



Zimmerman and his sons converted a Deere 430 garden tractor to rubber tracks.

## They Put Tracks On Deere Garden Tractors

By Dee Goerge, Contributing Editor

After Irvin Zimmerman and his sons finish working on old Deere garden tractors, they no longer mow. But they look pretty awesome with rubber tracks and are ready to do plenty of other work, such as plowing and tilling.

"It makes a nice little garden tractor with less compaction and more traction," Zimmerman says of the hobby he started with his sons after reading a FARM SHOW article about a person who put tracks on a mower.

Their first attempt was a decade ago, putting snowmobile tracks on a Wheel Horse mower. The tracks were too light, so they tried steel tracks and then rubber tracks. After much trial and error, the Zimmermans now use the rubber tracks used on Ditch Witch stand-on track loaders. They also have a laser cutter and CNC lathe to make rollers and idlers for the track.

"We pull the front axle out completely and put in a pivoting hard bar, so the tracks oscillate for a better ride and traction, especially on uneven ground," Zimmerman says.

The biggest accomplishment was figuring out how to use the original steering and power steering lines, by hooking up the steering

motor to pressurize the brake calipers for steering.

The Deere 430 garden tractor they altered attracted interest when it was featured in *Lawn & Garden Tractor* magazine. The article writer liked it so much that he convinced Zimmerman to sell it to him.

"We have three more in the making (430s) plus a smaller Deere 332," Zimmerman says. "We're planning to take them to shows."

Though it took years to figure out the design, due to his work as a trucker and now owner of a tool and rental business, the resulting track design impresses collectors. Zimmerman may offer modifications or kits to others in the future. Meanwhile, it continues to be a good family hobby. The four oldest sons are grown up and married, but he has three younger sons who work with him. It won't be long until his young grandkids will be old enough to drive the "Deere Tracks" and help plow and till the family garden.

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## Man-Size Giant Slingshot

When John Krueger's grandkids outgrew handheld slingshots and rubber band guns, he decided to go big. His man-size slingshot uses surgical tubing attached to Honda 3-wheeler front forks turned upside down. Plastic balls are the ammunition, and an old tire is the target.

"I built a frame out of salvaged pipe, added a seat, and put foot pedals on the forks," says Krueger. "The user can aim at a target by making the forks swivel. A crossbar on the mount for the forks limits the general direction it can be aimed."

Krueger notes that surgical tubing is available from Ace Hardware stores. He tied one end of each piece of tubing to a piece of leather for the pouch and attached snaps to the sling end.

"The tubing has a lot of stretch to it, but it will degrade in sunlight," says Krueger. "I take it off and store it when not in use."

The big slingshot is a multi-generational toy. Krueger admits to using the slingshot himself and now enjoys seeing his great-grandchildren play with it.

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## Revolutionary Robotic Hive Automates Honey Production

An Israeli startup called Beewise has developed BeeHome, a robotic beehive that accommodates up to 1.2 million bees. The product is being marketed to commercial beekeepers in the U.S. and Canada.

BeeHome has cameras inside the hive, along with robotic arms, sensors, and other systems that allow it to execute the tasks that a beekeeper would normally do, including harvesting the honey. Robotic arms treat pests, feed the bees, prevent swarming, and can be controlled remotely over the internet.

Pests, such as varroa mites, are detected by the robot. Rather than using pesticides, the robotic BeeHome heats frames to a point where the pests are eliminated but not the bee brood. When a harmful substance is sensed inside the hive, the BeeHome notifies the beekeeper by e-mail or text and then completely shuts the BeeHome's entrances to ensure that the hives don't get infected.

The BeeHome is 8 ft. high and 6 1/2 ft. square and weighs less than a ton without the colonies inside. To optimize plant pollination, a BeeHome can be moved anywhere within a field or an orchard. Each BeeHome has a GPS location device so the owner always knows where the hive is. An automatic alert tells the beekeeper if a BeeHome is moved without authorization.

Each hive has a dedicated internal feeder and is filled with nutrients by the robot on an individual colony basis. Although a BeeHome is designed to operate automatically, a beekeeper can still enter the BeeHome to inspect and manually manipulate individual hives.

BeeHomes are equipped with an automated, solar-powered climate-control system that ensures bees are living in comfortable temperature and humidity conditions,



Automated beehives produced by an Israeli startup company are now being used to house bees, capture honey, and maintain hive health.

regardless of too-hot or too-cold exterior conditions.

BeeHomes detect which frames are ready to be harvested, and the robot harvests them within the unit. Once a container of honey reaches capacity (100 gals.), the BeeHome alerts the operator to empty it.

Beewise offers the product to farmers for a \$400 monthly fee and a \$2,000 delivery charge, with 'no hidden fees,' according to the website.

In a recent announcement, the company says it'll soon introduce a new version of the BeeHome that's 32 percent smaller and 20 percent lighter than the existing unit. It'll offer faster harvesting and an improved feeding and heating system.

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Dykstra fabricated the steel frame and platform and mounted it over an axle and leaf springs from an old boat trailer. The wheels were salvaged from a junked 4-wheeler, and the seats came out of an old school bus.

## Cart Designed For Fun & Business

Dan Dykstra gets double duty out of the "people cart" he built, hauling grandkids one day and bull buyers the next. The purebred cattle breeder originally built the cart to haul totes for liquid feed as well as fuel tanks. But he found a better use for it.

"Hauling the grandkids around the farm took priority," says Dykstra. "They just love riding in it pulled by the Gator."

Dykstra fabricated the steel frame and platform and mounted it over an axle and leaf springs from an old boat trailer. The wheels were salvaged from a junked 4-wheeler, and the seats came out of an old school bus.

"The seats were free," says Dykstra. "I did have to make legs for the ends mounted to the sides of the bus."

Dykstra also had to drill holes in the rims of the wheels to match the four hub bolts of the axle.

In addition to hauling grandkids, the cart has other uses. Dykstra uses it for taking prospective buyers into the pasture to view the herd.

"I've also used it to haul people from a parking lot to our local car show," he says. "It works great. I can put strollers and chairs in the back of the Gator while hauling people in the cart."

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