powered recorder has an integrated data logger with a non-volatile memory and a clock that displays date and time. The WeatherTracker LCD displays high and low temperatures and degree-days for the last 30 days along with monthly weather summaries for 12 months. The product offering includes nine models with sensors for rainfall, soil temperature, soil moisture, and leaf wetness.

Spectrum Technologies, Inc., Plainfield, Illinois, USA;
815-436-4440, www.specmeters.com

AE50 OUTSTANDING



INNOVATIONS 2003

● Air-Pruning, Fully-Automatic, Plastic-Mulch Pneumatic Transplanting System increases yields

This system has a pull-type, three-row, fully automated transplanter with adjustable row-distance and plant-spacing. During the transplanting process, three individual air-pruned seedlings are pneumatically removed downward through the air-pruning-tray-cells with an impulse vacuum system. The vacuum intakes at cross-table are indexed in X-direction or trays are indexed in Y-direction to match the tray-cell open-bottoms with intakes, and compressed air conveys the seedlings through their individual flexible tubes to the ground engaging units. They are then transplanted into plastic mulch-covered field-beds for higher crop yields/quality with significant labor savings. The transplanting speed is about three plants per second or 10,800 plants per hour. A large Florida vegetable grower identified 68 percent and 50 percent increases in tomato yields for first and second pickings with this system as compared to his traditional cultural practices.



International Innovative Technology, Inc., Raleigh, North Carolina, USA; 919-773-0632, www.airpruning.org
Renaldo Sales and Service, Inc., North Collins, New York, USA; 716-337-3760, www.realdosales.com

● Legacy Series 2480 offers more harvesting capacity



The OXBO® Legacy Series 2480 Multi-Crop Harvester is a self-propelled machine that is capable of harvesting sweet corn, seed corn, green beans, and leafy greens. The Legacy 2480 has a 40 percent larger product dump box and 50 additional horsepower than competitive models which results in greater harvesting capacity and more product per dump cycle. It provides a cost effective and operator friendly alternative to harvesters that require a tow behind dump cart to transport the harvested product. The two-speed transmission and hydrostatic ground drive make this machine very dependable in hilly and muddy

harvesting conditions and minimizes transport time between fields by providing a 35 kilometers per hour (22 miles per hour) top speed. The articulated chassis makes the machine very maneuverable in crowded or adverse field conditions and easy to drive. The Legacy 2480 also provides a great deal of versatility by supporting several different picking heads to accommodate different vegetables on a variety of row or planting bed configurations

OXBO International Corp., Clear Lake, Wisconsin, USA; 715-263-2112, www.oxbocorp.com

AE50 OUTSTANDING



INNOVATIONS 2003

● X-Series heavy-duty lawn and garden tractors offer quick, tool-free implement connections

The new X-Series heavy-duty lawn and garden tractors have been totally re-designed to increase capability and versatility. An industry exclusive four-wheel drive is standard on all X500 models. Ergonomic features include power steering, tilt steering, cruise control, twin pedal foot controls, high back seats (with 6-way adjustment to meet different size operators), and finger tip control of hydraulic levers, power take-off, and front and rear lights. Additional performance features include modulated hydraulic power take-off clutch, reverse implement option, and 13.7-kilometers per hour (8.5-miles per hour) forward ground speed. Enhancements including tapered splines and lock-back collars on drive shafts, self-aligning draft arms, and a front quick-hitch make changing attachments a breeze. Tractor models include two-wheel drive, four-wheel drive, and four-wheel steer versions; powered by Kawasaki gas or Yanmar diesel engines ranging from 17 to 19 kilowatts (21 to 25 horsepower).



John Deere Horicon Works, Horicon, Wisconsin, USA; www.johndeere.com

● New Holland CS Combines aids in quality straw production



The New Holland Models CS540 and CS640 Combines are built on a new platform designed specifically to address the high-capacity and reliability requirements for global mixed farming/livestock areas, with a special focus on straw handling. The CS combines have a patented Opti-Thresh™ concave (121-wrap angle when closed) with an adjustable rear section to give the operator the choice between high throughput (capacity) and exceptionally gentle straw handling. The production of quality straw is achieved by a smoother transition from the threshing drum to the strawwalkers, resulting in a long straw/fluffy swath behind the combine. Innovative technology/archi-

tecture has been applied to achieve excellent reliability in all crops and conditions, important in remote locations. Remote-control engagements (main clutch, etc.) are activated by pneumatics. In case of an electronic malfunction, the combine control module (CCM) can be bypassed, and the combine can continue to function normally.

CNH Belgium N.V., Zedelgem, Belgium; 00-50-5-3154, www.cnh.com

AE50 OUTSTANDING

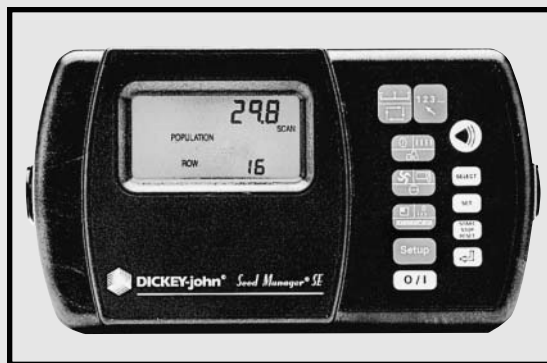


INNOVATIONS 2003

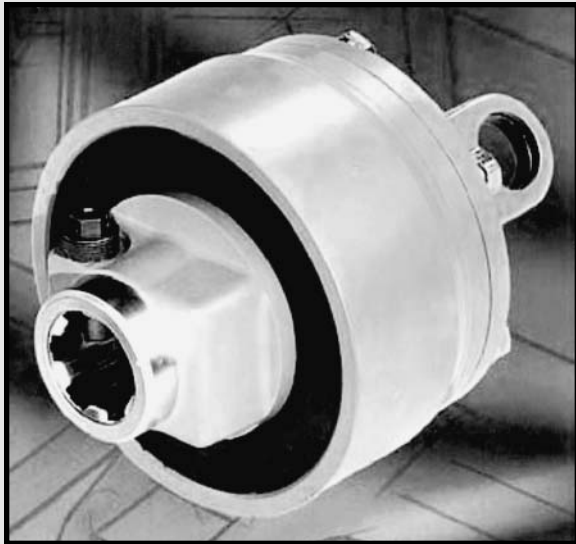
● Seed Manager® SE offers easy installation and adaptation

The Seed Manager® SE was developed by DICKEY-john Corp. as an expandable yet economical population and/or material flow monitor. The modular system allows for a flexible installation on a planter, drill or air seeder, which can accommodate various size machines and types of monitoring requirements. Features offered with the Seed Manager® SE include the ability to monitor up to 96 rows, two fan speed inputs, three shaft speed inputs, two pressure inputs, seven hopper level inputs, and a ground speed input. The system can be configured to calculate population when utilizing seed counting sensors or monitor material flow when using blockage sensors. It may also be configured as a combination of counting and blockage sensors to give a sample population from across the seeder but still monitors the rest of the rows for blockage thus making an economical way of monitoring the entire machine.

DICKEY-john Corp., Auburn, Illinois, USA; 800-637-2952, www.dickey-john.com



● K64 Series Cut-Out Clutch greatly enhances torque capacity and life



Walterscheid's redesigned K64 Cut-Out Clutch further improves the successful K64 series clutches. The redesigned clutches provide nearly double the torque capacity and life compared to the original K64 clutches. The redesigned K64 is available in two sizes and can have torque settings up to 5000 Newton meters (3690 pound.foot) at speeds up to 1000 revolutions per minute. The new clutch uses bellville springs and 2 or 4 cams to achieve different torque settings. During overload, the cams are pushed back against the spring force. The clutch freewheels until the speed is reduced to automatically re-engage the clutch. During overloads, the clutch generates less heat and is more compact than a friction clutch. The clutch can be tailored to the application by varying the clutch size, number of cams, and spring force. The clutch is sealed and maintenance free. Walterscheid's redesigned K64 Cut-Out clutches provides higher torque clutch options for today's higher capacity machines.

GKN Walterscheid Inc., Woodridge, Illinois, USA;
630-972-9300, www.gkn-walterscheid.com

AE50 OUTSTANDING



INNOVATIONS 2003

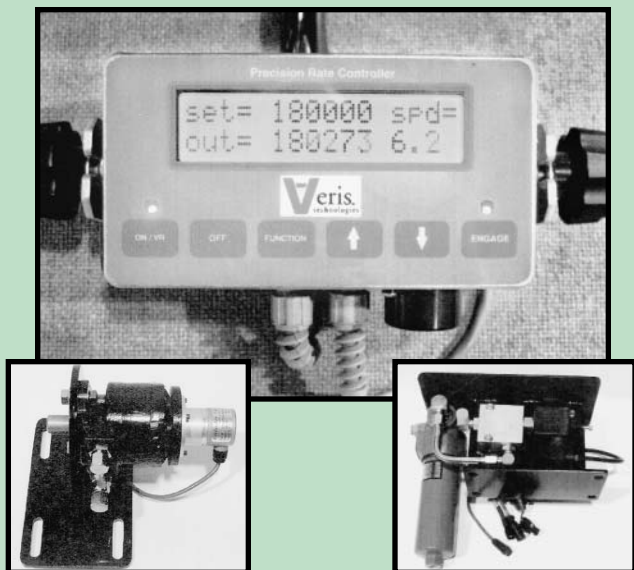
● ECO-DAN Local Positioning System (LPS) revolutionizes the guidance system

The ECO-DAN Local Positioning System (LPS) is an automatic guidance system based on computer vision and laser technology, used for precision steering of implements, self-propelled machines, and tractors in row crops. The LPS system can – without any mechanical contact with either plants or soil – guide by plant rows, tracks, furrows, or ridges with accuracy superior to even the high-end real-time kinematic (RTK) GPS systems. The "output" from the computer vision system provides information on the exact position of the implement relative to the rows. If the implement is not correctly positioned, an actuator is activated and makes the necessary adjustments. The major benefit for the farmers is substantial cost savings by 20 to 50 percent higher travel speed and up to 75 percent reduced use of herbicides. Furthermore, the LPS system can eliminate guess rows and thereby increase the number of rows per acre and make use of wider implements possible.



ECO-DAN A/S, Boegeskovvej6, DK-3490 Kvistgaard, Denmark; +45 49 13 82 30, www.eco-dan.com
Local Positioning System LLC, Salinas, California, USA; 831-424-1355, www.lps-usa.com

Precision Rate Controller brings versatility for fertilizer application equipment



The Veris Precision Rate Controller, featuring Posi-Rate™ hydraulic drive technology, allows the operator to accurately set and control standard or variable seeding and fertilizer rates on a variety of row-crop planters, grain drills, and fertilizer application equipment. The Precision Rate Controller delivers pulse-free operation throughout a broad application range by means of a high-resolution motor encoder, with motor displacement accurately matched to drive torque requirements. Due to its responsiveness and smooth operation, the Veris cab console displays the actual shaft rotation output, useful for monitoring the entire drive system. Several safety features have been in order to prevent possible entanglement. A unique calibration feature allows the operator to choose the desired population, run the calibration routine, and quickly fine tune the population or application rate. Variable rates can be driven by Site-Mate or SMS software.

Veris Technologies, Salina, Kansas, USA; 785-825-1978, www.veristech.com

AE50 OUTSTANDING



INNOVATIONS 2003

750 Smart Cart offers ease and flexibility in unloading

Bourgault's 750 Smart Cart brings grain cart utility to a higher level. Unloading the Smart Cart is both easy and flexible as the carts can be unloaded with the turret auger system or with the gravity chute. The turret auger uses an 45.7-centimeter (18-inch) diameter tube with an auger rotational speed of 680 revolutions per minute. The turret auger's nearly horizontal section rotates over top of the truck box or trailer. Because the auger rotates over top versus beside the truck, the potential for contact between the auger and the truck has been eliminated. The turret auger's position can be hydraulically controlled from the tractor allowing the flow of grain from the cart to be directed to the desired location in the truck box or trailer. A high-clearance frame design provides access to a gravity chute which allows the contents of the 750 Smart Cart to be drained into a pit or auger systems.



Bourgault Industries Ltd., St. Brieux, Saskatchewan, Canada; 306-275-2300, www.bourgault.com

● NTB 12 and NTB 16: ideal for liquid nitrogen applications



The Hagie NTB 12 (12-row, .8 meter/30-inch) and NTB 16 (16-row, .8 meter/30-inch) units allow liquid nitrogen applications in corn ground, pre- and post-emergence. When combined with a Hagie STS class sprayer tractor, the NTB 12 or NTB 16 are capable of side-dressing liquid nitrogen into corn 1.8 meters (6 feet) tall at speeds up to 29 kilometers per hour (18 miles per hour) without causing serious damage to the stock, helping to prevent contamination to ground water and runoff. Heavy-duty liquid Injection coulters inject the nitrogen directly into the ground rather than dribbling or spraying onto the surface, helping reduce volatile loss. Injection depth is maintained with a three-section, ground-contour floating toolbar that hugs uneven terrain. When the STS sprayer tractor is equipped with the optional hydraulically driven side-fill, the sprayer can load itself in under 5 minutes. Both NTB units fold for transport to 3.6-meter (143-inch) and travel at road speeds up to 48 kilometers per hour (30 miles per hour).

Hagie Manufacturing Co., Clarion, Iowa, USA;
800-247-4885, www.hagie.com

AE50 OUTSTANDING



INNOVATIONS 2003

● Innotech Drying Center saves dollars

The new Drying Center was developed by Innotech Engineering Ltd. especially for herb-growing farmers whose spread sheets are hit by the high costs of the drying process. A special feature of the Drying Center is the continuous recirculation of the drying air, which is mixed with a presetable and computer-controlled amount of fresh air. Actual energy demand in the drying process is significantly reduced. Since the herbs are placed in special boxes (30 boxes per trolley, up to 10 trolleys) and not presented as bulk, there are no crumble losses and a semi-continuous "first-in-first-out" operation can be implemented. The daily processing quantity of the dryer can be customized up 3000 kilograms (8038 pounds) per day. The unit can also be used for drying of fruits and vegetables.

Innotech Engineering Ltd. (GmbH),
Weilemer Weg 27 D-71155, Altdorf, Germany; 49-703174-4741, www.innotech-ing.de



● JDLink™ Machine Messenger monitors and relays functions and alert codes via cellular technology



John Deere Ag Management Solutions (AMS) entered the telematics industry with introduction of JDLink™ Machine Messenger, a wireless information system for John Deere 20 Series tractors. JDLink enables users to manage equipment for optimal productivity and operating efficiency by providing valuable information on machine location, use, and performance history. JDLink will be adapted soon to other John Deere equipment. The system is comprised of field-installed hardware and Network Services. Hardware components are integrated into the vehicle's electrical system to monitor machine functions and alerts. This information is relayed by cellular technology to a central database and accessible through a secure Web site using any internet-connected PC. Four reports are available: status/location, summary, alert logs, and maintenance logs. Communication and data collection are initiated through contacts, scheduled reports, and alert notifications. Contacts are user-initiated while daily scheduled reports occur automatically. E-mails warn owners immediately when machines generate "Stop Engine" alerts.

tion and data collection are initiated through contacts, scheduled reports, and alert notifications. Contacts are user-initiated while daily scheduled reports occur automatically. E-mails warn owners immediately when machines generate "Stop Engine" alerts.

John Deere Ag Management Solutions, Urbandale, Iowa, USA; 515-331-4725,
http://www.deere.com/en_US/deerecom/usa_canada.html

AE50 OUTSTANDING



INNOVATIONS 2003

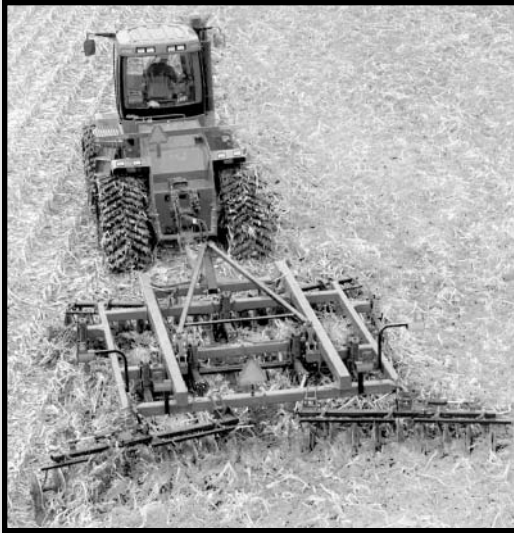
● Boom X Tender® reduces off-target trespass

The Hypro Boom X Tender redefines boomless spray technology by attaining uniformity of spray pattern and accuracy of product delivered to the target. The most important innovation is reducing the likelihood of off-target trespass, which has been associated with boomless spray tips in some applications. The Boom X Tender series has the ability to reduce fine droplets and match the performance characteristics of standard spray tips. The Boom X Tender combines the characteristics of off-center spray tips with the uniformity of pattern of flat fan spray tips. The large droplets produced by the patent-pending design offer users a simple and consistent spray tip. The Boom X Tender is ideal for applications that are directed to a specific target when a conventional boom cannot be used because of man-made or natural obstacles. The Boom X Tender's predictable pattern allows it to be used for broadcast, banding, and directed spraying of crop protection chemistry.



HYPRO, New Brighton, Minnesota, USA; 800-424-9776, www.hypropumps.com

Mulch-till Rippers boast shallow- and full-concavity disk blades for higher productivity



The Case IH MRX690 and New Holland ST740 Mulch-till Rippers provide residue management, removal of compaction, and an improved level soil surface in the fall – all in one pass with a single machine. This is accomplished by using a unique combination of industry leading shallow-concavity disk blades in the front to manage residue, deep parabolic shanks, and patented tiger® points in the center to improve soil tilth, and full-concavity disk blades in the rear to size clods and level the soil. This unique combination of shallow-concavity cutting blades on the front and full-concavity leveling blades on the rear provides both efficient residue cutting with reduced lateral soil movement that allows higher operating speeds in a primary tillage operation without compromising agronomic performance. Agronomic performance can also be tailored for different operating conditions with independently controlled depth adjustment on both the front and rear disk gangs.

CNH, Goodfield, Illinois, USA; 800-727-4364,
www.caseih.com, www.newholland.com

AE50 OUTSTANDING

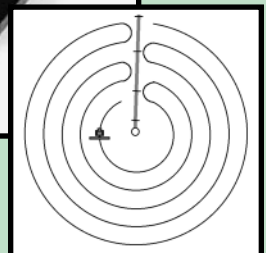


INNOVATIONS 2003

CircleSteer fits center pivot irrigations systems

The AutoFarm CircleSteer system is for automatic steering of self-propelled agricultural machines in circular patterns. The system becomes part of the basic AutoFarm agricultural steering system and steers the machine automatically in a circular pattern. This fits the farming pattern where farmers use center pivot irrigation systems for irrigating and are actually farming fields that are circular in shape. The system uses the global positioning satellites and a separate field side base station to steer agricultural machines around the field irrigated by center pivot irrigation systems with sub-inch accuracy. It is controlled by a simple touch and screen-mounted in the cab of the machine, which has multilingual capabilities.

AutoFarm, Menlo Park, California, USA; 650-833-5600,
www.gpsfarm.com



● “E” Cross and Bearing Kit lengthens lube cycle



The new “E” Cross and Bearing Kit is an extended lubrication kit – the result of 15,000 hours of testing. The “E” kit allows the end-user (farmer) to extend the lubrication cycle of the universal joint driveline from 8 hours to 50-250 hours, depending on the duty cycle. The “E” kit also allows the design engineer a higher dynamic torque rating of the driveline.

Weasler Engineering, Inc., West Bend, Wisconsin, USA;
620-662-4266, buddy@archerserve.com

AE50 OUTSTANDING



INNOVATIONS 2003

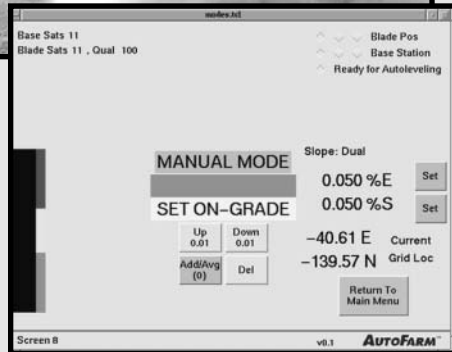
● Fresh Fruit Bunch (FFB) Picker MRK-II offers high labor capacity and cost economy

Fresh Fruit Bunch (FFB) Picker MRK II is a completely integrated, self-contained, one-man and once-over operation machine system designed for in-field collection, transportation, and direct unloading of collected oil palm fresh fruit bunches into the roadside mainline transport truck. This four-wheel drive and hydrostatic-drive machine runs on 30 kilowatt (40 horsepower) at 2200 revolutions per minute KUBOTA V2203-E 4-cylinder diesel engine that is equipped with a 81.4 liters per minute (21.5 gallons per minute) at 1000 revolutions per minute VICKERS TA1919 main hydrostatic pump and a 54.9 liters per minutes (14.5 gallons per minute) at 1000 revolutions per minute SAMHYDRAULIC HIC55 driving motor. Its overall configuration is made up of the main chassis and driving unit, collection assembly, operator cab, scissors lift-type fruit bin, and associated hydraulic system. The system offers an output capacity of 22.7 metric tons (25 tons) per day and a collection-transportation cost of U.S. \$1.19 for every ton.

University Putra Malaysia, Selangor, Malaysia; 603-865-6421



AutoLevel makes GPS-based land leveling easy



AutoLevel is a very precise automatic control system for land leveling equipment. The system uses signals from the global positioning satellites to automatically raise or lower the land-leveling scraper as it is pulled through a field with a tractor. AutoLevel is controlled by a touch screen in the tractor cab and does not require a highly skilled tractor driver. The accuracy of the system is actually better than existing land-leveling systems since it takes into account the curvature of the earth. It is not affected by fog or dust, thus allowing 24 hour a day operation and leveling accuracy is constant throughout the entire working day. It utilizes a portable base station with a range of up to 9.7 kilometers (6 miles) which allows large fields to be leveled without moving the base station. It can be used with either wheel or track type tractors.

AutoFarm, Menlo Park, California, USA;
650-833-5600, www.gpsfarm.com

AE50 OUTSTANDING



INNOVATIONS 2003

New Holland Model 548 Combi™ Baler Wrapper replaces two-step system

The New Holland Model 548 Combi™ baler wrapper combines round baling and film-wrapping of silage into a single machine, leading to labor and investment savings, reduced losses, and a better-quality end product. It replaces the two-step system of round baling and then film-wrapping for conservation, done separately either in the field or stationary, normally requiring two tractors and operators. This requirement often resulted in loss of crop and quality because of time delays and bale contact with the soil. The Combi™ baler wrapper offers the possibility of a fully integrated automatic process: once the bale reaches its set density in the bale chamber, it is transferred to the wrapper table in only 6 to 8 additional seconds. Then formation of a new bale can begin. The compact design allows excellent maneuverability in small fields with tight corners and is engineered to assure proper transfer of the bale, even on sloping ground.



New Holland North America, Inc., New Holland, Pennsylvania, USA; 888-290-7377, www.newholland.com

AE50 2003 WINNERS INDEX

AGCO Corporation
FENDT™ VARIO® Camera
page 11

AGCO Corporation
**FENDT™ Variotronic
Implement Control**
page 11

Agrartechnik Hohenheim
Mobile Cabinet Dryer
page 5

Armstrong Energy, LLC
**Armstrong Solar Powered
Water Pumping System**
page 8

AutoFarm
CircleSteer
page 25

AutoFarm
AutoLevel
page 27

BEELINE Technologies, Inc.
**BEELINE Steering Assist®
Controller**
page 9

Bourgault Industries Ltd.
750 Smart Cart
page 22

Cameco, a John Deere Co.
CH3500 Sugarcane Harvester
page 14

CDS - John Blue Co.
**Variable Rate Piston Metering
Pump**
page 5

CNH
**Case IH MRX690 New Holland
ST740 Mulch-till Rippers**
page 25

CNH
Bulk Fill Seed Delivery System
page 7

CNH
**CaseIH AFX 8010 Axial Flow™
Combine**
page 16

CNH
**New Holland CR Series Twin
Rotor® Combine**
page 12

CNH
New Holland CS Combines
page 20

Computronics Corp. Ltd.
Farmscan Canlink 3000
page 17

Deere and Company
110 Tractor Loader Backhoe
page 8

DICKEY-john Corp.
Seed Manager® SE
page 20

ECO-DAN A/S
**ECO-DAN Local Positioning
System (LPS)**
page 21

Faulring Mechanical Devices,
Inc.
Root Hog Harvesting System
page 17

GKN Walterscheid Inc.
K64 Series Cut-Out Clutch
page 21

Great Plains Manufacturing,
Inc.
**TURBOTILL™ Models 2200TT
and 3000TT**
page 15

Hagie Manufacturing Co.
NTB 12 and NTB 16
page 23

HYPRO
Boom X Tender®
page 24

Innotech Engineering Ltd.
(GmbH)
Innotech Drying Center
page 23

International Innovative
Technology, Inc.
Renaldo Sales and Service, Inc.
**Air-Pruning, Fully-Automatic
Plastic-Mulch Pneumatic
Transplanting System**
page 18

John Deere Ag Management
Solutions
JDLink™ Machine Messenger
page 24

John Deere Commercial
Products
2210 Compact Utility Tractor
page 6

John Deere Horicon Works
**X-Series Heavy Duty Lawn
and Garden Tractors**
page 19

John Deere Seeding Group
**1895 Separate Fertilizer
Placement Air Drill**
page 4

John Deere Seeding Group
1790 Front Fold Planter
page 10

John Deere Seeding Group
**1690CCS Soybean Special Air
Drill**
page 16

Korvan Industries, Inc.
Model 6000 Orange Harvester
page 27

Kubota Tractor Corp.
Grand L30 Series Tractor
page 13

Midwest Technologies Illinois,
LLC
Legacy 6000
page 13

New Holland North America,
Inc.
**New Holland TG Series
Tractors**
page 9

New Holland North America,
Inc.
**New Holland Model 548
Combi™ Baler Wrapper**
page 3

Ntech Industries, Inc.
**GreenSeeker, Variable Rate
Application System**
page 3

Osborne Industries Inc.
Osborne Survey Scale™
page 10

OXBO International Corp.
**Freedom Series 3210 Citrus
Harvester**
page 11

OXBO International Corp.
Legacy Series 2480
page 19

Sears Manufacturing Co.
**Vibration Reduction System
(VRS) 2000**
page 7

Spectrum Technologies, Inc.
**WatchDog™
WeatherTracker™**
page 18

Spectrum Technologies, Inc.
SC-900 Soil Compaction Meter
page 15

Spraying Systems Co.
StreamJet-3 Fertilizer Tip
page 12

Spraying Systems Co.
356 Trunion Valve
page 6

Techmark, Inc.
**Pocket-IRD Handheld Interface
Device**
page 2

University Putra Malaysia
**Fresh Fruit Bunch (FFB) Picker
MRK-II**
page 26

Valmont Industries, Inc.
Valley cams Pocket Pro
page 14

Veris Technologies
Precision Rate Controller
page 22

Walla Walla Sprinkler Co.
MP Rotator™
page 4

Weasler Engineering, Inc.
"E" Cross and Bearing Kit
page 26

AE50 Outstanding Innovations 2003

Published by
**ASAE – The Society for engineering in agricultural, food,
and biological systems**
2950 Niles Road, St. Joseph, MI 49085-9659, USA
269-429-0300 • fax 269-429-3852 • hq@asae.org • www.asae.org

