Latest New Products From Germany's Agritechnica Show

Contributing Editor Jim Ruen recently traveled to Germany to tour that country's biggest farm equipment show.

Triple Axle Tractor Unveiled In Germany

The AGCO/FENDT TRISIX prototype tractor may or may not ever reach production, much less distribution in North America, but there was always a crowd near it at Agritechnica in Hannover, Germany. Billed as the world's most innovative tractor, the 6-wheel, triple axle unit is one of the largest, with a 540 hp engine, yet only a 9-ft. width.

The TRISIX may be narrow, allowing it free movement on European roads, but it isn't short at 25 ft. long. Claims for the big tractor include greater stability on slopes than offered by standard wheeled tractors and better handling of poor soil conditions than tracked tractors.

While it's not the first triple axle tractor, it's the most sophisticated and also the fastest. Neither an early Valtra with a bogey axle nor a more recent Czech version could travel at road speeds of 40 mph or more. And definitely not while pulling a full payload.

The high road speeds under load are made possible by a high performance braking system, two continuously variable transmissions (CVT) and independent suspension on all six wheels. The TRISIX is also the largest tractor to feature the fuel and power efficiencies of a CVT transmission.

Prototype 6-wheel, triple axle AGCO tractor features a 540 hp engine, yet it's only 9 ft. wide.

A feature of the tractor, which is equipped with front and rear lift linkage, is the rear platform with a third mounting area. Positioned between the two rear wheels, it's designed for mounting ballast weights, transport containers or as a fifth wheel for trailers.

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Deere's Revolutionary Electric Tractor

Deere made a big splash at Agritechnica with a new tractor that might be the start of a new trend in electric-powered farm equipment. The 7030E Series tractors have a built-in power generator that makes both 400-volt, 3-phase power and 230-volt DC power on-the-go. The tractor raises the question, "Is this the end of hydraulics and pto's?"

Klaus Hahn, engineer at the John Deere Works in Mannheim, Germany says the new tractor is definitely the start of something big. "It was a chicken or egg thing," he told FARM SHOW. "Implement manufacturers wouldn't develop electric-powered equipment without a tractor that could produce it. And no one would make electric-powered equipment without a tractor to power them."

The tractor has a new type of flywheel with a built-in generator that integrates the generation of electricity with normal operation.

An all-electric twin-disc fertilizer spreader is the first implement designed to take advantage of the new tractor's capabilities. It uses the three-phase power to drive spreader motors, while 12 V power drives the agitators and two electric actuators.

The spreader offers a clear example of the benefits of electric drives. Drive speeds are controlled independently of tractor ground speed or rpm. Speeds are easy to adjust and hold constant. Spinner discs can be shut down more quickly, thanks to the electrical braking of disc motors. The system is also easy to connect; simply plug a cable from the implement into the tractor's rear outlet and spread. No need to mess with hydraulics.

"Electric motor drives can be more efficient than mechanical or hydraulic-powered drives," says Hahn. "They are not affected by the temperature and, in the case of DC motors, offer infinitely variable speed control. They also eliminate the need for hydraulic hoses and pto shafts."

The tractors themselves also take advantage of available electric power. Heating and air conditioning in the cab, lights, seat heater and an on-board air compressor run on the independent electric power system so they always have full power regardless of engine rpm's. Another energy-saving benefit is the independently-powered fan for the tractor's engine cooling system. The fan can also be reversed to clean dust and debris from the tractor grille.

In addition, the tractor also offers AC outlets to power hand tools and other equipment simply by plugging them into a panel on the side of the tractor.

Hahn says two models with 200 and 211 hp will enter production in 2008 in Europe. Both tractors still have full hydraulics and pto's. North American introduction will depend on what happens in Europe.

Now that the new tractor is ready for market, Hahn expects to see new equipment emerge. "We will see the number of uses grow," he says. "You can drive anything with electricity that you can drive with hydraulics or pto power."

A stripped-down tractor at Deere's Agritechnica display made the new tractor easy to understand by having all the new electric-generating components painted in gold.

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Front 3-Pt. Hitch "Steers" With Tractor

Front-mounted implements have been slow to catch on in the North American market, but they're big in Europe. They're likely to become even more popular thanks to this new steerable front linkage from Valtra. Introduced at Agritechnica in Hannover, Germany this fall, the LHLink adjustable front linkage received a Silver Innovation Award from show organizers.

The new design eliminates overlaps or underlaps that are common when turning front-mounted equipment. Instead of two arms attached to the front frame of the tractor, the arms attach to the tractor frame at a vertical pivot point. It is controlled hydraulically from an operator panel in the cab.

The operator can choose to steer the implement independent of the front wheels or in relation to the front wheels at a preset ratio between the wheels and the implement. The operator also has the option of varying the central position of the front linkage to the left or right manually or to turn at a higher angle than the front wheels. This latter selection is designed for combined front and rear implements such as mowers.

An added feature of the new linkage design is independent vertical control of the two arms when leveling or attaching an implement. Sensors at the control panel indicate location of the arms. Once they've been adjusted as desired, they're locked into position without any need for a horizontal torsion bar.

Valtra's steerable front 3-pt. hitch makes it easier to keep equipment in line.

Company officials indicate the LHLink will be test marketed in 2008 as an option on Valtra N Series tractors.

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"Dual Fuel" Deutz Tractor Powered By Raw Crop Oil

With a new dual fuel tractor engine from Deutz, European farmers can grow, extrude and burn their own crop oils.

The Deutz Natural Fuel Engine was on display at the recent Agritechnica farm equipment show in Hannover, Germany. The design is available in two engine series, the TCD 2012 and the TCD 2013, and will be on the market by 2009.

The Natural Fuel Engines have two fuel tanks. A smaller one is used for diesel fuel and the larger for rape or other seed based oil. The tractor starts on diesel. Coolant fluids are routed through the crop oil tank, heating it as the engine warms up.

Once the raw oil reaches 158 degrees, the viscosity and flashpoint are equal to diesel fuel. This means it can be injected in the same fine spray as diesel for effective combustion.

The engine will continue drawing heated oil as long as the oil's temperature remains at least 158 degrees F and the engine power output is at least 25 percent of the maximum load for more than 30 seconds.

When operating on rapeseed or other oils, the operator must manually shift over to the diesel fuel before shutting down. This provides time for the system to purge itself of the raw oil, which could plug the ignition system once it cools. The operators can monitor and switch fuel sources from a terminal in the cabs.

Ironically, both Fendt and Same Deutz-Fahr claim the distinction of being the first to introduce a tractor with the new engines. Fendt, for example, is introducing the new engine/fueling system in their 186 hp 820 Vario, while Same Deutz-Fahr is introducing the new engine in their Agrotron NaturalPower series with models rated from 131 to 184 engine horsepower.

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