

**RESOURCE
MAGAZINE'S**

**Outstanding
Innovations 1997**

AE50 COMPANY RECOGNITION PROGRAM

Ideas, Creativity Advancing Mankind

The **AE50** program annually honors those whose engineering efforts improve the lives and work of people around the world.

Whether small or large, today's manufacturers offer new technology at an incredible rate. From tiny valves and computer software disks to enormous tractors, farm implements and feed, these innovative products cover an infinite range of engineering developments. They offer users convenience and precision – while saving time and money.

Each year, **AE50** entries are submitted from numerous diverse companies from around the globe. Only the best are chosen from products used to produce, process, store, pack or transport agricultural products. Some companies enter year after year and win repeatedly with new innovations. They are proud to promote their products to the public as prestigious **AE50** winners.

Entries are reviewed by a panel of ASAE-member judges selected to represent each area of the industry. Following strict **AE50** guidelines for product design, they choose up to 50 of the most innovative products. These products are typically of interest to designers, developers, managers and many others involved in engineering for agricultural, food and biological systems.

The 1997 **AE50** section in *Resource* offers readers the chance to learn more about this year's **AE50** winning products and the companies that produce them. Telephone numbers are included for readers to call for more information on how to purchase items, or to learn about the history of their development. (Perhaps it will stir up an idea for a future entry!)

ASAE and *Resource* magazine salute these companies, teams and individuals who worked diligently to conceive, design and create outstanding products.

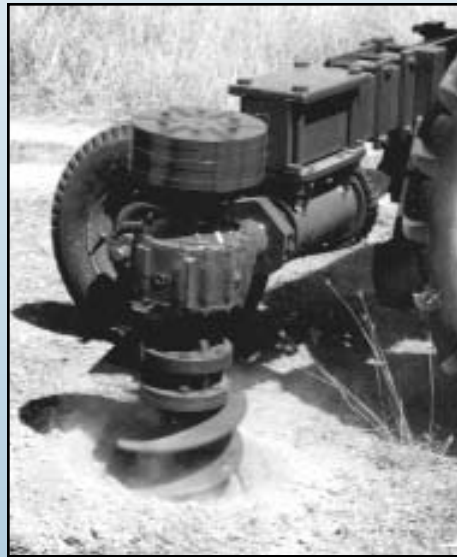
To all the winners: Congratulations!





Agtech's Fast Hole Digger Offers Versatility and Convenience

The **Fast Hole Digger** (F.H.D.) was developed for continuous drilling of holes at designed distances from each other. It can dig about 1,000 holes per hour for each auger mounted on the F.H.D. One, two or four augers – for two parallel rows – can be mounted on the machine. The system is hitched to, and powered by, a standard tractor, category 2 and higher, with 45 kW at the P.T.O. Row spacing can be adjusted, from 1.8 m to 7 m by changing the chain drive ratio between the rotating wheel and the drill head. Hole diameter is related to drill diameter. Depth is adjusted up to 45 cm. **Agtech Ltd.**, Technion City, Haifa, Israel; 972-4-8326618.



Deere Offers Customers Center-Pivot Rotary Mower Conditioner

John Deere's **945 Center-Pivot Rotary Mower Conditioner** is the latest addition to the John Deere family of rotary mower conditioners. The center-pivot design appeals to those who prefer cutting back and forth rather than around a field. The 945 Mower Conditioner cutting width is 13 ft., 1 in. (4 m). It is offered with roll or impeller conditioning to help with crop dry down. Impeller conditioning is an exclusive feature on this type of machine. The Deere rotary cutter bar is offered with shear hub protection. Another exclusive feature of the 945 is an endwise transport system offered as an option. This enables the mower conditioner to be transported with a width of less than 10 ft. (3 m) without unhitching from the tractor. The 945 has a swivel hitch for excellent maneuverability. The swivel hitch has options for hooking to the lower lift arms of the tractor or to the draw bar. **John Deere Ottumwa Works**, Ottumwa, IA, USA; 515-683-2283.





The Amadas B1025 Hard Hose Irrigator is Reliable, Robust and Easy to Operate

Designed to meet the irrigation needs of vegetable growers, turf farms, and swine and poultry producers, the Amadas **B1025 Hard Hose Irrigator** provides exceptional value for the irrigation dollar. Featuring 850 ft. of 2.5-in. I.D. hose, the B1025 covers up to 3.8 acres per pull. This makes it ideal for irrigating up to 30 acres per week (1-in. application). Labor is usually less than five minutes per irrigated acre with this irrigator that is simple to set up and operate. Unitized construction and a self-contained drive unit, with an internal lubrication system, gives the B1025 the reliability and robust design the "Reel Rain" name has represented the past 17 years. These irrigators are built to survive in harsh environments and under fierce operating conditions. **Amadas Industries**, Suffolk, VA, USA; 757-934-3264.



Operators Can Stay in the Driver's Seat to Control the Hesston 4690

The Hesston **4690** is an "in-line" design baler that produces dense square-shouldered bales 15 in. (380 mm) × 22 in. (560 mm), weighing up to 180 lbs., tied with three twines. The center feed and single-stage stuffer assure smooth feeding with minimum leaf loss. This engine-driven machine with its swing tongue feature allows flexibility in towing vehicle selection and operator choice of in-line or conventional side pull operation. The control console mounted on the towing vehicle allows the operator to control all baler functions without leaving the operator's seat. **Hay & Forage Industries**, Hesston, KS, USA; 316-327-6611.





SYNCHRO™ Spraying Systems Are Durable and Fit Most Conventional Equipment

Capstan Ag Systems' SYNCHRO™ Spray Control System is a unique technology to enhance the precision, range, utility and economics of agricultural spraying. The Flow Control Unit uses durable pulsing solenoid valves attached to standard spray nozzle tips to control flow of fluid spray for ground and aerial agricultural spray rigs. It eliminates pressure as a determinant of flow rate in conventional spraying systems. Flow rate ranges are expanded to over eight-to-one and response times are reduced to a fraction of a second. The pressure control unit maintains pressure independent of flow rate. This enables an operator to curtail spray drift on-the-go through droplet size changes, while maintaining target flow rates. Flow and spray droplet size can be adjusted using GPS/GIS inputs through standard rate controllers. Flow and pressure units are designed to be easily and unobtrusively retrofit for conventional agricultural spray equipment. **Capstan Ag Systems Inc., Topeka, KS, USA; 913-232-4466.**



Jackrabbit's Wood Chuck Desticker Sorts Out Waste During Harvest

Jackrabbit's new Wood Chuck Desticker was designed to remove wood from almonds, walnuts or pecans being loaded into trucks at field side. The Wood Chuck and the JIL 20/30 Elevator (also referred to as the Wood Chuck Elevator) were designed to process 8,000 lbs. of wood and product in two minutes or less. The elevator bin has a 20-in., slow-moving horizontal belt to deliver the load to the Wood Chuck and the 30-in.-wide incline belt. The almonds fall through the Wood Chuck to the fast moving incline belt leaving any sticks snagged in the Wood Chuck chain. The sticks travel with the chain over the top of a slide chute and are released onto it. The sticks slide down to a cross conveyor then on to another pivoting exit conveyor for stockpiling or loading into a trailer. A clean load (75% stick free) of nuts is delivered to a huller. Sticks removed at the field can be burned in the field. **Jackrabbit Research & Marketing Division, Ripon, CA, USA; 209-599-6118.**





Case IH Mapping Software Determines Crop Yield and Moisture in the Field

Case IH's **AFS Mapping Software**, when combined with the Case IH Yield Monitor System, offers a mapping method for grain yield and moisture based on field location. This software can be used to map and store information on field boundaries, fertility levels, crop inputs, scouting data and aerial or satellite photographs. The maps can be used by a producer or consultant to vary inputs to maximize net income. Unique features include a Map Express for ease in downloading yield monitor data, a Harvest Statistics Analyzer for summarizing yield data by other map layers, and an easy to use digital map registration process for loading aerial or satellite photos. Users with little computer knowledge can successfully develop maps. The software is also designed to grow with the user as comfort level and knowledge increases. The AFS Mapping Software with the Case IH Yield Monitor was the first complete U.S. factory-installed system available on the market. **Case Corp.**, Burr Ridge, IL, USA; 630-887-2191.



QC3 2-Way Units Offer Users Various Speed and Other Options

The **QC3 2-way unit** has an electrically actuated modular valve and 1-in. manifold system with either one or two $\frac{3}{4}$ -in. full port outlets. QC3 2-way units (one outlet port) can be fitted with one of 10 different gear motor speeds from two power head series, and 10 wiring options in either 12 or 24 volts DC or AC. The QC3 can be equipped with either a standard (EH3) or a heavy duty (EH2) actuator with actuation speeds up to 25 seconds. Eight sizes of 90° and straight hose barb options are also available on the QC3. **KZCO Inc.**, Ashland, NE, USA; 402-944-2767.





Round Bale Accumulator Moves 4- and 5-Ft.-Wide Bales with Ease

John Deere's 20 Round Bale Accumulator will move and place round bales more efficiently and reduce time spent retrieving bales from the field. The Accumulator mounts to the round baler axle. A chain-driven conveyor moves the bale onto the carrying platform that holds up to two bales. The conveyor is driven by a hydraulic motor. The motor is powered by oil diverted from the baler gate cylinder with a sequence valve. This drive allows use of the baler hydraulics to power the accumulator. Slats on the conveyor stabilize the bale during movement. Bale guide rails keep the bales upright. The rails are adjustable for 4- and 5-ft.-wide bales. A monitor/controller mounted in the tractor indicates bales on the accumulator. At the push of a rocker switch, a solenoid activates a hydraulic cylinder to lower the rear gate and release the bales. The Round Bale Accumulator saves time, fuel and money. **John Deere Ottumwa Works**, Ottumwa, IA, USA; 800-50DEERE.



BOOMER™ Compact Tractors are Rugged, Sleek and Reliable

New Holland's BOOMER™ Compact Tractors are a new line of three-cylinder, diesel-powered tractors built to provide large-tractor toughness and operator convenience for a variety of jobs in a sleek, ergonomic design. Model 1530, with its 25 gross engine hp, and Model 1630, with a 27.3 gross engine hp, provide deluxe features. The companion higher-horsepower Models 1725, with 29 gross engine hp, and 1925, with 34 gross engine hp, provide the same rugged reliability, serviceability and convenience in a lower-cost feature package. BOOMER options include a 2WD front axle or a 4WD front axle with standard steer or SuperSteer™; gear or hydrostatic transmission; power steering; and three choices of tire type. A number of attachments enhance the tractor, using the BOOMER's high-capacity live hydraulics with mid-mounted ports. BOOMER tractors are designed for simple servicing with access to daily service ports without opening the hood. **New Holland North America, Inc.**, New Holland, PA, USA; 717-355-3656.





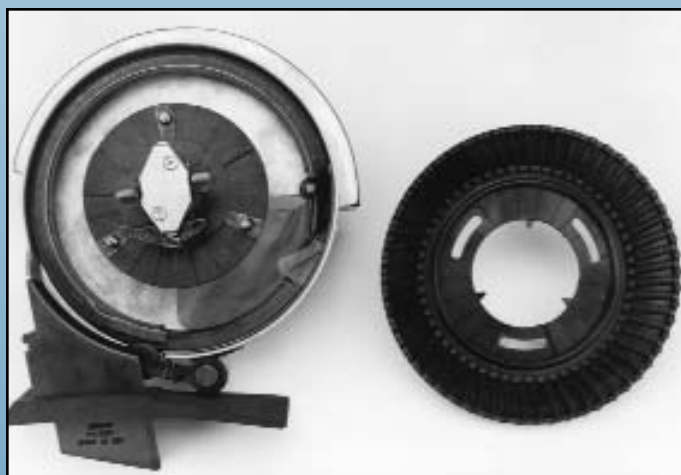
The Aeromaster SP 155 Compost Turner is Comfortable and Agile

Midwest Bio-Systems' Aeromaster SP155 Compost Turner is designed for rapid production of high quality compost through timely and efficient aeration, uniform moisture control and precise inoculation of composting materials. It provides the operator with a comfortable and agile machine with minimum environmental impact on the composting site. The advanced drum design naturally shapes windrows and blends raw materials while providing maximum aeration. The unique water and inoculant injection system provides one pass moisture control and inoculation without leaching and pollution. The retractable drum assembly allows entrance and exit from a windrow at any time without destroying the row continuity. These features enhance composting operation management for high rate production of high quality compost. **Midwest Bio-Systems, Inc.**, Tampico, IL, USA; 815-542-6426.



Radial Bean Meter Provides Increased Accuracy Over Feedcup Meters

For growers who use finger pickups on their MaxEmerge® 2 and MaxEmerge Plus Planters, John Deere offers a new radial soybean meter. The **Radial Bean Meter** provides increased accuracy over feedcup meters for growers who prefer planting soybeans with a mechanical system. Currently, the new soybean meter is not compatible with MaxEmerge Planters. The John Deere feedcup meter will continue to be offered as an option for growers who plant other crops besides soybeans with a mechanical meter. The new meter is designed for reliable performance and durability. Normal-wear components typically cover significantly more acreage than other mechanical meters before service is required. **John Deere Seeding Group**, Moline, IL, USA; 309-765-2239.





Large Capacity Case IH Solid Row Crop Planter

The Case IH 12/23 Solid Row Crop planter is the most productive new model in the 955 Early Riser line. The Solid Row Crop allows you to plant 12 rows of corn 30 in. (762 mm) apart or 23 rows of soybeans 15 in. (381 mm) apart the same day. The planter accurately meters seeds using the unique Cyclo Air system and places seeds in a precision-controlled environment. Three 20-bushel seed hoppers are easy to fill using a new platform. The frame is a three-section flex design that easily folds for transport using controls in the tractor cab. New technologies include seed tube couplers that reduce seed tube length, wider carrying wheels for increased flotation, a master/slave hydraulic system for faster raise time and lower



hydraulic pressures, a piston pump for liquid fertilizer delivery and narrow gauge wheels for improved residue flow. **Case Corp.**, Burr Ridge, IL, USA; 630-887-2341.

6000 Series Xplorer™ Sprayers Offer Precise Applications

Willmar's Xplorer™ is used to produce a broad range of crops including vegetables, small grains and row crops. It provides precise, timely fertilizer and crop protection product application. Xplorer uses the latest techniques for operator safety and comfort in its custom designed cab. The suspension system, with boom suspension, offers stability for precisely placing materials for maximum value. A high horsepower-to-weight ratio produces extra power to operate in harsh conditions. New Steerite™ steering gives operators complete machine control. An on-board computer controls spraying to ensure products are applied properly. These features are combined with simple, reliable hydraulic systems to create a versatile machine. **Willmar Manufacturing**, Willmar, MN, USA; 320-231-9400.





TurboDrop® Saves Time and Money for Spraying Applications

The TurboDrop® Venturi Nozzle (or the TurboDrop Venturi used with conventional spray tips) retrofits existing agricultural sprayers to provide unequalled drift reduction, increased canopy penetration and improved chemical coverage. A ceramic metering orifice precisely controls the flow rate, while the venturi pulls in air and the unique mixing chamber blends that air with the spray solution. The result from the spray tip is larger, drift-resistant, penetrating droplets accelerated toward the target exploding on impact. The TurboDrop does what expensive air-assisted sprayers are designed to do – without the help of fans or compressors – using a simple, economical, retrofittable sprayer accessory. TurboDrop makes the sprayer more efficient, effective, versatile and safe. **Greenleaf Technologies, Inc.**, Covington, LA, USA; 504-892-2778.



Improved Engine Gives New Case IH 8900 Series Tractors Extra Power

Case IH 8900 Series tractors have more horsepower and new features to increase performance and operator productivity. Horsepower has increased to 225 on the 8950, which is the largest model. Added horsepower was achieved without sacrificing durability by making engine improvements such as a waste gate turbocharger and five-hole injector nozzles. Cooling system enhancements from a new viscous fan, and 106% more grille screen area, compliment this power. Productivity was improved by using new electronic hitch features. The operator can select automatic disengagement/engagement (sensed by hitch position) of the rear axle differential lock and/or front axle drive mode for easier headland operations. A slip limit feature automatically raises the rear hitch when rear wheels exceed a preset slip limit. The 8900 Series is designed to be compatible with Case IH's site-specific farming technology. **Case Corp.**, Racine, WI, USA; 414-363-0428.





TR2 Tracker Suited for Wide Variety of Row and Field Crops

The GK TR2 Tracker is a self-propelled, hydrostatically driven rubber track sprayer with "on-the-go" tracking width adjustment from 60 to 80 in. Powered by an 80 hp diesel engine, it features a 250 gallon spray tank and 50- to 60-ft. spray booms with a pressurized cab and charcoal filtration. With 11.7-in.-wide tracks and 30-in. ground clearance, the TR2 is suited for a wide variety of row and field crops. With only 5.4 psi ground pressure, growers can spray when it is too muddy for traditional wheeled sprayers. The TR2 rides and handles smoothly using a unique bogey roller suspension system on the tracks and an adjustable steering wheel control to suit field conditions. The modular spray system is easily



removed, allowing attachment of an optional three-point mount for granular fertilizer spreading. **GK Machine**, Donald, OR, USA; 503-678-5525.

Consistency Over Row Unit Travel Featured in Down Force System

The new John Deere Pneumatic Down Force System uses air pressure to provide consistent and positive down force to the MaxEmerge Plus Planter row unit. This system allows the customer to apply the precise amount of down force needed to meet the field conditions they encounter and makes adjustment easier. The biggest advantage of the pneumatic system is consistent down force over the full range of row unit travel. The system uses two air springs per row unit and a single air compressor to provide 0 to 400 lbs. of force per opener. Pneumatic Down Force provides single point control of down force to all units, 0 to 400 lbs. of down force — infinitely variable, consistent down force throughout the full range of row unit travel and the ability to remove down force from splitter row units on 1780 planters with one valve. **John Deere Seeding Group**, East Moline, IL, USA; 309-765-2077.





New Holland Model 585 Three-Tie Baler Features Widest Pickup in the Industry

New Holland's Model 585 Three-Tie Baler will process and package forage crops and various crop residues into a marketable bale. The 585 is engine driven and features a self-contained hydraulic system that controls the tongue swing, pickup lift and bale density system. This allows the operator to use various tow vehicles without adding auxiliary hydraulics. The 585 provides performance monitors and controls mounted in the towing vehicle. The remote control box includes warning lights for various engine pressures and temperatures and controls for the tongue shift, pickup lift, engine rpm, bale density and work lights. The 585 can be operated in the offset or in-line baling position. The in-line position allows the 585 to be operated in 40-in. beds to reduce soil compaction. The 585 features the widest pickup in the industry, which feeds into an in-line feeder system that saves more leaves while making solid, uniform bales in all crop conditions. **New Holland North America, Inc.**, New Holland, PA, USA; 717-355-3656.



Increased Productivity for the New Intermediate Square Baler

John Deere's 100 Intermediate Square Baler produces a dense, tightly packed 31.5- × 31.5-in. bale that can weigh up to 1,000 lbs. The John Deere 100 baler was designed to bale a variety of crops from straw to high moisture hay. It features a unique Powr-Feed system that uses a cam-type torque limiting clutch that disengages when overloaded but engages when torque increases — as the flywheel slows down — to clear the plug. The standard pre-cutter allows the operator to make bales of cut crop, which enhances feeding characteristics. Gearbox and shaft drives, a wide low-profile pickup, 24-ball twine storage capacity and a controller/monitor add to increased operator productivity. Available options include a tandem axle, compressed air knot-



ter cleaning system, a last bale ejection system and a knotter and field lighting package. **John Deere Ottumwa Works**, Ottumwa, IA, USA; 800-50DEERE.



HPL Series Cornheads' Low Profile Lets Them Operate in Wind-Damaged Fields

Pixall's HPL series cornheads offer simple hydraulic drives, large drive sprockets for increased gathering belt life and improved product flow for sweet corn and seed corn harvesting. The row units and auger are driven directly by hydraulic motors. The HPL cornhead incorporates two sonar sensors. They provide automatic lateral tilt and vertical height control. The head allows automatic return to a preset height and cab-controlled adjustment of the head height. Lateral sonar control keeps the head parallel to the ground in any condition or on any terrain. The HPL series cornheads have a low profile enabling them to operate in wind-damaged cornfields. Plastic shields and snouts reduce weight, eliminate rust, reduce product drag and facilitate wind-damaged corn harvesting. The HPL series cornheads use cab-adjustable stripper plates and aggressive Pixall Knife Rolls with 10 pairs of meshing knives for tough stalk conditions. **Pixall Limited Partnership**, Clear Lake, WI, USA; 715-263-2112.



12/23 Row Planter Ensures Accurate Row Spacing on Contours

The Great Plains pull type 23 row planter is a unique solution to field function and road transport problems associated with the large split row planter market. The unit was designed for no-till and no-till coulters mounting. The quick-disconnect rear frame allows fast, easy changing from planting 30- to 15-in. rows and ensures high flotation when planting with either row width. The front bar coulters mounting on the 12-row unit, and the separate frame for the 11-row unit, ensures high capacity crop trash clearance. The fully independent contour following hitch on the 11-row ensures accurate row spacing on contours. A heavy duty row unit moves planter reliability to a new level in difficult no-till conditions and offers patented Seed-lokseed firming wheels. Both units have ground gauging at the seed tube to allow accurate seed depth placement. Optional liquid fertilizer integral with the 12-row allows accurate fertilizer placement. **Great Plains Mfg.**, Assaria, KS, USA; 913-667-7763.





Sector™ Site-Specific Computer Controls Liquid Spraying

The Sector™ was developed by three individual companies that shared expertise to create a computer system combining site-specific agricultural needs into one system. The Sector controls liquid spraying of fertilizer and crop protection products for application precisely to the crop. A global positioning system allows agronomists to program the Sector to change rates in various parts of the field. This maximizes crop production without over applying products where they are not needed. Sector records the application rate for operators using global positioning. Injection pumps are controlled so products can be delivered to the field without mixing concentrated chemicals with the main bulk tank. This eliminates the need for in-field tank rinsing. **Willmar Manufacturing**, Willmar, MN, USA; 320-231-9400.



Model 996 Corn Head is Faster and More Efficient than Older Models

New Holland's Model 996 Corn Head is designed to give operators more corn in less time when used on the New Holland TRTM 88 and TRTM 98 Twin Rotor® combines, New Holland TXTM 66 and TXTM 68 combines or the New Holland FX Series self-propelled forage harvesters. The new-generation design and polyethylene construction enable the operator to get under more downed corn, travel faster and lose fewer ears of corn than with a conventional corn head. The polyethylene also eliminates rust and any need for repainting. Lightweight shielding is designed for easy servicing, transport and storage with quick latches and props. A unique two-piece cantilevered stalk roll design is implemented in a heat-treated, straight-fluted component that requires only one bolt to install or remove. This makes it easy to change between standard and knife-



edge stalk rolls. The 996 is available in 4-, 5-, 6-, 8- and 12-row models in various row spacings. **New Holland North America, Inc.**, New Holland, PA, USA; 717-355-3656.



High-Quality Environment for Livestock Possible with Ventium™ System

The Ventium™ System uses a comprehensive monitoring approach to maintain building temperatures, air speeds, humidity levels, ventilation and air quality conditions in swine confinement facilities. Ventium takes a low-cost, low-energy use ventilation method (natural ventilation) and refines it to produce a high-quality environment for livestock and workers. It saves energy and addresses growing concerns about air quality in livestock production. The Ventium system uses multiple temperature and air speed sensors to read each animal-occupied zone, which allows the vents to open properly and accurately for changing weather patterns. The Ventium system monitors the building, reviewing the temperature every minute. The Ventium determines overall effects of the thermal environment on the animal. Other Ventium features include control of fans, heaters, curtains, misters, ridge vents, chimneys and water and feed systems. Standard features are recording of equipment, animal information and historical data. **Raydot, Inc.**, Cokato, MN, USA; 800-328-3813.



Adjustable Active Hydraulic Weight Transfer Featured on NTA3510

Great Plains' NTA3510 No-Till Implement, combined with the ADC2220 Air Cart, provides a highly capable, productive seeding system. The NTA3510 implement features a 35-ft. operating width in 7½- or 10-in. row spacing while transporting under 17 ft. wide and 14 ft. high. The drill features adjustable active hydraulic weight transfer to keep the wings and center running evenly. The air seeding cart offers two 110-bushel bins, a standard 6-in. loading or unloading auger and bin access from either side. The ground-driven metering uses an electric clutch combined with a height switch on the implement to engage when the implement is lowered and disengage when it is raised. Heavy duty parallel arm double disc units cut through



residue while tilling a mini seedbed for the opener. **Great Plains Mfg.**, Assaria, KS, USA; 913-667-7763.



AirMatic Control System Monitors Air and Liquid Pressures

The TeeJet® AirMatic Control System allows the sprayer operator to effectively control droplet size over a wide range of spray pressures and application rates. Five droplet size categories are available with the AirMatic System. One of the primary components used in the AirMatic System are AirJet Bi-fluid nozzles. These nozzles internally mix air and liquid to produce an atomized spray pattern used in crop spraying. By monitoring both the air and liquid pressures in the system, the AirMatic can maintain a constant droplet size over a variety of speeds and application rates by simply adjusting the air pressure. The AirMatic system allows the sprayer operator to choose and maintain the droplet size that best fits application needs regardless of changes in sprayer speed or pressure. This allows the use of the same AirJet nozzle to apply both small droplets for maximum coverage and larger droplets in drift-sensitive areas. **Spraying Systems Co.,** Wheaton, IL, USA; 630-665-5201.



Model 1780 Planters Give Operators a Complete 20-In. Cropping System

The Model 1780 Planters are two 40-ft. working-width, narrow row precision planters from John Deere Seeding Group. The Model 1780 24 Row 20 inch Planter was introduced with a 12-row, 20-in. corn head and a 24-row, 20-in. cultivator to make Deere the first provider of a complete 20-in. cropping system. The Model 1780 16 Row/31 Row, plants row crops in 30- or 15-in. row spacing. Both are equipped with MaxEmerge Plus row units and new SeedStar frame control for fold-and-go transport from the tractor cab. The SeedStar monitoring system offers direct control of the new optional variable on-the-go seeding rate adjustment. A single point adjustment pneumatic down force makes adjusting down force for changing soil conditions quick and easy. These three-section, flexing machines can be equipped with vacuum, plateless or the new Radial Bean Metering systems. **John Deere Seeding Group,** Moline, IL, USA; 309-765-2077.





1431 Discbine® Disc Mower-Conditioner Maximizes Length of Windrow

New Holland's Model 1431 Discbine® Disc Mower-Conditioner is a highly maneuverable machine. The center pivot tongue swings 38.5° to the left and right from a center position to give maneuverability and performance from either side of the tractor. A field can be cut back and forth along its length vs. in a diminishing circular pattern, maximizing the length of the windrow and minimizing the number of turns when harvesting. Also, the operator can shift the tongue, while he or she continues to cut, on-the-go for steering around field obstacles. The dual V-belt cutter bar drive minimizes shock loads to the driveline, and power is split between both ends of the unique modular disc cutter bar to increase reliability and durability. This machine uses 10 mod-



ular discs with a 3.9-m (13-ft.) cutting width and has 2.6-m (102-in.) intermeshing rolls. **New Holland North America, Inc.**, New Holland, PA, USA; 717-355-3656.

Case IH Quadtrac Improves Farm Productivity

Case's Quadtrac is a unique new product with many advantages over current 4WD tractors and other steel and rubber tracked agricultural vehicles. The Quadtrac is an articulated tractor featuring four independently mounted track assemblies that replace the tires on conventional 4WD models. The track assemblies independently oscillate to follow ground contours. This feature, along with conventional articulated 4WD chassis oscillation, minimizes soil compaction, maximizes traction and improves the ride. The vehicle is 10 ft. wide, which is narrower than typical wide dual and triple tire equipment on 4WD tractors. Quadtrac allows less ground pressure, operating at about 5 psi. Less ground pressure improves farm productivity by increasing yields. Quadtrac rubber tracks improve traction in all conditions allowing earlier access to fields and operation in marginal soil conditions. **Case Corp.**, Fargo, ND, USA; 701-293-4400.





Series KP Dewatering Screw Presses Score High in Performance Tests

Vincent Series KP Dewatering Screw Presses separate manure into manageable flows of screened liquid and bulk solids. The stainless steel screw press features rugged simplicity with low acquisition and maintenance costs. Hard surfacing is applied to high wear areas. Gear boxes were selected for continuous long-term operation. Remarkable performance was achieved in tests at the U.S. Dairy Forage Research Center and University of Wisconsin. The Model KP-10 processes 50 gpm of dairy manure with a separation of 43 gpm liquid. Inbound solids were split evenly with 50% in the press liquid and 50% in the press cake. Press cake moisture content measured 72%. Using the Series KP screw press changes "waste management" to "nutrient utilization." Recycling manure as a soil additive improves sanitation, reduces odor pollution and controls groundwater contamination. At the same time, a valuable resource is returned to the soil as a nutrient. **Vincent Corp.**, Tampa, FL, USA; 813-248-2650.



Environmental Concerns Addressed by Gehl Scavenger Spreaders

Gehl Scavenger spreaders transport and spread agricultural, municipal and industrial waste of liquid and solid consistencies. The round core segmented conveying auger breaks up and blends waste materials as it delivers the necessary charge to the discharge expeller. Auger segment paddle leading edge curvature and shape, combined with the round core and helical pattern, resist material build-up and wrapping of stringy, long-stem materials. Double acting hydraulic cylinders move the conveyor auger up and down to break any bridged material in the V-shaped tank. Reversible square-toothed paddles on the discharge expeller rip, shred and propel material with an overshoot trajectory, delivering it in a uniform spread pattern. The improved application rate control allows for land applications consistent with nutrient requirements and environmental concerns. Adjustable retainers on tank slides and gate help



maintain a liquid seal. Self-contained warning lights connected to the standard seven-pin receptacle provide safety identification for highway transport. **Gehl Co.**, West Bend, WI, USA; 414-334-6676.



Gallenberg FieldMaster Harvester Separates Rocks, Dirt and Trash

Gallenberg's FieldMaster Harvester was designed to increase the efficiency of potato harvesting, increase crop quality and reduce operator fatigue. The machine can dig three, four or six rows. The unique dual airhead increases capacity and balances weight distribution. A well thought out process separates rocks, dirt and trash to allow for product flow efficiency. A simple, clean hydraulic design provides well balanced flows and pressures. Logical component placement streamlines the size and weight, eliminating awkwardness and making it easy for the driver to operate. The unit has the potential to replace two tractors and



two windrowers. **Gallenberg Equipment Inc.**, Antigo, WI, USA; 800-533-2662.

7000 Series Ranger™ Self-Propelled Sprayer Provides Maximum Value

The Willmar Ranger™ is used to produce a broad range of crops, including vegetables, small grains and row crops, by providing precise, timely fertilizer and crop protection product application. The Ranger uses the latest technologies to achieve operator safety and comfort in its custom designed cab. The machine's Field Sensor™ suspension system, combined with boom suspension, provides stability for precisely placing materials for maximum value. A high horsepower-to-weight ratio produces the extra power needed to operate in tough conditions. New Steerite™ steering gives operators complete machine control. The on-board computer controls spraying to ensure products are applied properly to crops. Combining these features with simple, yet highly reliable, hydraulic systems yields a versatile machine. **Willmar Manufacturing**, Willmar, MN, USA; 320-231-9400.





Accurate, Easy to Use Case IH Variable Rate Controller Adjusts in the Cab

New Advanced Farming System Variable Rate Controller, when installed on the Case IH Early Riser planter, allows the operator to make on-the-go changes to seed population rates. This hydraulically driven system is accurate, easy to operate and features a console that mounts in the tractor cab. To operate, simply program the console to your target population, then change seeding rates as you go. Electronic signals from the Variable Rate Controller adjust a flow-control valve, which speeds or slows the hydraulic motor located on the seed module. The Variable Rate Controller allows for stationary operation of the seed drum, simplifying checks of the seed drum brush, and cutoff wheel adjustments. **Case Corp.**, Burr Ridge, IL, USA; 630-887-2241.



Finn T60 Series II HydroSeeder® Uses Water to Project Seeds

The T60 Series II HydroSeeder® features increased pump performance, convenient controls, reduced maintenance and improved operator safety. Originally developed for the landscape and erosion control markets, the HydroSeeder had a specific market niche with its ability to project seed and fertilizer, using water as a carrier, onto soil to establish vegetation. The Series II advancements expanded the HydroSeeder for a variety of applications ranging from sports turf installation, landfill cover, dust control and portable irrigation. The unit will enhance the use of conventional applications due to increased efficiency and ease of operation. Alternative uses for the versatile machines will ensure fast paced growth and acceptance in a variety of environmental markets. **Finn Corp.**, Fairfield, OH, USA; 800-543-7166.





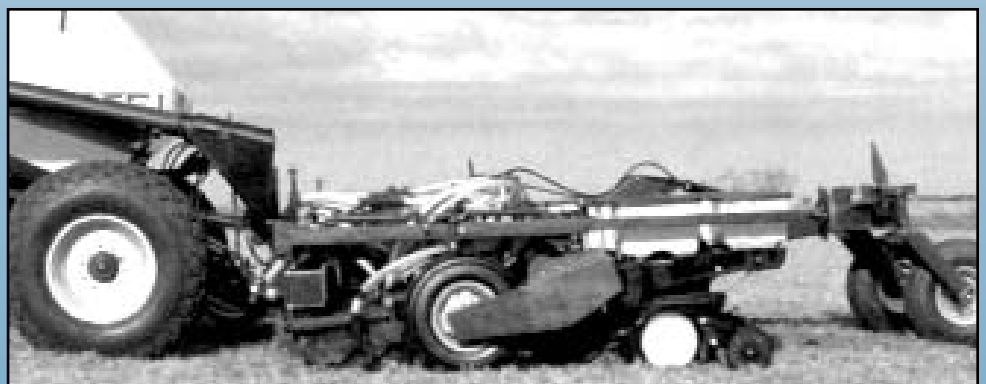
Comfort, Convenience, Power and Serviceability Highlight 9000 Series Tractors

The 70 Series 4WD tractors offered by John Deere have been replaced by a new 9000 product line as part of a continuous improvement process to meet customer needs and provide products with maximum value. The new model lineup is 260, 310, 360, and 425 engine hp. All models are powered by John Deere engines with the largest three using new 10.5-liter and 12.5-liter engines. The **9000 Series tractors** are a styled tractor family building on many of the 8000 Series Row Crop tractor concepts and designs. The new product line offers improved operator comfort, enhanced operator convenience and simplified serviceability. **John Deere Product Engineering Center, Waterloo, IA, USA; 319-292-8000.**



8000 Planter/Drill Fertilizes While Precision Planting Crops

Flexi-Coil's 8000 Planter/Drill is an accurate, multi-use tool for row crop planting and fertilizing applications. With the 8000, a producer can fertilize and precision plant corn in one pass, then easily switch to a different crop using the same machine. The 8000 features a tool bar mounted on an air cart with a three-point hitch. The tool bar carries disc openers on multi-position opener mounts and precision planter units. As a planter, the air cart provides fertilizer to the disc openers while the precision planter units plant corn. For drill applications, the multi-position opener mounts rotate the openers' position without tools. The planter boxes and singulators lift off the row openers and the air cart supplies seed, fertilizer or other product to all



openers on the tool bar. In both cases, a transfer system allows the air cart weight to be hydraulically distributed evenly across the tool bar for penetration control in a variety of soil types. **Flexi-Coil, Saskatoon, Saskatchewan, Canada; 306-934-3500.**



Auto Lok Yoke Offers Hands-Free Locking System Operation

Auto Lok yoke is intended for use on large or heavy drivelines where better weight support is necessary for ease of connection to the tractor PTO shaft or connecting shaft. The design allows hands-free operation of the locking mechanism, permitting the operator to position hands for better support of driveline weight. A spring-loaded metal slide collar is used, along with a unique pawl design with high thrust capacity. When the collar is pulled back, it temporarily locks into a released position, which allows the hands to be repositioned. When the tractor PTO shaft or connecting shaft is inserted into the yoke bore, the collar automatically releases to lock the yoke onto the shaft. The yokes are available in 1.375-6, 1.375-21 and 1.750-20 spline bores. **Weasler Engineering, Inc.**, West Bend, WI, USA; 414-338-2161.



7000 Ten Series Tractors are Improved to Meet the Global Customer's Needs

The 7000 Ten Series row crop tractors offered by John Deere replace the 7000 Series product line. The new models are 95, 105, 115, 130 and 150 PTO hp. They offer a number of improvements to better meet worldwide customer needs. The 7000 Ten Series has increased horsepower, left hand reverser on Power Quad, load sensing for improved shifting on power shift, improved lighting and improved air conditioning performance. These tractors feature the new John Deere Power Tech 6.8-L and 8.1-L engines developed to meet government emission regulations for 1997 and beyond. Both engines provide improved durability and performance. The 6.8 L has up to 38% torque rise and the 8.1 L has up to 50% torque rise. **John Deere Product Engineering Center**, Waterloo, IA, USA; 319-292-8218.





HighLander™ Can Be Adjusted by One Person Using Minimal Tools

Willmar's HighLander™ is a high clearance adjustable track fertilizer spreader designed to enable fertilizer dealers to get more use from one spreader. The 30-in. crop clearance allows producers to "spoon feed" fertilizer requirements throughout the growing season. Applying fertilizer in smaller amounts during the growing season, rather than applying total fertilizer requirement at pre-emergence, has advantages. The lower application rate is absorbed by the crop before it can leach or run off. If weather conditions are unfavorable, additional fertilizer inputs are not necessary. The wheel track is adjustable from 72 to 120 in. to allow for row spacing. The simple design allows adjustment by one person with minimum tools in a short time period. No drivelines, chains or assemblies need adjustment after the wheel track is set. **Willmar Manufacturing**, Willmar, MN, USA; 320-231-9400.



Durable Stinger "Plus" DC Fence Energizers Preserve Battery Life

The Stinger "Plus" AC and DC fence energizers are designed to be among the most durable and efficient on the market. All Stinger products are CSA and UL approved and outdoor rated to withstand harsh conditions. Stinger technology features reliable and innovative analog design housed in a tight water resistant case. Stinger energizers are among the most efficient on the market. They draw on 200 MA input and produce 95,000-watt pulses, easily energizing 12 miles of fence. Stinger "Plus" DC energizers include a photo diode that enables the energizer to reduce the amount of output during the night to preserve battery life. All energizers come with an innovative mounting system that allows easy application to any post or tree. **Stinger Products, a division of BEElectronics, Inc.**, Edmonton, Alberta, Canada; 800-661-3617.





Teacraft Op-Tea-Mizer Replaces Time Consuming Factory Trials

The enzymic fermentation process of black tea manufacture is influenced by time, temperature and input material. The **Teacraft Op-Tea-Mizer** allows the tea maker to accurately define the correct duration of fermentation by sub-sampling from the process line and preparing QC tasting samples under precise and reproducible conditions. The Op-Tea-Mizer is a programmable four-chambered miniature fluid bed tea drier that simulates full-scale factory drier conditions. Four individually timed fermentation samples are simultaneously dried under preset conditions without operator intervention. In less than 30 minutes, this QC tool provides four accurately prepared tasting samples spanning the fermentation range. Organoleptic evaluation determines the best fermentation timing, and factory line timing is adjusted to the new period to ensure optimum tea quality. The process replaces disruptive and inaccurate full-scale factory trials that take up to six hours. **Teacraft Ltd.**, Kempston Bedford, United Kingdom; 44 1234 852121.



Truck Mounted Bark Blowers Move Up to 20 Cubic Yards of Bulk Per Hour

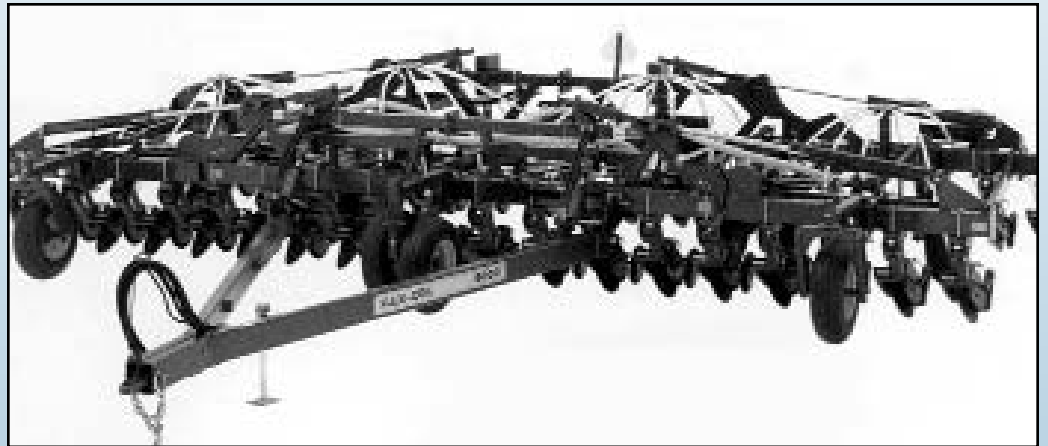
Finn Corp., manufacturers of landscape and erosion control equipment, has expanded into the landscape maintenance market with its new truck mounted **Bark Blower**. Finn's 808 and 816 Bark Blowers are self powered, portable, pneumatic spreaders designed to convey wood mulches, compost and other bulk materials containing a high concentration of long fibers. Powered by an 80 hp John Deere 4039D diesel engine, these units can generate 750 cfm airflow at a maximum 12 psi to move up to 20 cubic yards of bulk material per hour through a 4-in. distribution hose at lengths of up to 300 ft. Made to directly mount onto a truck chassis, these units hold 8.2 and 15.7 cubic yards. Applications range from residential and commercial landscape bark mulch projects to compost spreading and highway roadside mulch cover jobs. Impressive production rates lead to tremendous labor and material savings over conventional rake and wheelbarrow operations. **Finn Corp.**, Fairfield, OH, USA; 800-543-7166.





Flexi-Coil 6000 No-Till Air Drill Offers Ultra-Low Disturbance

Flexi-Coil's 6000 No-Till Air Drill is an ultra-low disturbance seeding tool. The 6000 No-Till Air Drill has a two-bar frame with a hitch that is rigid in transport but free-floating in field position. Barton Angle Disc openers are mounted on the 7- x 7-in. frame in either a 10- or 7.5-in. spacing configuration. The patented Barton opener features an 18-in. disc blade mounted at a compound angle to cut crop residues easier and penetrate



soil with less down pressure. A cleaning wheel keeps soil from moving up and away from the blade, forming a slot for seed placement. A V-shaped press wheel follows the blade, pressing at the opposite angle to completely close the slot, leaving

little soil disturbance. The 6000 No-Till Air Drill has reduced tillage applications in dryland farming worldwide. **Flexi-Coil**, Saskatoon, Saskatchewan, Canada; 306-934-3500.

"Six Series" Round Balers Work Under Wet or Other Difficult Conditions

The new John Deere "Six Series" Round Balers form bales ranging from 750 to 2,400 lbs. and include new features for increased capacity, easier operation and improved quality. The "mega tooth" pickup is a first in round baler pickups. With extra-stiff teeth and heavy-duty components, it offers customers faster bale starting and improved feeding, especially in wet or difficult baling conditions. The BaleTrak Plus monitor/controller combines more than 20 functions with a simple-to-operate, user friendly interface. It provides the convenience of a preprogrammed baling cycle with the flexibility to individually adjust each setting as crop conditions change. New belt fasteners include the extra service life rectangular wire fastener and a new riveted plate-type fastener to handle heavier bales and increase pull-out strength. "Six Series" balers use John Deere diamond tread forming belts to enclose more than 90% of the bale, to shape tight bales and retain hay quality. **John Deere Ottumwa Works**, Ottumwa, IA, USA; 800-50DEERE.





Customers Drive Design of New Self-Propelled Windrower

A group of customers with extensive knowledge of windrower operation helped determine specifications with engineering and marketing before the **John Deere 4890 Self-Propelled Windrower** designing began. These customers also tested the new windrower under their conditions to verify that it met their requirements and had higher productivity and ease of operation than their current machines. The 4890 Self-Propelled Windrower and 890 Auger Platform are new from the ground up. A key new feature is the ability to power reverse the platform to unplug the platform from the cab with the flip of a switch. The windrower is designed for commercial hay operations that require higher productivity than is currently available. The machine was designed with the operator in mind in terms of ease of operation, serviceability and productivity. Heavy duty state-of-the-art components were used throughout the machine. **John Deere Ottumwa Works**, Ottumwa, IA, USA; 515-683-2442.



TORQMASTER Designed for Long Life with Minimal Service

The **TORQMASTER** family of modular friction clutches by Weasler Engineering combine the unique features of a modular design with 60° of free motion. The family consists of three clutch paks with torque ratings from 3,000 to 24,000 in • lbs. It has 12 universal joint sizes, allowing the size and capacity of the clutch to be tailored to the application. The unique design allows uniform wear of friction discs, while isolating and dissipating heat to ensure long life. Modular components provide easy service with a minimum of service parts. Free motion allows the tractor yoke splines to be aligned with the tractor PTO shaft splines for easy hook-up. The TORQMASTER clutch is intended for use on the implement end of the primary driveline or at a secondary location in the implement drive system. **Weasler Engineering, Inc.**, West Bend, WI, USA; 414-338-2161.





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