



Ron Lemler's wood gas-powered tractor runs on wood scraps from his pallet factory.



Last spring the 1978 IH 574 tractor powered a 4-ft. tiller.

## Chore Tractor Fueled By Wood

Ron Lemler's pallet factory provides lots of fuel for his wood gas-powered tractor that runs on wood scraps. The tractor puts scraps to good use. All he has to do is dry them down.

"We have lots of 1 by 1 by 3 1/2-in. trimmings from pallet making that are just the right size," says Lemler. "We dry them down and use them as is. With wood gas, the drier the wood, the better."

The wood-powered 1978 IH 574 tractor does plenty of work. Last spring it powered a 4-ft. tiller. During the winter it was used on a 40 kW emergency generator, and it handles a 5-ft. Bush Hog without a problem. Throughout the year it's used at the pallet plant, loading and moving with bucket and forks.

Lemler also has a wood gas pickup. Both rigs were built using a set of plans from

Mother Earth News. However, Lemler has made a few improvements of his own.

"The Mother Earth News design is one big welded gasifier, more than 5 ft. tall," explains Lemler. "You can't reach into the hearth to get at the grate to service it when you're running. I built mine more modular."

Lemler bolted the hopper to the hearth, and it in turn is bolted to the gas cowlings. This lets him take the hearth off, pull the grate and access the woodgas reduction area. He replaced the original water heater tank hearth with stainless steel and reduced the number of bars in the stationary grate to reduce bridging in the hopper.

Other changes included increasing the size of the woodgas reduction area under the hearth from about 2 in. deep to about 6 in. The Mother Earth News design runs the woodgas through water to cool and clean it.

Lemler uses a bat of fiberglass insulation 1 to 1 1/2 ft. thick.

"When it gets filled up with soot, I just replace it and burn the dirty one," he says. "It's a hot filter that doesn't retain moisture for the soot to stick to and plug it up. I put 3 layers of fine expanded metal on the bottom to work as a spark arrester and one piece on top to keep the vacuum from sucking the fiberglass into the intake."

While soot in the carburetor of his woodgas fueled truck needs to be cleaned out periodically, it hasn't been a problem in the tractor. "With the simple carburetor in the tractor, it just drops right through," he says. "I've been running it for 3 years now and have had no problems. It runs as well as the first day I started it."

One drawback to the woodgas burner is the space it takes up. Lemler says he had to get

used to the blind spot created.

"I could have made it smaller, but with it at this size, I can run it for 3 1/2 hours at pto speed," he says. "The fuel hopper holds about 80 lbs. of wood."

Lemler stresses that he only made changes after he had built his first wood gas burner exactly to plan. "I've never stuck an engine or ruined one when I stayed with the plan," he says. "You can trash out an engine in 10 min. if you don't know what you are doing. After you learn the nature and process of working with woodgas, you can make changes."

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## How To Keep Cedar Posts From Rotting

Terry Branthwaite had a need for garden fence posts and also had lots of cedar trees going to waste. Cedar trees don't get used as much as other wood for posts because the outside portion of the tree deteriorates faster than the red center. Branthwaite had an idea for keeping moisture away from posts.

"My idea is to surround each post with pea gravel so water that gets into the hole will drain away. The tricky part was figuring out a way to surround the pea gravel with landscape fabric so dirt wouldn't filter in around the posts."

He came up with the idea of putting a 4-ft. length of 10-in. dia. metal ducting around the bottom of each 6-in. sq. post as it's put into the ground. He wraps landscape fabric around the metal duct and tapes it in place with masking tape. The cloth is wrapped under the bottom as well.

"The next step is to shovel a few inches of pea gravel in the hole and then to slip the duct over the bottom end of the post," says Branthwaite. "As we drop the post into the hole, a bar clamp is used to keep the duct from riding up. I fill the ducting with pea gravel and then use a shovel to pack dirt around the outside of the ducting."

"I use a come-along to pull the ducting out of the ground. The come-along wraps around the top of the post over a contraption that I welded together from some tubing. The come-along pulls both sides of the duct up out of the ground, using hooks attached to 2 metal brackets that bolt onto the ducting."

Once the ducting is out and the dirt is to the top of the hole, he removes the pea gravel

down to about 3 in. below ground level, ties off the landscape fabric with zip ties, and then tops off with dirt to ground level.

"This method isn't complicated but it's a lot of work. I looked around for some way to preserve posts but couldn't find anything suitable. I didn't want to soak the posts in oil because the oil could leach out and contaminate the soil in my garden, and pressure treated posts cost too much. We did coat the bottom of the posts with a preservative and put roofing tar around the post at ground level."

Branthwaite also built a separate "slug fence" along the bottom of the fence to keep slugs out of the garden. The slug fence is built from 2 by 6-in. metal "corner bead" that's commonly used to install drywall. The corner bead is nailed to 2 by 2 boards laid edgewise on top of more 2 by 2's, and extends about one inch out to the side.

"The slugs can crawl up the boards, but they can't negotiate 180 degrees around the bottom edge of the corner bead," says Branthwaite. "It's a very effective and cheap solution. I bought a total of 160 ft. of corner bead and paid \$33 for it."

"The boards set on a concrete pad that provides a flat surface with no gaps under the boards for slugs to crawl underneath. The concrete also keeps the boards off the ground so they won't rot."

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Terry Branthwaite figured out a way to surround his garden fence posts with pea gravel so water that gets into the hole will drain away. Landscape fabric wraps around metal duct.



Come-along is used to pull metal duct out of hole, leaving landscape fabric in place.



Slugs can't negotiate the turn at the bottom of this "slug fence" built from 2 by 6-in. metal "corner bead".

