

“Super Single Wheel” Outperforms Duallys

“Our new Super Single replacement wheels are designed to replace the dually wheels on 1 1/2 and 2-ton pickups. They let you replace your duallys with a single tire that has a much wider footprint, which results in much better flotation so you’re not as likely to get stuck in wet fields,” says Jeff Cook, 1st Attack Engineering, Inc., Auburn, Ind.

The 11 by 20-in. steel wheels are direct bolt-on replacements for original 19.5 dually wheel rims. The wheels can accept tires up to 16 in. wide and 20 in. in diameter. They’re designed to replace the original wheels on Ford F-450 and F-550 pickups, the Dodge 4500 and 5500, and the Dodge Sterling Bullet. “We’re also working on wheels for 1-

ton pickups, including Ford, Chevrolet, and Dodge models,” says Cook.

Cook makes off-road emergency vehicles and fire-fighting equipment as well as other specialty equipment. “Farmers were coming to us because their dually pickups were getting stuck in the field,” says Cook. “They wanted to replace their duallys with single, fatter flotation tires. Dual wheels don’t have great flotation ability. They’re designed primarily to carry heavy loads down the road, but in the field they just don’t provide a lot of traction.

“Unfortunately, no one made an off-road wheel rim for the larger tires so we decided to build one. Most of the tires that go on our rims are 16 in. wide.”

Cook says farmers are putting the big tires on front and also in back to replace duallys.



In some cases, the pickup’s front fender corners may need to be trimmed to provide more turning clearance, adds Cook.

Super Single wheels sell for about \$300 apiece. Tires start at about \$200 apiece. Cook says his company sells tires to fit the wheels, or you can buy

them elsewhere. “There are many different tire options for these wheels,” he says.

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“No Waste” Waste Oil Burner

Now you can build a simple waste oil heater that doesn’t release lots of soot and smoke. It also doesn’t rely on filtration systems and high-pressure nozzles that can plug up from dirty oil. Best of all, says designer Paul Oliver, it’s built from recycled “junk”.

“I’ve discovered ways to use things others throw out,” he says. “The heat shroud is from an old oil barrel, the combustion chamber is an old LP tank, and the fan on top can be salvaged from a junked furnace.”

Oliver has assembled his designs in a set of plans he sells through his company MurphysMachines.com. The plans require some basic welding skills, but nothing too fancy. He says almost any MIG or TIG welder will do the trick. Some people have even used an arc welder.

“It’s very basic stuff, like slicing a 55-gal. drum in half,” says Oliver. “Just about any garage tinkerer can build one of these things.”

Three key elements to the efficiency of Oliver’s design are fuel delivery, an extremely hot combustion chamber, and effective heat capture. To get a good burn, oil has to be atomized, and controlled high-pressure air does the job without filtering, without water removal and with no injectors that can plug up.

The combustion chamber is a salvaged 14-in. dia. propane tank. Once the oil begins to burn, it quickly heats up to several hundred degrees, providing near complete ignition with very little waste. With adjustable fuel feed, the burner can produce from 70,000 to 200,000 btu’s.

The unit uses less than 0.5 CFM of air at about 80 psi. It stands less than 6 ft. tall and 30 in. in diameter and weighs about 250 lbs. without the oil tank.

The 55-gal. drum sliced in half surrounds the propane tank combustion chamber to capture the heat produced. The furnace fan pushes air into the chamber for heating and distribution out hot air ports cut in its side.

Simplicity carries over into the controls. Although some plan buyers have figured out ways to automate their unit, Oliver prefers to keep it simple.

“It’s a very manual system, more like a wood stove,” he says. “You have a pump you plug in and a fan. That’s it, but it will burn just about anything. I’ve even mixed old RustOleum paint in with other oils and burned it with no problem.”

Waste vegetable oils can be burned with no dewatering needed. “A lot of waste oil



“It’ll burn just about anything,” says designer Paul Oliver about his Murphy waste oil burner.

burners will burn petroleum waste, but not vegetable oil, because it often contains a lot of water and the flash point is so high,” says Oliver. “This design burns it all. It doesn’t care.”

Plans are \$54.99 for online access. Printed versions with 60 pages of text and illustrations are \$84.60. Comments at various websites suggest people have found the plans easy to follow and the burner very satisfactory.

Oliver says he has had good feedback, including one customer who built a number of units to use to heat his orange groves. “He said he put plastic over the tops of the trees and ran the burners with the heat directed at the ground,” says Oliver. “Most people use them to heat greenhouses and shops.”

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Tillage Radishes Break Up Compaction

“Anyone who farms no-till can benefit by planting tillage radishes during the fall as a cover crop. The roots break up soil compaction and leave the soil in a much nicer planting condition the following spring,” says Steve Groff, Holtwood, Penn.

Groff has been selling “tillage radish” seed for four years and says he can’t keep up with the demand. “The first year I sold enough seed for only a few hundred acres, but last year I sold enough seed for about 10,000 acres. Most of it was planted in eastern states, but some went as far west as Idaho.”

The reason tillage radishes are so good at breaking up soil compaction is their long tap root, which can reach down up to 36 in. They can often eliminate the need for deep rippers and chisel plows. “It’s a biological solution that reduces compaction, saves fuel, and helps the soil,” he says.

Tillage radishes also offer other benefits, says Groff. “They provide outstanding weed control. They take up left-over nitrogen in the fall and then the following spring the decomposed plants release it back into the soil, reducing nitrogen costs. And they increase water infiltration.”

On his own farm, Groff has planted field corn, sweet corn, soybeans and wheat into tillage radishes. But corn seems to respond the best. He says research indicates a 10-bu. per acre corn yield increase where tillage radishes were planted the fall before. “The yield increase may vary, but I’ve never seen a yield decrease,” says Groff.

The University of Maryland has conducted cover crop test plots on his farm. “We’ve identified the best radishes, with the strongest tap roots to break up subsoil compaction.”

The biggest limitation to tillage radishes is they have a short planting window. “They should be planted any time during August or September so the roots will have time to grow deep into the soil before the plants are killed by frost. For corn and soybeans it’s tough to get radishes planted in time for them to grow.”

Radishes can be mixed with rye or oats. The rye will lie dormant over the winter and come back to life the following spring.

Radish seeds look like alfalfa seeds. “You want to get them 1/4 or 1/2 in. deep in the ground like you would with alfalfa. Or you can broadcast the seeds on top of the crop,” says Groff. “Any no-till drill can be used to plant them.”

At a planting rate of 8 lbs. per acre and \$3.10 per lb., it costs about \$25 per acre to plant tillage radish seed, notes Groff.



Tillage radishes are good at breaking up soil compaction because of their long tap root, which can reach down as deep as 36 in.



Crops such as field corn, sweet corn, soybeans and wheat can be planted into tillage radishes, says Steve Groff.

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