Randy Graham used parts from a powered wheelchair to build this sit-down, solar-powered picking machine.

Unit works like a zero turn riding mower in that the front wheels swivel as the larger rear wheels control the turn.

Sit-Down Cart Works Like A Zero-Turn Riding Mower

"I love gardening but have a bad back so I built this sit-down, solar-powered picking machine. It also can be used to plant and to pull weeds," says Randy Graham, Conway, S.C., who used parts from a powered wheelchair to build the machine.

The rig is fabricated out of 1/8-in. thick, 1-in. sq. tubing and is designed for two riders. It works like a zero turn riding mower in that the front wheels swivel as the larger rear wheels control the turn. As a result, there's no need for front wheel steering. The rig's two drive motors, wiring harness and joystick controls are off a powered wheel chair. A roller chain connects the motors to sprockets on a pair of driveshafts.

"The two motors operate on 24 volts and are already gear reduction motors," says Graham. "However, because my picker machine has larger rear tires than the tires on the wheelchair, and because I wanted a lot of torque, I decided to gear the motors down even more to a 4.6 to 1 ratio. I did that by mounting a 13-tooth sprocket on each motor and a 60-tooth sprocket on the wheel's drive axles, using #35 chain to connect the sprockets.

"The machine's top speed is about the speed of a walk, but can be slowed down to a crawl by using the wheelchair's original joystick speed control."

Four T-105's/6-volt Trojan golf cart batteries are mounted on racks above the drive wheels. The four batteries are hooked in series for 24-volt setup and help boost traction on the drive wheels.

On top of the cart are two 12-volt, 80-watt solar panels hooked in series. The electricity runs through a 20-amp, 24-volt charge controller that keeps the batteries charged. "Wiring everything up was a simple job because I used everything off the wheelchair, including the wiring harness. I had to lengthen the wires some because my sit-down cart is so much bigger than the wheelchair," says Graham.

Graham finished building the cart in early December. "I plan to use the cart next spring to transplant collards, cabbages, onions, tomatoes, broccoli, brussel sprouts and peppers," he says. "I'll plant carrots, mustard, turnips, and so forth on wide rows and be able to sit on the cart to weed and thin crops as needed. I plan to mount a metal rack just above my legs to hold buckets that I'll use for picking and for holding the transplants. I also plan to mount a couple of fans and a cooler rack. The solar panels will provide some shade."

The joystick control is mounted just overhead where it's out of the way, and can be moved from one side of the cart to the other so Graham can drive the cart from either side. "The seats can be moved about 6 in. from side to side to get closer to the row middle, or farther away. I just push the lever forward to go ahead and pull back on it to go in reverse. I push the joystick from side to side to turn," notes Graham.

Joystick control (see arrow) is mounted just overhead and can be moved from one side of cart to the other.

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Traveling Trees Spend Winter In A Barn

By Jim Ruen, Contributing Editor

Richard and Joyce Thompson raise peaches, pears, cherries, apricots and other non-native fruit trees on their northern Minnesota farm. The trees, bushes and vines are rooted in 90 tubs, each filled with 1,500 lbs. of composted soil.

"After the first hard freeze, we move them into the barn with our skid steer," says Richard. "In early May, we move them back out into the sun."

The trees' winter home started out as a confinement hog building with slatted floors. When the Thompsons cut back to just a beef herd, the barn sat empty.

"It's insulated so even when it was 40 degrees below outside, it's 16 degrees or better inside the barn," says Richard.

Avid fruit and vegetable growers, the Thompsons had always wanted to grow fruit not available in the area. Richard wanted to grow his own peaches and thought he might be able to overwinter them in the barn.

After exploring different containers, he settled on splitting old 265-gal. fuel oil barrels lengthwise. He found all he wanted for $10 each.

Drain holes drilled at each end were covered with rock before the bins were filled with rotted manure. Dwarf varieties that don't get more than 12 ft. high were planted.

Peaches were quickly joined by a wide variety of other fruit trees. At one time the Thompsons had 140 of the tubs as the couple experimented with two of each variety they raised. Some needed a longer growing season or couldn't handle six months of dormancy in the dark. Others thrived, and the Thompsons kept the ones that did best.

"We have 20 peach trees, 11 apricots, two apricot/plum crosses, three sweet cherry trees, four nectarines, a plum and seven tubs of domesticated blackberries," says Richard. "We also have 12 tubs of grapes and four tubs of blueberries. Our ten pear trees include nine different varieties."

While grapes, blueberries and blackberries all grow wild in the area, the varieties in tubs wouldn't survive unprotected. "The fruit in the tubs are bigger and produce heavily," he says. "They are zone 5 and would winter-kill here."

Young trees are anchored by cord to the four corners of the tubs, but after a few years they support themselves. All are kept well pruned so they will fit in the barn with its 7 1/2-ft. ceiling. Blackberries are trellised, as are the grapes.

"Grape tubs have posts at either end and two rails that the vines circle," he explains. "In the spring I'll prune them back until it looks like there's nothing there. By fall you can hardly see to pick the grapes, and we'll get a 5-gal. pail of grapes from each tub."

Peach trees and others have to be thinned, too. Richard has discovered the hard way to limit peach trees to around 40 lbs. of fruit. Even so, with as many as 27 peach trees, the fruit produced can be overwhelming.

"One year we had 800 lbs. of peaches, and we canned 500 quarts," recalls Joyce.

Richard adds that two Bosc pear trees that were the first pears they planted are still producing after 13 years. "One year we picked 72 lbs. off the one and 88 lbs. off the other," he says. "They were so heavy with fruit that we had to support the limbs with boards."

Richard Thompson is able to grow non-native fruit trees by rooting them in tubs filled with composted soil, and moving them into an insulated barn each winter.

The Thompsons sell most of their zone 5 fruit at a local farmers market along with vegetables and other zone 3 apples, currants and berries planted around the farm. Joyce and Richard say the tree-ripened fruit sells itself.

"People will say they don't like the taste of apricots, and then they sample one of ours and decide they do like them," says Joyce. "We get a lot of new customers that way."

Fruit that doesn't sell fresh is often made into jams and jellies by the Thompson's daughter, Sheila Cooper. She also sells her canned fruit at the farmers market. However, one peach variety never makes it to the market fresh or preserved.

"The Saturn is the sweetest peach I've ever eaten," says Richard. "It's donut shaped, and we never sell them. We eat them all ourselves."

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