

## Mini Hopper Carts Travel At Highway Speeds

Werk Weld's Handi-Hopper lives up to its name, whether hauling or holding bulk materials. The downsized gravity boxes were initially designed for wood pellet or corn burning stove owners. However, they are just as handy for hauling feed, seed or fertilizer.

"They pull like a dream at highway speeds, whether full or empty," says Donna Brenner, Werk Weld, Inc. "Even the 1-ton size, which is narrower than a pickup, doesn't bounce around. You don't even know they are back there."

The Handi-Hopper comes in 1-ton (53 cu.-ft. or 40-bu.) and 2-ton (83 cu.-ft. or 65-bu.) models. The 8 1/2-ft. long by 6 1/2-ft. tall by 6-ft., 5-in. wide, 1-ton model is designed to fit through a standard garage door. The 2-ton model is 10 ft., 2 in. long by 7 1/2 ft. tall by 7 ft., 2 in. wide.

While rectangular at the top, the hoppers angle to a point at the bottom. A viewing

window in the rear wall makes it easy to check material levels without opening the top hatch.

Jackstands front and rear make for a stable platform when used to store feeds. A simple sliding gate releases materials onto the ground or into other containers.

"A lot of customers use the Handi-Hoppers for show rations, horse feed or other custom feed blends," says Brenner. "It saves the cost of having feed bagged and keeps it clean and rodent-free. Just unload it as needed."

She notes that other uses include hauling and storing food for wildlife plots, as well as feeding alfalfa pellets or other feed to livestock.

"We have had customers modify the rear hatch with remote systems so they can open it from the pickup cab," says Brenner. "They can drive through a pasture and drop feed or pellets on the ground as they go."



**Handi-Hopper cart comes in 2-ton and 1-ton sizes. It's handy for hauling feed, seed or fertilizer and "pulls like a dream" at highway speeds, says the company.**

The Handi-Hoppers have a top hatch that opens the length of the hopper. It is opened with a front-mounted lever. The top slides 22 in. to the side for easy filling from an auger or an overhead bin.

"A ball hitch is standard, but we can substitute a clevis hitch if customers prefer,"

says Brenner.

Handi Hoppers are priced at \$1,980 for the 1-ton and \$2,725 for the 2-ton.

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## Easy On, Easy Off Bucket Forks

"I like to make things that are easy to attach and detach, so I made two bolt-on tree forks for my loader bucket in order to handle big logs. I can remove both forks by pulling two bolts and then quickly go back to using the bucket for other jobs," says Harley Willmert, Buffalo Center, Iowa.

Willmert uses the home-built forks on his Deere 710J MFWD backhoe tractor equipped with an 8-ft. wide bucket.

"I cut down a lot of trees to make firewood and to clear land. The forks I made are similar to pallet forks, but are spaced farther apart which makes it easier to balance a log," he says.

The forks are made from 1/4-in. thick box tubing and measure 5 in. wide by 3 in. deep. They're spaced about 7 ft. apart and extend 30 in. beyond the edge of the bucket.

The forks go all the way under the bucket

and bolt onto its back side. Willmert welded a short length of box tubing vertically on back of each fork, which fits inside a pair of strap irons welded vertically to the back side of the bucket. He drilled matching holes in the strap irons and box tubing.

He welded a 16-in. long angle iron bracket at a perpendicular angle on front of each fork, and just ahead of it he welded on a 10-in. long, 1/2-in. thick steel "ramp". "The angle iron brackets fit tight against the bucket's edge to keep the forks from sliding sideways, and the ramps keep logs sliding smoothly into the bucket without getting caught on it," says Willmert. "I welded small steel bars onto both sides of the ramp to provide reinforcement."

He says the forks are very handy to use, and so far have held up to anything his loader can lift. "I can pick up an entire tree as long as it's not too big for the bucket to handle,"



**Harley Willmert made 2 bolt-on forks for his loader bucket in order to handle big logs. Forks go all the way under bucket and bolt onto its back side.**

says Willmert. "In the past, I had nothing to haul trees home after cutting them down so I had to cut them up where they fell. The forks allow me to haul the tree home and cut it up later.

"By removing two bolts on back of the bucket, I can quickly drop the forks off and use the bucket to move dirt, etc. A big



advantage of placing the forks under the bucket, instead of inside it, is they don't pick up as much dirt."

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## Robot Clears Tree-Infested Rangeland

Oklahoma has a lot of rangeland invaded by cedar trees. Collin Craig's robotic chainsaw is designed to wipe them out.

"The jaws grip the tree to provide stability, while the head of the saw rotates as it cuts the tree," says Craig, a graduate student in the Department of Biosystems and Agricultural Engineering at Oklahoma State University. "The jaws tilt the tree forward so the chainsaw doesn't bind."

Working with Dr. Michael Buser, Craig designed and built the 42-in. long, 36-in. wide unit. It has a mechanical arm that can reach 3 ft. past the frame and is curved to reach down into a depression to cut a tree flush with the ground.

The 14-in. chainsaw is powered by a 1/4 hp. motor designed for powered wheelchairs. The 13-in. drive wheels are power tiller wheels. A credit card sized computer board provides the "brains". It controls 10 motors and actuators on the mechanical arm.

"If we went with a tree shears instead of the chainsaw, we would need only 2 actuators to raise it up and down," notes Craig. "We went with the chainsaw, as it can cut trees up to 3 in. in diameter, and we think it could girdle larger ones."

The robot runs on two 12-volt batteries with up to 120 min. of power. Craig designed it so it could charge at a base station or recharge using solar panels in the field.

A small GPS unit helps it locate trees that a small drone has previously geolocated on a field map. As the drone flies over an area,



**Robot uses a mechanical arm with chainsaw to cut tree flush with ground. A GPS unit helps it locate trees that a drone has previously geolocated on a field map.**

it recognizes trees larger than 2 to 3 ft. tall.

When the unit arrives at a point identified by the drone as having a tree, on-board LIDAR and a camera are used to position the saw. If no tree is detected, the rig moves on to the next point.

Craig built the drone and robot for about \$5,000. He estimates a manufactured version might cost around \$15,000.

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**Biosecure Cow Cremator eliminates the need for rendering truck visits or on-site composting. Options include a secondary burner, grate kits and heat probes.**

## Cow Cremator Helps Prevent Disease

The Biosecure Cow Cremator from J&D Manufacturing is a good way to reduce disease by eliminating the need for rendering truck visits or on-site composting.

"Our cremator was originally designed for the hog and poultry industries, but we also saw a need for it in the cattle and horse markets," explains Terry Lyon, J&D Manufacturing. "Dairy farms don't want a rendering truck coming on their farm after it has visited 20 other farms in a day."

The Biosecure Cow Cremators come in 2 models, one sized for smaller dairy cows, heifers and calves. It is 9 ft. long by 52 in. wide. It is priced at \$16,000 for the base unit.

A larger unit, 9 ft. long by 64 in. wide is designed to handle large animals. It is priced around \$20,000 for the base unit.

Options for both include a secondary burner, grate kits and heat probes. Fuel sources include propane, diesel, natural gas

and methane, for those farms with methane digesters.

"When equipped with a temperature probe, the burners will fire until the animal remains begin to burn on their own," says Lyon. "At that point, the outside fuel shuts off, but the fan continues to run, blowing air in, to maintain needed temperatures."

Lyon estimates that burners run approximately an hour to burn 110 lbs. of carcass. "In a matter of hours, the carcass is reduced to ash," says Lyon. "There will be less than a gallon of ashes from every 125 lbs. of carcass, and it can safely be disposed of as you wish."

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