Hietbrink built this wick applicator out of a 1953 Deere 3-wheeled "tobacco" tractor.

TOWS BEHIND PICKUP FOR TRANSPORT

SP Rope Wick Applicator Built From Deere Tractor

Steve Hietbrink, Firth, Neb., wanted to custom spray postemergence herbicides in milo without having to spend the money for a commercial self-propelled high clearance sprayer. He solved the problem by building his own self-propelled, 12-row rope wick applicator out of an old 3-wheeled Deere high clearance "tobacco" tractor.

"We run the wheels off it all summer applying Roundup. It works good and didn't cost much to build," says Hietbrink. "The rear axle has 5 ft. of clearance so it works good in tall crops."

He started with a 1953 Deere High Boy 600 "tobacco" tractor which he bought used for $2,000. It came equipped with a 4-cyl. gas engine - which he converted to propane - and a 4-speed transmission. The rig rides on two 10.00 by 24 rear tires and a single front caster wheel. The rear wheels originally straddled two 30-in. rows which made it unsafe on hilly ground, so Hietbrink moved the wheels out so that they now straddle four 30-in. rows. He did that by lengthening a shaft that runs across the back of the tractor and is used to chain-drive the wheels. Each end of the shaft rides on a carrier bearing that's mounted inside a vertical steel tube. An oil-bathed chain inside the tubing runs from the shaft to a sprocket mounted on the wheel.

The tractor didn't have a hydraulic system so he mounted a belt-driven hydraulic pump (salvaged from an old 3-wheeled flotation fertilizer applicator) and reservoir behind the engine. The pump is used to operate cylinders that control the boom as well as an add-on power steering pump.

He used 2 by 6-in. steel tubing to build a frame that supports the 30-ft. rope wick. The wick and frame are built in five sections.

A pair of hydraulic cylinders are used to raise the entire boom. Separate cylinders can be used to raise or lower the two outside sections as needed on hills, terraces, or fence rows. The section just in front of the tractor is manually raised or lowered by adjusting a lever mounted in front of the driver.

"I hire college kids to drive it," says Hietbrink. "Two years ago used it on about 3,000 acres. We tow it behind a pickup for transport between farms.

"The driver sits more than 7 ft. off the ground so he has a good view. We usually travel about 5 to 7 mph. One drawback is that the small tires make it ride hard over rocks and bumps. However, the seat is comfortable. It's a Bostrum spring suspension seat off a semi truck. Access to it is provided by a ladder mounted on the left side of the tractor. The rig has three hydraulic control valves - one to raise the boom and two to tilt the wings."

Hietbrink says he's willing to sell the rig. "Most of the farmers in our area are switching from milo to corn," he notes.

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The frame that supports the 30-ft., five-section wick is built from 2 by 6-in. steel tubing.

Grimm built his burner from a 26-ft. long, 10-ft. dia. section of a 60-ft. tank car.

HEATS SEVERAL FARM BUILDINGS

Great Bale Burner Built From Railroad Tank Car

Hiawatha, Kan., farmer Doug Grimm has a new way to put his wheat straw to work: he burns it in his big bale burner that heats his greenhouses and a couple of other farm buildings.

Grimm converted an old railroad tank car to burn big round bales of wheat straw. Air pipes transfer heat to water which is then pumped through in-floor heating systems and radiators.

"We've used it for three years. In the coldest weather it saves us about $1,500 a month in energy costs," says Grimm, who grows a corn, beans, and wheat rotation and also runs a greenhouse operation where he grows tomatoes, strawberries, and flowers. "We had been using propane to heat the buildings, but it got too expensive. Now we use only the bale burner to supply the buildings with heat."

He paid $2,000 for a 26-ft. long, 10-ft. dia. section that had been cut off a 60-ft. railroad tank car. One end of the tank was closed. A local blacksmith welded a steel divider inside the tank to separate it into a 16-ft. fire chamber and a 10-ft. long water tank. The water tank holds 3,000 gal.

Water is heated to about 180 degrees through a series of air pipes that runs from the fire chamber through the water tank. The pipes run to a steel box that's welded to the end of the tank. An exhaust stack equipped with a small fan and motor is used to pull air through the pipes.

Thermostatic-controlled pumps inside the greenhouses circulate hot water through copper pipes buried under the floors of the buildings. Cooled water from the buildings then returns through 1 1/2-in. dia. insulated pipe. The pipe runs through a steel jacket welded on top of the burner area. Water is heated as it flows through the steel jacket and back into the water tank.

The fire chamber is equipped with a pair of 1/2-in. thick steel "water jacket" doors with a 3/4-in. layer of water inside them. "Water flows through the doors to keep them from warping under the intense heat," explains Grimm. A small electric pump takes water from the bottom of the water tank, where it's the coolest, and pumps it through pipes that run down along each side to the doors. The pipes are plumbed into the bottom of each door. Another pipe at the top of each door carries water back to the tank.

Fresh air inlets in the bale burning chamber keep the fire burning hot and clean. A length of 3-in. sq. steel tubing runs down along each side of the tank and along the back wall to provide fresh air. Holes drilled into the tubing allow the air to be injected right before heated air goes into the air pipes.

"It works good. I built it because I couldn't find anything on the market that was affordable and could do the job I wanted," says Grimm. "I load bales into the burner with a front-end loader. The burner is big enough to hold up to round 3 bales at once, but I burn only one bale at a time. It takes about a day to burn an entire bale. Burning straw heats the water to only about 140 degrees, and when it's real cold outside it takes 180-degree water to keep the greenhouses warm. So during the winter I also burn scrap wood which causes the fire to burn hotter. I get the wood from a local manufacturer."

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A steel box fitted with an exhaust stack is welded to end of tank.