

## Made-It-Myself Sorghum Harvester, Mill

If you've ever watched the labor-intensive process of feeding sorghum stalks through a press, you'll admire Irvin Stephens' self-propelled sorghum mill. Not only does it cut the stalks and feed them through a mill, it pumps the sorghum juice into a tank for later delivery to his cooker. Best of all, Stephens estimates he has no more than \$2,500 invested in the entire machine.

"I first made a pull-type sorghum harvester using a one-row International corn chopper," says Stephens. "I pulled the chopper blade components off and built a sorghum mill with a ground drive to fit in its place."

The mill consisted of three rollers with one at the top turning in one direction and two below it turning in the opposite direction. Stalks fed through it are crushed and the juice squeezed out. Stephens made his rollers from new pipe that had been scrapped out at a local factory. One roller is 12 3/4 in. in diameter and the other two are 10 3/4 in. He centered a shaft in each with a spacer in the middle. He took them to a local machine shop to be trued up before mounting them in position behind the chopper head.

Since all three are driven off the same ground drive, he had to find a way to reverse one of the rollers. Stephens mounted a sprocket and cogwheel on a shaft and connected them to the ground drive. A roller chain from the sprocket turns the upper roller. A second cogwheel turns against the first, reversing the drive direction. It was connected to the lower and smaller pair of rollers, turning them opposite to the first roller.

Stephens made a 15-gal. stainless steel catch pan with a stainless screen over the top and a drain in the bottom. This was

mounted below the rollers to catch the juice.

The chopper head worked fine, but the slowest ground speed on the tractor was too fast for the mill. "If rollers on a sorghum mill turn faster than 25 to 28 rpm's, it slings the juice out," says Stephens.

He realized he needed separate speed drives for the chopper head and the mill. He had previously seen a mill mounted on a combine but wanted something different. When he heard he could pick up an old cotton picker for \$1,000, he bought it.

Once he had it home, Stephens, his son and grandson stripped it down to the bare essentials. They kept the unit's 130-gal. water tank, but moved it from behind to alongside the cab.

"We cut the wheels and drive shafts off the single row unit and modified it with 3-pt. hitch mounts," recalls Stephens. "We mounted top link arms to the lift arms on the picker and hung a 3-in. pipe between the picker's front wheels with a hydraulic cylinder mounted to it. By attaching the arm to the back of the sorghum mill, I could adjust the chopper head up or down while raising and lowering the entire unit with the lift arms."

Stephens also moved the cab back 31 in. so he had a better view of the rollers on the sorghum mill. The hydrostatic drive gave Stephens better control over ground speed, while hydraulic motors gave him equally good and independent control over the rollers and the chopper head gathering chains. A pump mounted to the bottom of the catch pan lets him periodically empty it into the former water tank.

Between the hydrostatic transmission and all the hydraulic motors, added hydraulic pressure was needed. "The cotton picker already had two hydraulic pumps on it," says Stephens. "We took the large fan used for



Mounted on an old cotton picker, sorghum harvester cuts sorghum stalks and feeds them through a mill.

picking off and mounted a 28-gpm hydraulic pump there and replaced the smaller hydraulic fluid tank with one that holds 25 to 30 gal."

The self-propelled unit with its 107hp diesel engine has more than enough power. Stephens says it lets him squeeze enough juice in a few hours to keep him busy cooking all the next day.

"It takes about 8 gal. of juice to make a gallon of sorghum, and we process about 300 gal. of juice a day," he says. "With the self-propelled mill, I can harvest about 100 gal. of juice an hour."

Stephens expects the sorghum harvester to keep going for at least one more generation. He notes his college student grandson is already raising his own sorghum.

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Stephens moved picker's cab back 31 in. to provide a better view of mill's rollers.



Frank Nesbit started a company that sells or leases old locomotives to businesses all across the U.S. Photo shows a 1939 Soo locomotive Nesbit uses in his own shop.

## Want To Buy A Locomotive?

Ever wonder what happens to old locomotives when they are replaced with newer models? They often find new homes on short line railroads and on private tracks owned by businesses.

Frank Nesbit of Bethel, Minn., started Independent Locomotive Service in 1979. He had 20 years experience as a mechanic for the Soo Line Railroad before he recognized the opportunity.

"Major railroads don't want to bother with smaller lines," Nesbit explains. But they're happy to have a market for their old locomotives. Businesses such as grain

elevators need them onsite to move cars around to load at their own plants.

"We have 175 to 200 locomotives to provide maintenance for and another 43 locomotives on lease," Nesbit says. Customers include big companies such as Cargill and Cenex and are all over the U.S. - from Texas to Florida and Illinois to Montana.

Some of the businesses use short line tracks that Nesbit purchased in 2000 near Hinckley, Minn., Crookston, Minn., and Grafton, N. Dak. Privately owned locomotives can run on those tracks and deliver cars to be transported on the major railroads.



Lee Heldebrandt installed a 14 by 16-ft. beer cooler inside his milk house (left) and uses it to cool deer and beef carcasses.



## Beer Cooler Keeps Meat Cold

Lee Heldebrandt, Witt, Ill., "inherited" an old but well-built milk house when he bought a former dairy farm. He found a use for it when a 14 by 16-ft. beer cooler from a nearby tavern became available. He installed it inside the building and uses it to cool deer and beef carcasses for himself and

several acquaintances. He says people love it because it solves a big problem with on-farm butchering - where to keep all that meat.

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Independent Locomotive Service sells locomotives for \$200,000 to \$400,000 compared to the new price of \$1.5 to \$3 million. It's also often more efficient for businesses to hire Nesbit's company for regular maintenance than it is to hire a mechanic. Since a locomotive has a diesel that runs a generator, air compressor and electric motor, a mechanic needs a variety of skills.

Locomotives are also available for lease with 1, 3 or 5-year contracts, which includes regular maintenance service.

Nesbit's crew has traveled as far as Alaska

to make service calls. In addition to the Bethel site, he has a New Folden, Minn., shop. The locomotive used in that yard is the first diesel that the Soo Line purchased in 1939.

Nesbit welcomes inquiries from businesses interested in locomotives or maintenance services.

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