

RESOURCE



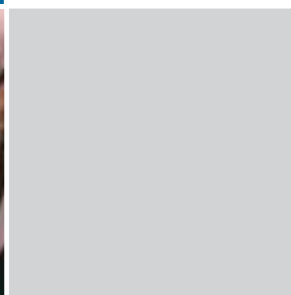
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The “Elevator” Explanation



Suppose you get on an elevator and mention that you are a member of the American Society of Agricultural and Biological Engineers. As the door closes, a person responds with “Really, what are agricultural and biological engineers?”

How do you answer? How do you, in the short time before the person reaches their floor and the elevator door again opens, explain our profession so the person leaves with a positive understanding and appreciation?

I believe we have all dealt with this. I know I’ve struggled with my “elevator” explanation as long as I have been an agricultural engineer. Collectively, ASABE members have had a difficult time agreeing on words for a “tagline” that effectively communicates who we are and the value of what we do. Evidence of a lack of words with which we are comfortable and can agree upon is the range of names chosen for the academic departments and programs in which students train for our profession. The problem is rooted in the diverse nature of agricultural and biological engineering and in the broad

range of things agricultural, biological, and, in many cases, both. However, the diversity that complicates describing who and what we are and what we do also provides strength by contributing to our profession’s value and importance.

Not having a consensus identity limits awareness of our profession. Inadequate awareness limits recognition, lessens stature, inhibits growth of the profession, and is a threat to ASABE. For the profession to be adequately involved in efforts to solve local, regional, national, and global problems, others must be aware of the capabilities of agricultural and biological engineers. If not, our profession’s potential to enhance the quality of life for all is reduced.

The opportunity is for agricultural and biological engineering to become household words. The challenge is to develop a consensus “elevator” explanation that the public understands and values, that professional colleagues understand and appreciate, and that captures the attention, imagination, and interests of students.

Donald C. Erbach, USDA-ARS (retired)
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EVENTS *Calendar*

ASABE CONFERENCES AND INTERNATIONAL MEETINGS

To receive more information about ASABE conferences and meetings, call ASABE at (800) 371-2723 or e-mail mcknight@asabe.org.

2008

- | | |
|----------------|---|
| June 27-28 | Food Processing Automation Conference. Providence, Rhode Island, USA. |
| June 29-July 2 | ASABE Annual International Meeting. Rhode Island Convention Center, Providence, Rhode Island, USA. |
| Sept. 1-5 | The Eighth International Livestock Environment Symposium (ILES VIII). Iguassu Falls, Brazil. |
| Nov. 10-13 | The ASABE Leadership Experience. Location TBA. |

2009

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|----------------|---|
| June 28-July 1 | ASABE Annual International Meeting. Reno, Nevada, USA. |
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ASABE ENDORSED EVENTS

2008

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| July 13-16 | 50th Annual Conference of the Canadian Society for Bioengineering. North Vancouver, British Columbia, Canada. www.bioeng.ca/Events/VancouverMtg/Van2008.htm . |
|------------|---|

2009

- | | |
|----------|---|
| Jan. 5-9 | Frutic Chile 2009: Eighth International Symposium of Information and Technology for the Sustainable Production of Fruit and Vegetables, Nuts, Wines, and Olives. Concepcion, Chile. www.frutic09.org . |
|----------|---|

AE50 2008

Outstanding Innovations

Congratulations to the winners!

The American Society of Agricultural and Biological Engineers' *Resource* magazine is pleased to sponsor the AE50, the only awards program of its kind celebrating companies for developments in areas of agricultural, food, and biological systems. Award winners shine under the congratulatory spotlight in this special issue dedicated to many gifted engineers and co-workers who creatively harness and manage company resources and talent to pursue exciting innovations.

The products featured represent not only the diversity of the agricultural and biological engineering fields but companies of all sizes and varying pursuits. Team-playing innovators execute new designs and orchestrate innovative ventures: machines, components, and systems that enhance and improve

our world. Selected from many entries, an expert panel judged the best products introduced to the marketplace during 2007. These AE50 recipients join the ranks of many, over two decades, who have been honored for high-tech ingenuity and down-to-earth creativity. These innovators will save producer time, costs, and labor while also improving user safety.

Many products featured on the following pages are patented and their names trademarked. In the years ahead, some may even become household words. Others may be further improved as technology rapidly advances and, perhaps with time and change, will win another AE50 award. But all honorees who achieved this year's award strived for excellence, and we are very pleased to showcase the results of their ingenuity, tenacity, and labor. Well done!

■ 2310 Mulch Finisher

John Deere Des Moines Works
Ankeny, Iowa, USA
515-289-3163, www.deere.com

The 2310 Mulch Finisher is a seed bed preparation tool designed for best-in-class transport dimensions, productivity, residue flow, soil profile, and rear finishing attachments. The 2310 offers up to a 33 percent productivity increase as it was designed and tested for operation speeds at 16 kph (10 mph) and is capable of running in 80 percent residue levels. In many conditions, the 2310 can eliminate a spring tillage pass by combining its mulching disk blades in the front, 91-kg (200-lb) trip standards in the middle, and rear harrow to level the soil at the rear of the machine. The new machine offers four different harrow attachments to match various field conditions including residue management, soil profile, and soil moisture levels.



■ 2600 Series Chopping Corn Header

Case IH
 Racine, Wisconsin, USA
 262-636-6011, www.CaseIH.com

The Case IH 2600 Series Chopping Corn Header is a new-design header for use on a combine harvester that allows the operator to more efficiently chop cornstalks for residue management at the same time the corn is harvested. It features a high-capacity rotary chopping device integrated with the row units in a header specifically designed to match at the proper angle the feeder house of Case IH combines. The larger-diameter stalk rolls are designed for greater capacity and force the stalks into the stalk chopper, allowing for faster harvest speeds with consistency of crop residue size. The rotary chopping mechanism offers an independent gearbox for each row unit, which allows the operator to switch each row on or off independently of the rest of the corn header. The product is available in 6-row, 8-row rigid, 8-row folding, and 12-row configurations.



■ 3PYP40' Stack Fold Yield Pro Planter

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

The Great Plains 3PYP40' Yield Pro Planter offers computer-controlled steering of the rear lift assist wheels. This system eliminates destruction of beds, digging holes, "row hopping," and high-side loads on the lower three-point hitch arms previously associated with free casting of rear wheels on semi-mounted planters. When traveling forward, the rear wheels caster freely; however, when reverse movement is detected, the steering system activates. In reverse, the computer monitors the positions of the front tractor wheel and the rear lift assist pivot shaft. Using electro-hydraulic valves, the computer controls the flow of hydraulic fluid to rotate the casters to match that of the front tractor tires. The system also matches the rate of change in the position of the rear wheels to that of the front tractor wheels. This supports rapid turns as well as gradual turns without a side load on the rear wheels.



■ 4105 Compact Utility Tractor

John Deere
Moline, Illinois, USA
www.deere.com

The John Deere 4105 is a large chassis compact utility tractor that includes a hydrostatic transmission in a standard-featured tractor – a cost-effective solution to address basic power unit needs. The 4105 provides the convenience and agility of a hydrostatic transmission in a standard tractor platform designed to handle the rigors of loader, backhoe, rear mowing, tilling, and scraping applications. This 40-plus hp model combines proven, reliable systems used in John Deere's current product portfolio. High reuse, repackaging, and optimization of systems from various platforms provided opportunity to be first to market with a large chassis standard-featured hydraulic transmission tractor.



■ 70 Series STS Combine

John Deere Worldwide Product Development Center
East Moline, Illinois, USA
309-765-8000, www.JohnDeere.com

The 70 Series combine is the latest evolution in STS combine technology. It is designed to provide customers with more capacity while managing the combine as well as harvest information in a simple, user-friendly environment. All 70 Series machines have new electrical architecture and the CommandCenter™ Display and CommandTouch™ Armrest Console, which provides the ability to customize displays and use “set point” adjustment technology. All 70 Series combines have a cleaning shoe performance increase with a longer sieve stroke. The flagship 9870 receives a 17 percent boost in horsepower (440 hp) over the 9860, and with the optional IPM system, an increase to 480 hp when coupled with the new 612C chopping corn head. Its cleaning system has front-chaffer extension and greater clean-grain capacity. The 9770 also boasts a six percent boost in horsepower and increased clean grain capacity.



■ 84' Air Drill

Seed Hawk Inc.

Langbank, Saskatchewan, Canada

306-538-2221, www.seedhawk.com

The Seed Hawk 84' Air Drill is capable of placing seed and fertilizer with precision in a one-pass, no-till operation utilizing openers with individual depth control. Compared to earlier models, the 84' boasts a 30 percent increase in operating width while maintaining the capability of seeding at an accurate depth and locating the fertilizer at a preset distance to the side and below the seed. When coupled with a properly equipped Seed Hawk air cart, a pre-determined percentage of the fertilizer can be placed with the seed as starter fertilizer and the balance of the fertilizer placed in the furrow created by the fertilizer opener. Down pressure on the packer wheels can be adjusted to suit soil conditions in order to maintain optimum seed-to-soil contact. The 25.6-m (84-ft) air drill when coupled with the 28-m³ (800-bushel), three-compartment air cart is designed for large-acreage farmers who wish to maximize seeding efficiencies without compromising accuracy of seed and fertilizer placement.



■ 9030 Series Tractor

John Deere

Waterloo, Iowa, USA

866-933-3373, www.JohnDeere.com/Ag

The John Deere 9030 Series tractors feature Tier 3 emission compliant engines, an AirCushion™ Suspension system on track models, and the industry-first, Category 5 drawbar. The five-wheel tractor models and three-track tractor models have 325 to 530 rated engine hp, with a 10 percent power bulge at 1900 rpm and 38 percent torque rise. The PowerTech™ Plus 9 and 13.5-L engines feature cooled exhaust gas recirculation and variable geometry turbochargers to comply with Tier 3 emission standards. High capacity Vari-Cool™ cooling system and other engine and drivetrain enhancements give the 9030 Series Tractors a 3 to 13 percent fuel efficiency over like-size tractors. On the 9030 track tractors a new AirCushion Suspension system isolates the tractor frame and operator from rough ground inputs while maintaining a controlled ride. The 9530 and 9630 are the only tractors in the industry to comply with the ASABE Category 5 drawbar standard.



■ ADC2350 Air Drill Cart

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

The Great Plains ADC2350 Air Drill Cart belongs to a family of large-capacity pneumatic seed delivery carts. The Air Drill Carts will carry 12 m³ (350 bushels) of material in two 6-m³ (175-bushel) polyethylene hoppers to deliver two separate materials to a variety of seeding implements for both conventional and no-till farming. The carts feature two infinitely variable rate gearboxes, which can be adapted to variable rate seeding. A 20-cm (8-in.) auger for fill and clean out, handles the large capacity with added efficiency. The ADC2350 uses a single frame that can be set up for towing directly behind a tractor and coupling with trailing implements or set up to tow behind leading implements. This machine adds more capacity, higher field efficiency, and variable rate seeding for a wider variety of farming practices.



■ ADDIDRIVE Assist

Poclain Hydraulics, Inc.
Sturtevant, Wisconsin, USA
262-321-0676, www.poclain-hydraulics.com

The Poclain ADDIDRIVE Assist system is designed for on-highway, vocational-model trucks and offers better mobility and traction in difficult driving conditions: mud, snow, sand, steep inclines and declines. This hybrid (hydraulic used in combination with existing mechanical) all-wheel-drive system provides advantages over mechanic all-wheel-drive axle configurations: significant weight savings of 400 kg (881 lb), no increased cab height requirement resulting in lower center of gravity, a 5 to 10 percent savings in fuel consumption, greater vehicle stability, and engagement-on-demand while moving. The system's heart is the Poclain MFE08 Hydraulic Motor, which provides greater off-road capabilities due to high torque. In difficult road conditions, the driver shifts the transmission from mechanical to mechanical-plus hydraulic transmissions at speeds up to 32 kph (20 mph). Once speed is reached, the hydraulic motors can be free-wheeled at up to 600 rpm with nearly 100 percent efficiency. The motor is highly compact and designed to be integrated into the hub of an existing on-highway truck axle without modification to the truck chassis.



■ AgGPS® EZ-Guide® 500 Lightbar Guidance System

Trimble Navigation Limited
Westminster, Colorado, USA
913-495-2700 or 800-865-7438
www.ez-guide.com or www.trimble.com

The AgGPS® EZ-Guide® 500 features a large, 18-cm (7-in.), easy-to-read color LCD display, data logging functions, and multiple accuracy options. The system has a built-in lightbar with 31 LEDs that are visible in direct sunlight to provide GPS-based guidance for operators to steer agricultural vehicles that require consistent pass-to-pass accuracy to save fuel, increase efficiency, and reduce input costs. The EZ-Guide 500 offers easy-to-use guidance patterns and real-time coverage mapping in either the plan and perspective views, showing the area covered in the field. The coverage can be recorded and transferred to a PC via the USB to create maps and reports. A built-in high precision dual-frequency L1/L2 GPS receiver offers a variety of accuracy upgrades without purchasing an external GPS receiver. The system is designed for use with Trimble's AgGPS EZ-Steer® assisted steering, AgGPS Autopilot™ automated guidance, and AgGPS EZ-Boom® 2010 automated application control solutions.



■ All-Terrain Mower (ATM) 162

Harper Industries, Inc.
Harper, Kansas, USA
800-835-1042, www.harperindustries.com

The Harper ATM 162 mows grass on many types of terrain. The weight of the mowing deck is transferred uphill reducing the tendency of the machine to slide downhill and minimizing sod damage on steep slopes. The ATM 162 offers greater safety and maneuverability than a conventional tractor and mower combination. Because of the switch-operated leveling system, the operator is kept upright while mowing slopes up to 34°. The leveling manual override, deck lift, and speed are operated by a joystick located in a console at the operator's right hand. These features give the operator safety and comfort.



■ AquaSorp Isotherm Generator

Decagon Devices, Inc.
Pullman, Washington, USA
509-332-2756, www.decagon.com/isotherm

Decagon Devices' new AquaSorp Isotherm Generator instrument makes quick and automatic determination of moisture sorption isotherms. The AquaSorp Isotherm Generator directly measures water activity using Decagon's patented chilled mirror dew point technique. A moisture sorption isotherm for a product is the relationship between water activity (a_w) and moisture content at a given temperature. This relationship is complex and unique for each product due to different interactions between the water and the solid components at different moisture contents. The AquaSorp is simple to use: insert a sample into the instrument, set a few parameters for the experiment, and walk away. Desorption and adsorption curves are achieved by flowing wet or dry air, respectively, and moisture loss and gain are determined by weight changes. The instrument generates the complete absorption and desorption isotherms in approximately 24 hours with greater than 50 points on each isotherm curve.



■ AutoLOC for John Deere Self-Propelled Forage Harvester

Deere & Company
Moline, Illinois, USA
641-683-2409, www.JohnDeere.com

AutoLOC is a feature now available on a John Deere Self-Propelled Forage Harvester (SPFH) that enables the SPFH to automatically change the theoretical length-of-cut (TLOC) of the crop based upon the measured moisture content of the crop. Many experts agree that crops of lower moisture levels should be cut at shorter lengths in order to allow for increased bunk density in bunker silos. This higher bunk density allows the dairyman or feedlot operator to supply his livestock with higher quality silage. Using near-infra-red light, the HarvestLab moisture sensor on the John Deere SPFH takes readings of the forage with an accuracy of two percentage points. These readings are then used to automatically adjust LOC based upon the operator's parameters using John Deere's Infinitely Variable Length of Cut feedroll transmission.



■ BR 7090 Round Baler

New Holland
 New Holland, Pennsylvania, USA
 888-290-7377, www.newholland.com/na

The New Holland BR 7090 Round Baler's redesigned bale chamber and forming rolls, in combination with the belts and the sealed adjustable hydraulic bale density system, start a core in any crop and build tight perfectly shaped bales. The integral formed ribs of the new rolls provide aggressive crop movement while eliminating surface imperfections on the ribs, which can be detrimental during the wrapping cycle. The new bale chamber design enables the operator to start cores and make bales in crops and conditions that previously would have been too difficult to bale. In difficult crops like dry, slick Bermuda grass or short straw, the time between initial crop entering the bale chamber and the start of the core rotation is reduced by 25 percent. Also, new adjustable tailgate latches help maintain the integrity of the baler while forming and wrapping bales.



■ C500 Series "Chopping" Corn Head

CLAAS of America, Inc.
 Omaha, Nebraska, USA
 402-861-1000, www.lexioncombines.com

The LEXION C500 Series "Chopping" Corn Head chops and sizes corn stover into more manageable pieces and frays vertical remains of the main stalk to speed the overwinter decay process. Each chopping row unit is equipped with a tri-blade cutting disk attached to the existing gearbox used for normal row unit operation via a vertical, bottom-side output shaft. This design minimizes parasitic load and overall row-unit horsepower requirements. The tri-blade design improves chopping performance up to 30 percent. Chopping speed is variable via the variable-speed feederhouse drive and determined using in-cab controls. Combined picking and chopping operations minimize costs associated with multi-pass trips in preparation for the following planting season by up to 30 percent. Each "chopping" corn head is equipped with poly row hoods and snouts and divider points and can adjust the operating angle of the header to optimize picking and chopping performance. Optional row-sensing auto steering and hydraulic deck plates can be fitted for consistent (equidistant) row operation to minimize effects of stalk shatter and potential for header loss.



■ Case-IH Steiger 485 and New Holland T9050

CNH America LLC
Burr Ridge, Illinois, USA
262-636-6011, www.cnh.com

The new Steiger 485 model uses turbo compound technology for the first time in an agricultural tractor application. This technology uses a second turbocharger to convert energy otherwise wasted out the exhaust to provide additional power. The compound turbo drives the crankshaft through a gear reduction system instead of compressing intake air unlike most turbochargers. The gear train of the speed reduction system includes a coupler to isolate the shock of engine firing from the high-speed compound turbocharger components. This engine has increased fuel efficiency, operates more quietly, weighs less, and takes less space than the engine it replaces. The use of two types of turbochargers also provides a more even response over a wide range of engine loading. The addition of the compound turbo system allows closer matching of the maximum engine capability to the power requirements of this particular 485-engine hp model.



■ Challenger MT900B Articulated 4wd Tractors

AGCO Corporation
Duluth, Georgia, USA
770-813-9200, www.AGCOcorp.com or
www.ChallengerAg.com

The MT900B series of tractors translate the comfort, features, and power of the MT800B track tractors to a line of high-hp articulated 4wd tractors. With 615 peak hp and a maximum machine ballast of 27,216 kg (60,000 lb), the MT975B model is the most powerful, articulated 4wd tractor made today. Other industry firsts for the MT900B tractors include 145-mm (5.7-in.) diameter bar axles, 18-bolt wheel hubs, and a 1,476-L (390-gal) fuel tank. In addition, these new tractors are the first in North America to offer availability of Michelin AxioBib tires, which can operate at 20 percent lower pressures yet carry the same loads as conventional radial tires. The long wheelbase design allows full 42° articulation angle turns, even with 800/70R38 duals installed. Special application versions are available for pulling scrapers and other implements in industrial job sites.



■ Corner 4 x 4

Lindsay Corporation
Omaha, Nebraska, USA
800-829-5300, www.lindsay.com

The patent-pending Corner 4 x 4 from Lindsay Corporation allows a corner system to power through the most challenging field conditions. During the irrigation season, field conditions can change creating rugged terrain and high ridges for the Zimmatic corner. The new design doubles the previous number of powered wheels and provides the added benefits of increased floatation and traction to the swing arm corner. It is ideal for tackling the challenges of heavy soils.

This option is also adaptable to older Zimmatic corners as well as some competitive models of corner systems giving these machines the benefits of being able to power through rugged terrain without getting stuck. With the Corner 4 x 4, better wheel track management is achieved. This greatly reduces the chances of getting bogged down during the critical period of applying water to crops.



■ Double Six Engine Concept

CLAAS of America, Inc.
Omaha, Nebraska, USA
402-861-1000, www.claasofamerica.com

The CLAAS Double Six Engine concept within the JAGUAR 980 and 970 forage harvester is a simple, cost-effective and fuel-efficient way to achieve 830 hp. Two equal-size Mercedes OM 460LA engines are mounted side by side and coupled together with a simple belt. In light work or transporting the machine on the road, the operator can elect to use only one engine and save fuel. The two-engine concept also utilizes two commonly used engines in the industry equating to better parts and service support. The rear engine is the primary engine which operates all of the hydraulic and cooling components. The second engine is started with a switch in the cab when the forage harvester needs more capacity. The belt is engaged and an instant horsepower and capacity boost is available.



■ Dragonfly Fan Damper

Aerotech Ventilation Systems, a Munters Corporation
 Mason, Michigan, USA
 517-676-7070 or 800-227-2376
www.munters.us/aerotech or www.dragonflydamper.com

Aerotech introduces its unique Dragonfly four-door damper, which increases exhaust fan airflow by 6 percent and efficiency by 4 percent when compared to a traditional plastic inlet shutter. A typical two-door damper alters the natural airflow pattern, which reduces the fan's airflow. The Dragonfly split-door design follows the fan's spiral airflow pattern therefore allowing for optimal airflow and efficiency.



■ Farm Works Titan RH

Farm Works Software
 Hamilton, Indiana, USA
 800-225-2848, www.farmworks.com

This rugged handheld uses the latest software technology for field applications including mapping, soil sampling, field scouting, variable rate, and more. It features an impact-resistant 8.9-cm (3.5-in.) daylight-readable touch screen. The impact-resistant screen protects the device from accidental drops that can lead to down time and lost data. The Titan RH can be used in all types of weather: rain or snow as well as extreme heat and cold. The built-in GPS for WAAS is one of its key features. This eliminates operator use of additional cables or attaching other GPS receivers for quick sampling or mapping jobs. It has an optional data cable that includes three standard DB9 serial ports, which make it possible to attach other GPS receivers (for better accuracy), a variable rate controller, or other sensory devices.



■ FR9000 Series Forage Harvester

New Holland Agriculture
 New Holland, Pennsylvania, USA
 888-290-7377, www.newholland.com/na

The New Holland FR9000 Forage Harvester has five models available with up to 824 hp. The FR9000 cuts, processes, and delivers agricultural crops for cattle feed. The operator cab is large and quiet with improved visibility for operator comfort. A single joystick with finger-tip controls operates functions including direction, speed, crop intake, and discharge. The HydroLoc™ computer-controlled drive moves crop into the cutting system allowing for precise cut and consistent crop length for premium quality cattle feed. The patented VariFlow™ system is unique to the industry. The VariFlow accelerator is moved closer to the cutting head when needed, improving crop discharge and reducing power requirements by up to 40 hp. This high-speed discharge stream is directed by a spout with 210° rotation to deliver crop into a transport truck. Seven computers control and monitor machine functions. These advanced features on the FR9000 allow for maximum efficiency in changing conditions.



■ FX-742

Schulte Industries Ltd.
 Englefeld, Saskatchewan, Canada
 800-404-6044 or 306-287-3715, www.schulte.ca

The FX-742 offers industry-leading mowing technology. This 12.8-m (42-ft) mower now offers a real and viable solution in dealing with crop residue after harvest. A producer can harvest faster, use less fuel, and put more high-quality grain into the bin more quickly because he no longer needs to utilize the combine as a crop residue management system. He must put only the seed-bearing part of the plant through the combine rather than the whole plant as done in the past. Once harvest is complete and good weather is no longer a certainty, a producer can utilize this large-field mower to deal with the long straw that is left behind and still standing. The FX-742 uses a 7-rotor design, which optimizes cutting performance, increases productivity, and delivers extremely even distribution. The FX-742 fixed-knife option includes 14 fixed knives, 28 rotating blades, and a specially designed crop distribution system.



■ GPS Controller

Lindsay Corporation
Omaha, Nebraska, USA
800-829-5300, www.lindsay.com

The patent-pending GPS Controller from Lindsay Corporation provides increased precision and added control of water application from the center pivot. This increased precision comes via GPS technology located at the end of the machine, which is more accurate than sensors located elsewhere on the irrigation unit. The GPS Controller can be added to any Zimmatic or competitive brand of center pivot and provides additional water control without the need of running additional span wires down the length of the machine.

The unit allows precise control when less water is needed to shut off an end gun or bank of sprinklers. This saves water and pumping costs while increasing the precision of where water is applied.



■ iMatch™ AutoHitch™

John Deere
Moline, Illinois, USA
www.Deere.com

The iMatch™ AutoHitch™ is a John Deere-exclusive PTO coupler attached to a standard quick coupler that allows the operator to conveniently attach or remove rear-mounted PTO implements without leaving the seat of the tractor. It also makes the process of switching between these implements quicker and easier. The new coupler is compatible with John Deere and Frontier rotary cutters and John Deere tillers and can remain on compatible John Deere Compact Utility Tractors when using non-PTO driven rear implements. Once the implement is connected to the quick coupler, the operation is a simple three-step process of rotating the locking handle up, pulling the lever to engage the PTO coupler, and rotating the locking handle back down. If required, the coupler can be removed without the use of tools. This innovative coupler makes completing these mundane tasks quicker and easier while allowing an operator to remain in the seat.



■ John Deere 600C Series Cornhead

John Deere Harvester Works
 East Moline, Illinois, USA
 309-765-8000, www.JohnDeere.com

The 600C Series Cornhead is an all-new cornhead from John Deere packed with features that allow the corn grower to get more done in less time and at less cost during the corn-harvesting operation. The 600C Series Cornhead utilizes critical geometries to improve material handling, grain savings, residue processing, and serviceability. New features include heavy duty row unit gearcases, larger gathering chains, a larger diameter cross auger, a deep-angle auger trough, dual-auger strippers, opposed knife or flute stalk rolls, optional stalk-chopping gearcases, heavy-duty row unit drives, easy-adjust points, easy-access deck covers and end fenders, an integrated end fender ear saver, heavy duty modular main frame, and easy-access clean-out doors in the auger trough. Together these features result in outstanding cornhead function and reliability and an overall improvement in productivity to the harvesting system.



■ MacDon R80 Rotary Disc Pull-Type Mower

MacDon Industries Ltd.
 Winnipeg, Manitoba, Canada
 204-885-5590, www.macdon.com

The MacDon R80 Rotary Disc Pull-Type mower has a cut width of 4 m (13 ft) and consists of eight 61-cm (24-in.) diameter cutting discs. A pair of 3-m (10-ft) wide steel rolls is used to condition the plant material. The mower's drive comes from a self-contained hydraulic system featuring high-efficiency, bent axis pump and motor assemblies. Primary features include the patented Articulated Power Turn™ hitch assembly, which allows the vertical hitch pivot to be placed in the optimal position for turning maneuverability while minimizing side loads on the rear of the tractor. The horizontal pivot accommodates the rolling movement of the mower during normal operation. A high-efficiency hydraulic drive circuit transmits power from the tractor's PTO shaft to the cutter bar of the mower with minimal moving parts (no belts and only two telescoping shafts). The 3-m (118-in.) wide conditioning rolls promote smooth, efficient material flow resulting in even conditioning of the plant material.



■ MagnaCut Straw Chopper

Case IH
Racine, Wisconsin, USA
262-636-6011, www.CaseIH.com

The Case IH MagnaCut Straw Chopper is a solution for cereal grain customers who require very fine straw-chopping performance over a broad range of straw-moisture conditions. The chopper is equipped with 126 fixed-blade rotating knives with 41 adjustable intermeshing counter knives to provide a tailored chop performance in any straw condition, meeting no-till residue management spreading requirements globally. The chopper is integrated into the threshing chassis of the combine, eliminating extra components and minimizing overall vehicle length. For increased safety and guard against damage to the chopper and combine, a friction joint enables the adjustable stationary knives to instantly move out of the way and be retained if they hit a foreign object. The chopper operates in two speeds to provide a premium chop performance in high speed, with an alternative function of straw discharge for baling purposes in low speed for better delivery of undamaged straw.



■ Michelin® Axiobib™ Radial featuring Ultraflex™ Technology

Michelin North America, Inc.
Greenville, South Carolina, USA
888-552-1213, www.michelinag.com

The Michelin® Axiobib™ radial tire featuring Ultraflex™ Technology can operate at inflation pressures as much as 20 percent lower than standard radials or carry up to 20 percent more load at the same pressures as standard radials. This helps reduce soil compaction caused by today's high-horsepower equipment. Ultraflex Technology delivers a Michelin performance characteristic – Increased Flexion (IF), making the Axiobib the only tire in the industry to date consistent with the IF designation recently established by the U.S. Tire & Rim Association. Ultraflex Technology is a patented innovation designed to help optimize the performance of growers' high-horsepower equipment while reducing soil compaction, thus protecting their valuable resource: the soil.



■ mini GAC® *plus*

DICKEY-john Corporation
 Auburn, Illinois, USA
 217-438-2305, www.dickey-john.com

The mini GAC® *plus* is a handheld moisture analyzer that also displays a sample's test weight. It uses the same calibrations of the U.S. federal standard commercial moisture analyzer, the GAC2100b. The mini GAC® *plus* analyzer is ideal in farm applications for grain drying, biasing combine moisture sensors, and minimizing dockage during grain trading. On-the-spot knowledge of crop moisture values can also minimize cost associated with moving heavy equipment through the fields during harvest. Industry benefits include increased standardization and improved ability to match commercial testing equipment.



■ Model 400 Air Tank

Seed Hawk Inc.
 Langbank, Saskatchewan, Canada
 306-538-2221, www.seedhawk.com

The Seed Hawk Model 400 air tank is a two-compartment, air seeder/fertilizer tank that can be shipped in a container and configured to deliver seed and/or fertilizer as a tow-between or behind air cart or as an on-board air tank. The metering system for each compartment utilizes a unique roller arrangement, where the meter rollers have sections with displacements tuned to match the secondary headers as well as a helical fluting for smooth, continuous product metering even at very low rpms. This combination ensures accurate metering of a wide range of seed sizes, fertilizers, and inoculants over all typical application rates without the need for changing rollers from product to product. The Plus is an optional, add-on, third metered tank that can also be mounted with any of the three configurations of the model 400 air tank, which provides an additional capacity of 3.5 m³ (100 bushels). The 400 air tank offers a 25-cm (10-in.) load/unload auger as standard equipment and is typically sold in conjunction with a Seed Hawk air drill up to 25.6-m (84-ft) operating width.



■ Model 6700ST Air Seeder

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

The Model 6700ST Air Seeder is a 2.5-m³ (700-bushel) air seeding tank that consists of four individual tanks. With its large total volume, ability to combine tanks, and incorporation of a high capacity load/unload conveyor, this product provides unprecedented air seeder tank efficiency. It is designed to minimize unproductive time – the time needed to stop and re-fill the seeder. Using most typical seeding scenarios, the Model 6700ST will allow the operator to seed at least 65 ha (160 acres or a quarter section) before having to stop and refill. The individual tanks have been sized, as closely as possible, with typical seeding scenarios, to run out of product at the same time in order to limit the total number of stops required. The load/unload conveyor features a higher capacity than traditional load/unload augers, which minimizes the amount of time required to fill each tank.



■ MPS-1

Decagon Devices, Inc.
Pullman, Washington, USA
800-755-2751, www.decagon.com

The MPS-1 Dielectric Water Potential Sensor measures the water potential (WP) of the soil by pairing dielectric technology with solid matrix equilibration. The MPS-1 provides continuous *in situ* soil WP measurements without difficult calibrations or constant field maintenance. By measuring WP, the availability of soil water can be determined in any soil type. The MPS-1 measures the WP of the soil by equilibrating two well-characterized ceramic discs with the soil, measuring the dielectric permittivity of the ceramic to find its water content, and then calculating the WP of the ceramic through its moisture characteristic relationship. Data show that the MPS-1 calibration equation is constant over all soil types and salinities up to at least 5 dS/m and that temperature effects on the sensor are minimal. The MPS-1 is designed for years of continuous field use without constant field maintenance.



■ New Generation Large Square Baler Family

AGCO Corporation
 Duluth, Georgia, USA
 770-232-8029 or 770-232-6091
www.agcoiron.com or www.agcocorp.com

AGCO Corporation has developed a new family of large square balers that blend new and existing technologies to significantly increase capacity and bale weight through several product enhancements. To accomplish these higher capacities, the balers feature a new quad auger pickup using a full-floating, solid wind-guard along with higher speed gearboxes. Additional performance gains on the balers come from a unique cam-and-linkage geometry that improves bale shape, and pickup floatation and lift. The operator interface is enhanced through an ISO-compatible controller and a color monitor. ISO compatibility reduces the number of monitors required in the tractor cab and saves time when connecting the baler to an ISO-compatible tractor. Since minimal downtime is important to productivity, servicing the baler is made easier through a novel twine-box design allowing the operator to see the end of the twine balls as well as increasing twine storage. Longer grease intervals were realized by a new, taper-bearing, bolt-together feeder crank. Aesthetic styling reduces crop debris build-up to maintain proper operation and make routine service an easier and cleaner task.



■ O-Ring Sealing, a Thin-walled Tube for Liquid Plumbing

Case IH
 Racine, Wisconsin, USA
 262-636-6011, www.caseih.com

ISpray bars carry chemicals on many sprayers and utilize stainless steel pipe with pipe threads. This design allows the use of a thin-walled tubing to act as the spray bar while sealing and connecting with an o-ring and fittings. The thin-walled stainless steel tubing weighs less, costs less, and allows more flow while maintaining the same tube OD for spray nozzle bodies to mount to. The end of the tube is modified to have an offset flange groove for the o-ring to set in with specially made plastic fittings to compress the o-ring, creating a tight seal. This o-ring groove is designed to clean easily and therefore will not retain chemicals that could release later and be sprayed on the wrong target. Tubes can be made in various lengths and diameters with many combinations of outlets for any width of boom.



■ Precision Linear Control Panel

T-L Irrigation Co.
Hastings, Nebraska, USA
800-330-4264 or 402-462-4129, www.tlirr.com

The Precision Linear Control Panel from T-L Irrigation Co. allows complete control of an operator's linear irrigation system. Application rate can be varied by machine location in the field with three different rates each in the *forward* and *reverse* directions. Combined with a hydrostatically powered linear-move irrigation system, the Precision Linear Control Panel achieves maximum water uniformity for the end user. Speed sensors in the hydraulic motors at each end tower provide the panel with real-time travel information to keep the speed of the linear constant for the specified application rate. Standard units or metric units are selectable in the set-up to allow for worldwide usage. The panel will work with hose drag or ditch water supply linears up to 1 km (0.6 mile) wide guided by aboveground cable or buried wire. Other features include current status information, on-screen real-time diagnostic information, and shutdown history.



■ QUICK KNIFE

CLAAS of America, Inc.
Omaha, Nebraska, USA
402-861-1000, www.claasofamerica.com

QUICK KNIFE is the "QUICK" way to change and secure the cutting knife to the disc. The new system allows the operator to change knives without using wrenches or sockets and reduces change time by 50 percent. The QUICK KNIFE system is a simple leaf spring with a welded bolt. The bolt is pushed up into the disc by the leaf spring and holds the cutting knife. When it is time to replace the knife, the operator uses the CLAAS lever to pry down on the leaf spring and replace the knife. After replacing the knife, the CLAAS lever is simply removed, and the new knife is now secure. Bolts, nuts, and extra time to insert and properly torque each nut are eliminated. The QUICK KNIFE leaf spring boasts a long life, which means less replacement cost over time.



■ Self-Priming Adapter

Hypro LLC
 New Brighton, Minnesota, USA
 651-766-6600, www.hypropumps.com

The Hypro Self-Priming Adapter (SPA) is a low-pressure internal-baffle vessel that provides air separation from the liquid being pumped. Circulation of liquid through the centrifugal pump and SPA circuit allows high-performance centrifugal pumps to be primed faster and to greater lift suction than positive displacement diaphragm pumps. Additional advantages of the SPA include: 1) allowing centrifugal pumps to be mounted in tight fitted configurations and still having fast priming capabilities by using a remotely mounted SPA, 2) offering mechanical seal dry-run protection during priming operations for on-board loading as well as for unexpected dry-run episodes, and 3) the ability to be retro-fitted to an existing centrifugal pump system to provide protection and function.



■ Site Pro Dispatch

Farm Works Software
 Hamilton, Indiana, USA
 800-225-2848, www.farmworks.com

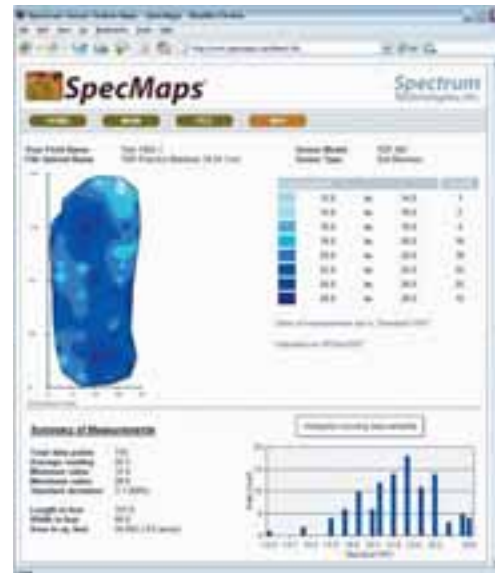
Site Pro Dispatch is a software tool designed to track machinery and equipment for co-ops, agronomy dealers, and custom applicators. It not only tracks location of every machine, but it also reduces fuel usage by improving machine movement. A few clicks of the software allow data to be sent from office to applicator without using a phone. Variable rate maps, target soil sample locations, or other data is sent to the field within seconds. Applicators no longer wait for maps, which eliminates memory cards and improves data communication from office to field. Site Pro Dispatch ensures job accuracy by uploading a geo-referenced field boundary for a customer. Using GPS technology, the mobile device allows the applicator to see the field boundary and verify the correct location. When a job is complete, data is quickly sent back to the office to update field records, inventory control, and billing. An office dispatcher can see a live map showing where all applicators are at any time, eliminating mistakes and improving overall business efficiency.



■ SpecMaps™ Web Mapping Utility

Spectrum® Technologies, Inc.
Plainfield, Illinois, USA
800-248-8873, www.specmeters.com

SpecMaps™ allows users to create two-dimensional contour maps of geo-referenced data collected by portable measurement instruments. The program is a Web-based utility, so data can be uploaded and maps viewed from any PC with Web access. The spatial variability of agricultural parameters has always necessitated collecting data over large areas. Two-dimensional maps of such data make this variability more evident and management decisions more apparent. SpecMaps uses a proprietary, Web-based map generator to create maps from data files gathered by Field Scout® meters that were connected to a GPS receiver. The contour maps are created using an inverse weighted distance average technique. An option for viewing data points only is also available. Because all Field Scout® data file formats are fully recognized, the upload process is user friendly. As a Web-based program, SpecMaps frees the user from being constrained to a PC where software has been installed.



■ ST Rice Rotor

Case IH
Racine, Wisconsin, USA
262-636-6011, www.CaseIH.com

The Case IH ST Rice Rotor, standard for Case IH Axial-Flow® 7010 and 8010 rice combines, can increase productivity by 25 percent, allowing growers to run higher throughput capacities in the fields comfortably while maintaining high grain quality and low loss levels. The rotor's newly designed smaller rotor skin diameter and taller rasp bars increase the cross-sectional area of the rotor, making it able to handle tough straw with less rumbling, lower likelihood of slugging, and less component wear while protecting the grain even when the crop is wet and tough to separate or very dry and vulnerable to cracking. The smoother material flow also provides a more relaxed operation for growers with less need for fine-tuning as harvesting conditions change throughout the day. Higher productivity of up to 25 percent comes from higher ground speeds while using less horsepower, handling thick, tough crop materials with ease.



■ Star NTD Tomato Harvester

CTM

Madera, California, USA

559-577-1800, info@tomatoharvester.com

The CTM Star No-Turn-Design (NTD) Tomato Harvester gathers, separates, shakes, cleans, and sorts processing tomatoes utilizing a straight-through material flow. Dropping the number of 90° turns from three to one increases product-flow uniformity and brings more efficient cleaning, separating, and optical sorting. The Star NTD reduces the number of conveyors by one-third, providing simplified machine cleaning, weight reduction, and lower operational costs. The cull system collects color-sorter ejections, passes them through a second sorter, and recovers any red fruit to reduce optical sorting losses. The Star NTD's narrow width, tighter turning radius, and self-folding bulk loader simplifies transport and enhances compatibility for overseas market. New header, elevator, and conveyor joystick controls simplify machine function for the operator. A CANBUS controller monitors and maintains optimum sorter belt speeds on the color, dirt, and cull systems. The Star NTD Tomato Harvester capacity remains 54 to 64 metric tons (60-70 tons) per hour.



■ Stover Unwrapper GIS

Stover Equipment, Inc.

Corpus Christi, Texas, USA

361-884-8961, www.stoverequipment.com

The Stover Unwrapper GIS (Gin Improvement System) provides a cost-effective and efficient way to process the new John Deere round seed cotton modules. Modules arrive at the gin in round form wrapped in polyethylene. In order for the gin to process the seed cotton modules into lint bales, the round modules must have the plastic wrap removed. The Stover GIS processes the round modules as they pass down the floor end to end to provide a constant uninterrupted feed-rate to the gin. The Stover GIS utilizes RFID technology to detect a tag that is located in the "no cut" zone and rotates the module 180° before cutting to eliminate plastic contamination. The Stover GIS operates on a traveling gantry over the existing feeder floor. When processing a module, the gantry travels at the same speed that the module is traveling, thereby allowing uninterrupted flow to the disperser hood.



■ Sunflower Model 9530 Fertilizer/Grain Drill

AGCO Corporation
Duluth, Georgia, USA
770-232-8217
www.sunflowermfg.com or www.agcocorp.com

Sunflower offers the best of both worlds in the Model 9530 grain drill: capacity and versatility. Equipped with a new divided hopper, the 9530 provides the operator with the ability to apply fertilizer during planting or convert the hopper to an all-seed mode for up to 5.3 m³ (150 bushels) capacity [12-m (40-ft) model], which translates into more time in the field and less time filling. The 0.1 m³/0.3 m (3.75 bushel/ft) hoppers are divided in a 60 percent seed/40 percent fertilizer ratio and feature a single shoot delivery to the all-purpose row unit. Choose from two different models in 9- and 12-m (30- and 40-ft) drilling widths and a choice of 19- or 25-cm (7.5- or 10-in.) row spacings. All four configurations feature the Sunflower Heads-Up opener assembly, which ensures superior seed placement, as well as a staggered three-section, forward-fold design that promises a new level of flexibility in all field conditions and transports at less than 4-m (14-ft) wide.



■ True Tandem 330 Turbo

CNH America LLC
Goodfield, Illinois, USA
262-636-6011, nacustomerrelations@cnh.com

The True Tandem 330 Turbo is a vertical tillage tool intended to create ideal seedbed conditions. By surface leveling, cutting and mixing crop residue, and maintaining uniform soil density, this tool creates an optimum seedbed prior to planting with no additional pass. It maximizes germination by leveling the seedbed and warming the soil to maximize yields. The 330 Turbo is designed for one-pass leveling and mixing of the seedbed's top inch in fall or spring. The proven disk frame provides the strength needed up to 16 kph (10 mph) over uneven ground and offers the addition of turbo disk blades. Using no cultivator sweeps, a proprietary wavy-shaped concave disk blade is assembled into disk gangs and mounted at an angle on a toolbar. The blades, pulled at 1-in. depth, cut residue, loosen soil, and level the ground maintaining uniform density in the seed zone. A rolling basket mounted behind the machine incorporates the cut residue, conditions the soil clods, and firms the ground in preparation for planting.



■ VeriVolume Nozzle

SprayTarget
 Rosemount, Minnesota, USA
info@spraytarget.com, www.spraytarget.com

The VeriVolume Nozzle is designed for high-volume applications of crop protection materials and fertilizers. The nozzle is capable of controlling flow rate and maintaining proper spray coverage and droplet size over a wide range of flow rates. The nozzle comprises a flexible spray tip that is automatically and appropriately deformed by a flexible metering assembly in response to changes in liquid pressure. Flow rate of the nozzle is variable from 5.6 to 45.4 Lpm (1.5 to 12 gpm) as pressure varies from 103 to 310 kPs (15 to 45 psi). Droplet size is extremely coarse. Spray angle is 140° and constant over the flow rate range. The nozzle includes flexible and large orifices, allowing significant reduction in nozzle plugging. The nozzle is adaptable to conventional spraying systems and compatible to GPS/GIS.



■ V-MAX Drum

CLAAS of America, Inc.
 Omaha, Nebraska, USA
 402-861-1000, www.claasofamerica.com

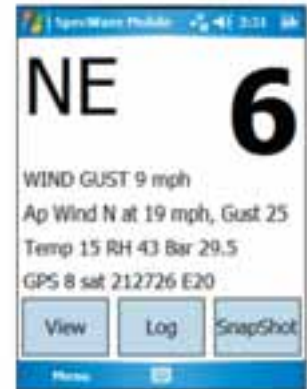
The CLAAS V-MAX forage harvester cutting drum is an open 36-knife V-shaped drum. It is not only more fuel efficient, but it also adds capacity and improves chop quality. The drum can be used in multiple crop types including biomass. It can operate with 36, 18, or 12 knives allowing the operator to have maximum capacity at any chop length without ordering different drums. The knives are supported by the drum spider, not the bolt. The knives are easier to install, requiring only two bolts per knife compared to four bolts and nuts in other drum designs. The knife itself is ideal for any crop with no need to change from grass to corn knives. The knife's new shape offers a more efficient cutting characteristic, and the curvature has a better throwing pattern. The knife's angle also stays sharper, wears less, and requires less passes. All of the drum pieces are replaceable.



■ WatchDog® Sprayer Station

Spectrum® Technologies, Inc.
Plainfield, Illinois, USA
800-248-8873, www.specmeters.com

The WatchDog® Sprayer Station provides on-the-go monitoring and logging of weather conditions while applying pesticides. Increasing concern about wind drift-related damage to crops and the environment has led to a corresponding increase in government oversight and regulations for applicators, in turn making the accurate monitoring and recording of current weather conditions more important. The WatchDog® Sprayer Station measures temperature, humidity, barometric pressure, and apparent wind speed and direction. It then uses a built-in GPS system to convert the apparent wind to true wind speed and direction, displaying it for the operator's review. Snapshots of geo-referenced weather conditions can be recorded at the press of a button, and when logging is turned on, a periodic record is made of time, location, weather conditions, and vehicle speed and direction.



■ YP2425 Yield-Pro Planter

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

The YP2425 Yield-Pro Planter is a 18-m (60 ft) wide planting tool that brings new productivity to row-crop farmers. It allows narrow spacings of 38 cm (15 in.), twin-row 0.8 m (30 in.), and 0.5 m (20 in.) as well as 0.8 m (30 in.) single rows on the large 18 m (60 ft) planting width. It further offers central seed location for easier filling, capacity up to 6 m³ (164 bushels) on board, and the exclusive option to plant directly out of standard seed-supplier seed box containers. The row-spacing options allow growers to enjoy proven yield benefits up to 2.4 m³/ha (33.5 bushels/acre) while covering 50 percent more acreage with each pass. The central seed system capacity allows planting 36 to 64 percent more acres before refilling, providing greater productivity. The exclusive floating tongue offers excellent terrain following for uniform planting depth.



PROFESSIONAL OPPORTUNITIES

Resource is published eight times per year: February, April, May, June, July, September, October, and November. The deadline for ad copy to be received at ASABE is four weeks before the issue's publishing date.

Advertisements are \$125 per column-inch length (column width is 3.5 inches) and include free placement on the ASABE Career Center at www.asabe.org/membership/careercenter.htm. The minimum ad size is two inches — approximately 100 words — to qualify for the free online listing. Ads are posted on the Web site within three business days of final approval and remain there for 30 days. If the insertion order is for two months, the cost is \$110 per column inch per insertion and includes a 60-day free Web listing.

For more details on this service, contact Melissa Miller, ASABE Professional Opportunities, 2950 Niles Road, St. Joseph, MI 49085-9659, USA; 269-429-0300 ext. 317, fax 269-429-3852, miller@asabe.org, or visit www.asabe.org/resource/persads.html.

ASSISTANT/ASSOCIATE EXTENSION PROFESSOR AGRICULTURAL AND BIOLOGICAL ENGINEERING MISSISSIPPI STATE UNIVERSITY

The Department of Agricultural and Biological Engineering at Mississippi State University is seeking applicants to fill two extension specialist positions at the assistant or associate professor level. These are 12-month, 100% extension positions. The successful candidate will be expected to develop an extension program in one or more of the following areas: grain drying, handling, storage and processing; air quality and livestock housing; power and machinery management; crop production and harvesting; energy systems including renewable energy, urban housing, and agricultural applications. The specialist will provide statewide educational and subject matter leadership working with individuals (youth and adults), county Extension staff, commodity groups, state and local agencies, industry, and other Extension specialists in program support and development. Specific duties and responsibilities include: 1) coordinating, developing, and disseminating statewide educational programs in the applicant's chosen areas of interest for a wide range of audiences; 2) working with clientele in the state, region and counties on issues related to the focus areas that are important to Mississippi; 3) developing and disseminating educational materials such as fact sheets, demonstration guides, lesson plans, print and video media, and other related materials; 4) conducting in-service training for Extension agents and other stakeholders; 5) working with producers, Extension agents, researchers, government agencies, industry personnel and other stakeholders; 6) working with other faculty members in writing grants to obtain extramural funding to support programmatic initiatives; and 7) working with youth and Extension youth agents in engineering-related programs and contests.

The successful candidate should have excellent communication skills, a demonstrated record of scholarship, evidence of the potential to secure extramural funding and dedicated to serving the needs of all extension clients. A Ph.D. in Biological Engineering, Agricultural Engineering, or closely related engineering discipline is required. Screening will begin July 1, 2008 and continue until a suitable candidate is found. Apply online at: www.MSUCares.com/employment with a hard copy including letter of interest, vita and three letters of reference mailed to: Dr. Bill Batchelor, Professor and Head, Department of Agricultural and Biological Engineering, Mississippi State University, Box 9632, Mississippi State, MS 39762; Phone: 662-325-3280; Email: bbatchelor@abe.msstate.edu

*Mississippi State University is an Equal
Opportunity/Affirmative Action Employer*

The logo features the word "SYSTAT" in a bold, green, sans-serif font with a registered trademark symbol. To its right, the words "is GREEN" are written in a smaller, white, sans-serif font. The background is a dark green with a faint, repeating pattern of leaves.

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www.systat.com

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“It’s Scary-Good

to be an agricultural or biological engineer these days!

When I started my career as an agricultural engineer in the late 1960s, nuclear energy was touted as being “too cheap to meter,” water was abundant and clean enough to drink from the creek, and the industrial chemists were claiming that agriculture was obsolete because we would soon be taking our nourishment in the form of little pills. Engineers and policy makers failed to recognize that technology has consequences for the good and bad. The last pure water was drunk long ago. The chemists failed to recognize that food and the meal experience are as much social as biophysical. Today, 40 years later, we face pressing challenges to provide energy, potable water, and food to an ever-expanding population. As I re-read Robert E. Stewart’s *7 Decades that Changed America* and my coveted copy of Davidson’s *Agricultural Engineering*, it became readily apparent that agricultural engineers in 1900 were also driven by the need to cost-effectively feed, clothe, shelter, and provide energy to burgeoning populations.

Our professional mission and role in society has been constant over these many decades, but the context of how we practice biologically competent engineering evolves. Today, energy is expensive, potable water is scarce, the food supply still does not fully meet global needs, we want to protect and preserve the environment, and we strive to reduce our carbon footprint. At the same time an ever-increasing portion of the global population expects to have a high quality of life. As former President Bill Clinton observed at the 2007 ASABE Annual International Meeting, “The challenges facing the world are an engineer’s dream!”

As in past generations, there are neither perfect nor final solutions to the global challenges we face, but agricultural and other biologically competent engineers can and will continue to enable advancements that improve the quality of life while concurrently reducing the environmental and ecological consequences of our technologies.

The forté of agricultural engineers has been the creation, application, and operation of technological artifacts and systems that address every one of the critical issues facing global societies today. Agricultural machinery, structures, soil and water, processing, environmental quality, ecosystems, biosystems engineering, among others, are our collective strengths as a profession. Today, the emerging profession of biological engineering enables a new depth of understanding and discipline in design of products, processes, and systems. Biological engineers bring skills and perspectives well beyond those of traditional agricultural engineers. Biological engineers are solving design problems at all scales from cellular and molecular biology to ecosystems and in all sectors of the economy. Whether each of us identifies as an agricultural, biological, ecological, food, forest, or any of the myriad of related biologically competent engineering genotypes, we are unified by a desire to make the world a better place and provide for the necessities and niceties of life.

Just as our disciplines and the context of how we practice engineering have evolved, our professional society has evolved as well. The American Society of Agricultural and Biological Engineers is just as relevant today as it was at our founding in 1907, and our global contribution to the advancement of engineering education, professional practice, and technical communication is unequalled. The reach of ASABE is truly global now that we include members from more than 100 nations, are the leading standards developer in the agricultural and biological arenas, and host technical conferences around the world. ASABE is the recognized leader across all engineering disciplines in the newly critical areas of biofuels and bio-based products. However, with leadership comes the responsibility to enable competent professional practice, foster quality educational experiences, and provide unbiased forums for exchange of ideas, knowledge, and practices. From what I have seen in my travels recently, both our Society and our members are up to the challenge.

Design in less downtime.



And boost farm productivity by up to 150%.

Early bearing failure due to poor seal performance is a major cause of warranty costs – not to mention lost farm productivity and environmental impact. Now there is a solution that can help you meet market demands while lowering your costs and supporting your company's sustainability.

The answer is SKF's Agri Hub, a fully integrated bearing and sealing system that provides sealing against straw, mud and fertilizer. Additionally, the sealing system prevents the leakage of lubricant that can pollute the soil.



Easily mounted, this pre-adjusted, sealed-for-life hub reduces attachment downtime, mounting and maintenance costs for both equipment manufacturer and farmer. The SKF Agri Hub is suitable for implements with independent tillage discs.

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the one-piece, easy-fit
solution for agricultural
implements**

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