## Veggie Cart Built From Double Bike

Growing dozens of different crops on a 12 acre organic farm operation often left Glen Johnson and his workers tired, stiff and sore He says most of the physical wear and tear came from bending over or getting down on their knees to work. To make the work easier, he started working on a wheeled machine that would straddle his 3 -row, 48 -in. wide beds.
At first, everything he came up with wa too heavy or too awkward. And then one day, while delivering produce to a customer, he noticed a double-framed 4 -wheeled bicycle sitting in the garage.
"It was designed to hold a family or two adults and cargo, with bucket seats for two pedalers up front and a bench in the back,' he says. "They weren't using it and it wa exactly what I needed. We negotiated a trade and I took it to my machinist to begin modifying it into a farm machine."
They took off the bucket seats and widened the frame so the two sets of wheels spanned Johnson's vegetable beds. Between the two bike frames, they added supports for a board that allow a worker to lie down, facing downward, at just the right height so he or she can reach the soil to set out plants, thin, weed, or pick.
The worker lies on a padded board, like an ironing board, which supports him or her from top to toe. The board can be adjusted from side to side across the frame to make it easier to reach all of the planting bed.
Steel frames in front and over the rear wheels hold flats of seedlings for transplanting or baskets to hold picked crops.

Both of the bike frames have pedals that power the rear wheels. The worker can propel the bike through the field by hand, simply by reaching to one side or the other and turning the pedal.
The bike has $22-\mathrm{in}$. wheels up front and 26 -in. on back. It has 5 speeds and could have more, but only the slowest speed matters in the field.

It has a rider's seat that can be flipped into position, so you can sit upright to ride it from field to field or to the cooler to store the produce when you've picked your baskets full.

Johnson says it lets them do many jobs 30 percent faster. "And after 8 or 10 hours of weeding or thinning, my back and knees weren't sore and stiff. It's not like sitting back in an easy chair with a cool drink, but it's a lot easier on the back and knees than doing the work on foot," he says. "I could have gone out dancing after a day's work."
Johnson sees his double bike rig as an essential for smaller vegetable producers where labor is hard to find. And he believes something like it would be great for larger operations looking to save money on hired labor.

Johnson figures his machine is easily worth $\$ 1,500$ or more to the serious vegetable grower, and he's considering building them for sale.

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## First "Invisible" Fence For Cattle

If you thought underground electronic fencing was just for pets, think again.
Gerald Siroen, Ilderton, Ontario, is in the midst of an experiment to see if it can be used for cattle.
The "invisible" type fence uses an underground wire that uses radio signals to activate shock collars worn by animals that are fenced in. Since cattle can be trained to stay inside a single strand of electrified fence wire, Siroen theorized that they should also be able to learn to respect a fence they can't see.
His goal was to fence cattle out of a creek that runs through his property to help prevent stream bank erosion.
When Siroen learned there might be grant money available for soil and water conservation projects through a group called the Upper Thames River Conservation Authority, he approached the group's water quality specialist, Craig Merkley.
Merkley visited Siroen's farm and decided the underground fence idea had merit. The two contacted Richard Martin, who owns Hidden Fence, London, Ontario, and sells Pet Safe underground fencing. In no time at all the project was underway.
It took 6,000 ft. of cable to "fence" the area where Siroen wanted to discourage his 20 or so cows and their calves from going. "They started with their regular cable, but because they needed so much more than usual, they had trouble with it breaking and had to start over with heavier cable," Siroen says.
The regular power supply for the buried fence cable wasn't able to supply an even flow of electricity all the way around, so they had to find a larger one.
With the fence hooked into the main
"You do have to plan ahead to make sure

Glen Johnson built this wheeled machine to straddle his 3 -row, 48 -in. wide vegetable beds. The worker lies on a padded board that can be adjusted from side to side across the frame to make it easier to reach all of the planting bed.


Gerald Siroen modified a commercial underground "invisible"-type fence system so that it can be used for cattle.

## Do-It-Yourself Invisible Fence

Randy Craig, Alexandria, Ky., came up with a simple and inexpensive way to install invisible underground electronic fence, which uses radio signals to activate shock collars worn by animals that are fenced in.
He uses a chain saw equipped with an old chain to make a 3-in. deep cut all the way around his yard. Then he runs the fence wire through a piece of $1 / 4-\mathrm{in}$. dia. curved metal tubing. He sticks the tubing down into the trench and pulls it toward him by hand to bury the wire.
there are no obstructions in your way. But it works great and doesn't cost much to do," he notes.
Contact: Randy D. Craig, 5011-S Shaw Contact: Randy D. Craig, 5011-S Shaw
he notes. Hess Rd., Alexandria, Ky. 41001 (ph 859 635-1131).



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household power supply, the possibility of a lightning strike became a concern and a lightning arrester had to be installed. "The house is only about 60 ft . from the buried cable, so if there was a strike in the area, we figured the cable would carry it into the house," he says.
While the cable is buried and the hidden fence can be turned on, another problem was collars big enough to fit cattle. Pet Safe agreed to provide special collars.

The Pet Safe system works with three signals. The first is visual, which amounts to white plastic flags spaced at intervals around the perimeter in the fenced-in area. The second is audible. The collar emits a sound when the animal wearing it approaches buried cable. And finally there's a shock to drive home the fact that the fence is there.

All three of these will be used when the time comes for Siroen to train his cattle. While everyone involved sees promise in this fencing system, it's still not proven. Siroen is confident it will work and has already thought about expanding it to other areas. He's also given some thought to gates. "I like the idea that we'll be able to enter the pasture anywhere we want with a tractor, but I have to be able to move the cows out as well. We'll have to develop a gate area where the cattle don't receive the audible and shock signals, so they'll be easy to move out of the pasture when need to," Siroen says. He expects to have the system fully functional by next spring.
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