



Sprayer is built on a tractor-mounted toolbar, with "legs" that angle back toward the ground at a 45 degree angle.

## Do-It-Yourself "Post-Directed" Sprayer

Over the years, use of post-directed nonselective herbicides has been a mainstay for some producers, particularly in no-till.

"If you can get herbicides like Atrazine or Gramoxone below the crop canopy, they'll do a great job of cleaning up low-growing weeds," says Carl Hovermale, a Mississippi State University research agronomist at the South Mississippi Branch Experiment Station near Poplarville.

There have been a number of sprayers on the market designed to get herbicide below the crop canopy. Hovermale says most are rather cumbersome and can be difficult to adjust and calibrate.

So he recently went back into his archives to pull out plans for a sprayer that he and Herb Willcut, then a Mississippi State University extension agricultural engineer, made for post-directed applications nearly two decades ago. "It's simple to build and not at all expensive," he says.

It's built on a tractor-mounted toolbar made of 2 3/8 in. square steel tubing. A series of legs drop down between each row middle. They're made of 1-in. square steel tubing, cut about 54 in. long. Each leg is fastened with a bolt onto a bracket welded to a 3 or 4 in. section of 3 in. square tubing, which is just the right size to slide onto the toolbar. The mounting bolt acts like a hinge, allowing the leg to float up and down. A setscrew in the mounting tube allows it to be adjusted to row width.

The legs angle down from the toolbar at a 45 degree angle, with another 45-degree bend at the lower end that forms a shoe. The shoe is reinforced with a steel plate so it won't wear

out as it slides through the field.

A flood or wide angle flat fan spray nozzle mounts on each of the legs using a collar made from a 4 in. section of square tubing that slides the leg. The nozzle-mounting bracket is made so it can flex in an arc, making it easy to change the angle of the nozzle.

"My field workers liked this sprayer a lot because it is so simple to set up," says Hovermale.

About the only problem with the sprayer was the legs tended to bounce at higher speeds in uneven no-till soil conditions. A recent version of the sprayer, built by Brian Freed, a Lexington, Illinois, crop consultant, uses a heavier metal strap for the sliding shoe to solve the bouncing problem. Except for using heavier materials, Freed's post-direct sprayer is nearly identical to the one Hovermale and Willcut designed in the early 1980's. Another way of solving the bounce problem would be individual springs on the legs. "One of my clients removed the shanks and sweeps from a cultivator and put height-adjustable nozzles on the parallel linkage. It does a really good job," Freed says.

Plans for the simple no-till post direct sprayer are available from the Mississippi Cooperative Extension Service.

Contact: FARM SHOW Followup, Carl Hovermale, research agronomist, South Mississippi Branch Experiment Station, Mississippi State University, P.O. Box 193, Poplarville, MS 39470 (ph 601 795-4525; fax 601 795-0653; email: ca1@ra.msstate.edu).

## Home-Built Belt Sander Handles Big Jobs

"It provides a nice, big surface area for sanding wood," says Lowell Molt, Mt. Pulaski, Ill., who used scrap metal to build his own 4-ft. long portable belt sander.

The sander rides on four small caster wheels and is equipped with a belt that's 4 ft. long and 6 in. wide. It's belt-driven by a 1 hp electric motor. The belt rides on top of a length of 8-in. channel iron and around a pair of old conveyor belt rollers. Lengths of 2-in. dia. steel pipe were used to make the legs.

"I spent less than \$50 to build it," notes Molt, who uses commercial 4-ft. sanding belts.

Contact: FARM SHOW Followup, Lowell Molt, 704 S. Marion, Mt. Pulaski, Ill. 62548 (ph 217 792-5256).



Post hole digger is equipped with foot rests that you jump onto.



Foot rests slide up and down handles and are held in place by pins.

## "Pogo" Post Hole Digger Uses Your Weight To Dig

"Our post hole digger lets you push down with your entire body instead of just using your arms," says Mike Luck of Flint, Mich., who designed and patented a new "pogo" post hole digger.

It works like a conventional post hole digger except that there are foot rests that slide up and down the handles. They're held in place by pins that go into a series of holes spaced about 6 in. apart.

Luck uses just his arms to start the hole and then starts jumping on the foot rests. As

the hole gets deeper, he moves the foot rests and handles upward.

"I've used our prototype to dig holes up to 53 inches deep, but I think it could be made to go even deeper," says Luck. "Jumping on the foot rests produces so much downpressure that it will even cut through tree roots."

Luck is looking for a manufacturer. Contact: FARM SHOW Followup, Mike Luck, Box 4433, Flint, Mich. 48504 (ph 810 249-1640).



Rotary hoe wheels on new injector prevent it from plowing up slabs of soil.

## New Manure Injector Causes Less Soil, Residue Disturbance

Injecting manure behind a tank saves nutrients, but even the best rigs often leave fields looking like they've been tilled.

"The best injector I found still threw up slabs of soil across the field," says Mick Zoske, Hubbard, Iowa, who made the observations while working as a custom applicator.

Thinking there had to be a better way, Zoske, an Iowa State University college student, penciled out his ideas for a new type of manure injector. Then he approached Richard Winter, owner of a horse and stock trailer business, for help in building his design. Winter added a few ideas of his own, and the two formed a company to produce and market the new TSS 101 liquid manure injector.

The injector features double coulters up front, spaced 8 in. apart, to cut through residue to keep it from hanging up on the 2-in. wide spring-loaded injector shank. On either side of the shank, rotary hoe wheels prevent the injector from plowing up slabs of soil. Behind the shank and rotary hoe wheels is a set of residue manager wheels,

set to close the slot cut by the injector.

Because of his experience in operating a manure injection rig, Zoske built a hinge into his injection unit. "Other injectors are fastened solid to the toolbar," he says. "That makes turning in the field more difficult and at the same time, disturbs even more soil. We decided that if we put a hinge on the unit where it attaches to the toolbar, it would follow better and throw up less soil."

Zoske and Winter had Mark Hanna, an Iowa State University extension agricultural engineer, evaluate their injector. His numbers confirmed that the TSS 101 liquid manure injector caused less soil disturbance. It also leaves more crop residue on the surface, which, Zoske points out, is important in soil conservation.

The unit as it's being built now fits either a 4 by 4, 4 by 6 or 6 by 6 toolbar. "We can custom make the mounting for any size toolbar, though," says Zoske.

Contact: FARM SHOW Followup, Winske, Inc., 21816 Co. Hwy D55, Hubbard, Iowa 50122 (ph 641 864-3275 or 641 640-0754; fax: 641 864-2445).