

## Texas Ag Students Create A Battery-Powered 8N

When Bonham, Texas, ag mechanics students take their tractor project out in public, they get puzzled looks. The 8N Ford looks like a beautiful restoration, but it doesn't sound right, and it has an unusual canopy. Puzzlement turns to approval upon learning the tractor is electrically powered by a solar panel on the canopy and five batteries under the hood.

Teacher Clint Minnick, along with his junior and senior students, modified the donated tractor over the winter. It's the ag mechanic class's second electric conversion project. The year before, Minnick's students converted a pickup to run on electricity. They got information from the North Texas Electric Auto Association ([www.nteea.org](http://www.nteea.org)).

Students removed the tractor's engine and fabricated a frame with 3/8-in. angle iron to hold a 60 hp electric motor salvaged from a large forklift. The motor is just a little smaller and similar in weight to the original engine.

"It has more torque and power than it did before," Minnick says. The original tractor had four cylinders and 20 hp. As an all-electric drive tractor, there is no clutch. The tractor operates like a golf cart.

"The electric motor links directly to the input shaft of the transmission," Minnick explains. Professionals at a machine shop balanced the clutch disc assembly before it was welded to the adapter on the electric

motor. It was crucial to have the balance perfect, Minnick says.

The instructor and his students did all the rest of the work — installing the motor, fabricating a frame for the batteries above it, hooking up the controller of electronic components to regulate the electric flow from the batteries to the motor, building the solar panel canopy and general restoration and painting the tractor.

"It was a clean conversion," Minnick says. "All you hear is gear noise from the rear end. When we drove it 2 miles to a banquet hall, we passed several people who stared at it because it was so quiet."

The tractor runs for two hours on full charge with traditional acid batteries. That could be upgraded with higher tech (Lithium) batteries, Minnick notes. In addition to being charged by the solar panel, the tractor can be plugged in and charged in about two hours.

The school plans to use the tractor for students' driving tests for safe driving certification, as well as operating a box blade and disc on school district property.

The E-tractor also caught the attention of area organic farmers who have old tractors they could convert.

Farmers who are mechanically inclined could easily convert their tractors in a couple of weeks, Minnick says. For additional information, he suggested reading the book, "Build Your Own Electric Vehicle."



Ag mechanics students from Bonham, Texas, converted this Ford 8N tractor to run on electricity.

Thanks to donations including the tractor, motor, solar panels and batteries, the cost for the E-Tractor was minimal. Main costs were for the \$600 controller and \$300 for other minor electronic support components.

Contact: FARM SHOW Followup, Clint Minnick, 1002 Warpath Dr., Bonham Texas 75418 (ph 903 640-5773; [clint.minnick@bonhamisd.org](mailto:clint.minnick@bonhamisd.org)).

Students replaced tractor's engine with a 60 hp electric motor salvaged from a large forklift.



## Under-Inflated Tube Makes Great Seat Cushion

A slightly inflated rubber inner tube makes a great seat cushion for smoothing out bumps while mowing, says Roger Foster, Tower Hill, Ill.

He came up with the idea for his Country Clipper riding mower equipped with a 60-in. deck. He bought a new 400 by 6 inner tube and simply set it on the mower's bucket-type seat, adding just a small amount of air. The tube measures about 12 in. in diameter and is about 1/2 in. thick when he sits on it.

"It used to feel like you were on an old wooden wagon, but now it rides like an air ride seat," says Foster. "It's something that's simple and easy to do. At first I was going to mount the inner tube inside the seat, but then I thought I'd try this idea first and it worked. I paid \$8 for the inner tube."

Contact: FARM SHOW Followup, Roger



Slightly inflated rubber inner tube sets on mower's bucket-type seat, helping to smooth out bumps while mowing.

Foster, Rt. 1, P.O. Box 108, Tower Hill, Ill. 62571 (ph 217 567-3417).

## Root Cellar Door Raises Straight Up

When Chris Juel built an earth-sheltered root cellar out away from his house, he designed the access door with two goals in mind: not having to bend over, and not having to shovel snow.

He accomplished both goals by building a big plywood door that raises "guillotine-style" straight up and down.

To build the root cellar he cut a big fuel tank in half lengthwise and removed the ends, then welded the two halves together end to end and set them on top of a floor made from railroad ties. Then he covered the entire structure with soil. The 6-ft. wide by 8-ft. high door rides up and down a tall metal frame, lifted by a shop drill attached to an electric winch. The plywood door is insulated with 2 layers of fiberglass.

"The door is big enough that I can walk in without having to bend over. And because it raises straight up and down I never have to



Plywood door raises straight up and down a tall metal frame, and is lifted by a shop drill attached to an electric winch.

shovel snow," says Juel. "I built the cellar to store potatoes, piled 4 ft. wide, 20 ft. long and 8 ft. high inside the structure."

Contact: FARM SHOW Followup, Chris Juel, P.O. Box 162, Scobey, Mont. 59263 (ph 406 487-5014).

## Spray-On Garlic Keeps Mosquitoes Off Horses

A Canadian company that makes garlic oil insect repellants says the same product can be safely used to keep mosquitoes away from horses and other livestock.

Garlic Coat Spray is an all-natural garlic oil that comes in a 32-oz. spray bottle. It creates an immediate mosquito-free zone around horses both inside and outside the barn.

"It works because mosquitoes are 10,000 times more sensitive to garlic than humans," says Bill Milne, Milne Associates, Etobicoke, Ont. "Mosquitoes will leave immediately and will be gone for up to 4 days, at which time you need to spray again. The garlic smell that humans notice will dissipate in 4 to 5 hours."

For years, the company has been marketing the same product for use on fences, trees, shrubs, gardens, lawns, and so forth. "Lots of people use it in their back yards, and it's popular for weddings. Garlic Coat Spray is just a diluted form of the product," says Milne.

Garlic Coat Spray is available only in Canada. It sells for \$17.95 plus S&H.

Contact: FARM SHOW Followup, Alex Milne Associates, 1870 Albion Rd., Unit



Spray-on garlic oil creates an immediate mosquito-free zone around horses, both inside and outside the barn.

no. 3, Etobicoke, Ont., Canada M9W 5T2 (ph 800 563-5947 or 416 742-4911; [www.justaddhorses.ca](http://www.justaddhorses.ca)).

## Spray Foam Strengthened Pickup Frame

Michael Gilbert strengthened the frame of his aging 1981 Toyota pickup with half a dozen cans of Great Stuff® polyurethane foam sealant. The Marblemount, Wash., farmer got the idea when he noticed how strong the sealant's straw applicator was when it had foam in it after being used.

He needed to add strength to his 4-WD SR5 after he revamped the bed to make it a hydraulic-powered dump bed. He started using it to haul gravel and other heavy loads.

"When I went over bumps, I could feel the load twisting," he says.

Gilbert blew out the truck's hollow frame with an air compressor and duct taped most

of the holes shut, then sprayed the expanding foam inside. He filled both sides and the crosspieces with about six cans. After the foam dried he cut off the excess that poked through the holes and sprayed the frame with black enamel paint.

"It really stiffened the frame," Gilbert says. "The foam absorbs a lot of road noise too, and it keeps dirt and water out."

He's used his foam-framed truck for five years and says it hasn't rusted, which he also attributes to the foam.

Contact: FARM SHOW Followup, Michael Gilbert, P.O. Box 15, Marblemount, Wash. 98267 (ph 360 873-2301).