



Heated water from 1,500-gal. stainless steel tank is sprayed onto ground through 6-ft. wide side-mounted "boom" that's fitted with ceramic grid.

## "COOKS" WEEDS TO DEATH

# Machine Uses Boiling Water To Kill Weeds

If you've ever dumped a pan of boiling water onto grass or weeds, you know what happens. Everything green curls up and dies.

That's the principle behind a first-of-its-kind machine, invented by a Florida farmer, that replaces herbicides with hot water. A Minnesota manufacturer developed the new "Aqua Heat" machine and has put it through extensive testing at universities across the country.

"It has a 100 percent kill rate on annuals and newly emerging weeds. Established perennial are killed down to their roots," says Dr. Harry Rajamannan of Agro-K Corp., manufacturer. "You can completely kill perennials with more than one treatment

but, in most cases, one application slows the weeds enough to give the crop a running start."

The machine consists of a tow-behind 1,500-gal. stainless steel tank with a large stainless heating coil that brings water up to 220° using number two diesel fuel. Water is then sprayed onto the ground through a 6-ft. wide side-mounted "boom", fitted with a ceramic grid. Depending on the application, booms can be built to a variety of widths. Electronic sensors adjust water heat and output according to speed and can be manually adjusted depending on the type of weed being treated.

"Our goal is to totally eliminate the need for chemical herbicides. Different configurations will be available for a variety of crops," says Rajamannan, noting that the most interest in the new machine will probably be for high-value crops like citrus, apples, and other orchard crops, as well as for vegetable crops. One use that's already caught on is as a foliar desiccant in potato and cotton crops. And, in some areas of California, it's being used during winter to kill alfalfa tops, at the same time eradicating certain weeds and killing alfalfa weevils. In addition, Rajamannan says the hot water weed killer is ideal in parks and other areas where chemicals herbicides cannot be used.

Operating costs are comparable to or even less than current chemical expense on a per acre basis. The ideal travel speed is about 1.5 mph to get 100 percent kill in a wide variety of broadleaves, grasses, annuals and perennials, but many broadleaf annuals - the easiest to kill - can be handled at speeds up to 4 mph. "It's not always 100 percent effective, but neither are most chemicals. Our goal is to do an equal job or better," says Rajamannan, noting that the machine uses between 100 and 200 gal. of hot water per acre, depending on the extent of the weed problem being treated.

The key to success is proper timing. "If we can get weeds in the early stages, we can use less water and lower temperatures and go faster," says Dr. Megh Singh at the University of Florida at Lake Alfred who's been testing the concept. Dr. Gary Ritenour at California State University in Fresno, has also been involved in early prototype testing.

Rajamannan plans to have machines on the market by the end of 1993.

For more information, contact: FARM SHOW Followup, Agro-K Corporation, 36 - 37th Ave. N.E., Minneapolis, Minn. 55421 (ph 612 781-3867).



Robinson converts old no-till planters to deep band fertilizer applicators, providing a low-cost way to deep band fertilizer in the fall.

## CAN ALSO BE USED TO FILL PLANTER OR DRILL WITH SOYBEAN SEED

# Dry Fertilizer Caddy For No-Till Planters

If you apply fertilizer while you plant - or you'd like to try it - you'll want to take a close look at this new dry fertilizer caddy equipped with an auger that automatically fills your planter on-the-go.

The new caddy is made by Robinson Repair, Ryan, Iowa. It attaches to the planter with a 2 5/16-in. ball and uses a pair of augers to feed fertilizer into a cross auger mounted on the planter. Each auger is powered by a hydraulic motor that runs off the tractor.

"We specialize in custom designing a variety of products for no-till and ridge till farmers, including liquid caddies. But this dry fertilizer caddy is our hottest product," says Randy Helmrich, owner. "Most no-till planters have limited dry fertilizer capacity. For example, a Deere 6-row 30-in. planter holds only 2,100 lbs. of dry fertilizer so if you apply 200 lbs. per acre you can only go 10 acres before you have to refill. Our 5-ton caddy lets you plant 50 acres per fill. Pulling

the caddy takes weight off the tractor, keeping compaction to a minimum. The large 15.5 by 22.5 tires make the cart easy to pull and maneuver. Width can be adjusted from 120 to 78 inches so it can be used in wide or narrow rows." Helmrich says some customers pull the caddy behind old no-till planters that they convert to deep band fertilizer applicators. "It's a low-cost way to deep band fertilizer in the fall," says Helmrich. "We converted an old Deere 1300 conservation planter and do custom work with it. We stripped the seed boxes off and left the fertilizer boxes on, then added a toolbar in front and mounted no-till coulters on it. Old IH 400 Cyclo planters work even better because they're built with a toolbar in front."

The caddy can also be used to fill no-till planters or drills with soybean seed. It holds 110 bu. "Seed companies are pushing 50-bu. bulk soybean seed pallets, but no one has come up with a good way to get that seed into the planter. A front-end loader can be used to dump seed into the caddy. The auger's steel flighting can be replaced with poly flighting to reduce seed damage," says Helmrich.

The caddy is available in 4 and 5-ton models and can be used with 4 to 12-row planters. A 4-ton model sells for \$4,535 and the 5-ton model for \$5,185. A cross auger for an 8-row planter sells for \$1,010.

The company also offers liquid caddies for herbicide, fertilizer, or insecticide application. The caddies use a ground-driven or hydraulic driven pumps. "They work better than saddle tanks because they have more capacity and can be hooked up in five minutes," says Helmrich. "The caddy can also be used behind your cultivator to spot spray herbicides or side dress 28% nitrogen. A boom can be mounted behind the caddy to spray herbicides."

The liquid caddies are available in 300, 500, and 750-gal. sizes, or 600-gal. twin tank. A 500-gal. model sells for \$2,895 and a 750-gal. model sells for \$3,715.

Contact: FARM SHOW Followup, Robinson Mfg., Rt. 1, Box 53, Ryan, Iowa 52330 (ph 319 932-2108).



Green plants soon curl up and die when touched by the boiling water. Kill rate is 100% on annuals and newly emerging weeds.

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