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"LESS EXPENSIVE THAN SPRAYING"

Arkansas Farmer Builds Flame Weed Cultivator

The failure of herbicides to control morningglories and other weeds in his cotton fields prompted John Williams, Bradley, Ark., to build his own 8-row flame cultivator.

Williams mounted a 100-gal. LP gas tank on frame of an old field cultivator. He bought the burners from a Wisconsin company (Thermal Weed Control Systems, Inc., ph 715 743-4163) and used Arkansas Extension Service plans to mount a "water shield" above each burner. The "water shield" consists of a spray nozzle that wets down cotton stalks to protect them from the flames.

"It isn't pretty but it works great. I spent only about \$1,200 to build it," says Williams. "I patterned it after the Afco flame cultivator that used to be sold by the Arkansas Foundry Association. Wet conditions in recent years had kept me from being able to spray morningglories early in the season. After morningglories wrap up around cotton plants, there's not much that can be done except to flame them.

"However, I couldn't find an 8-row flame cultivator on the market so I decided to build my own. It works great on morningglories because they're much more heat sensitive than cotton plants. It doesn't work as well on johnsongrass or redvines because they have woodier stems. However, it works well on any weed less than 2 1/2 in. tall. Cotton has to have a woody bark stem before it can withstand the flames. I make a second pass within three days to hit any weeds that aren't killed in the first pass.

"It's less expensive than spraying or hand hoeing. Last year I spent \$9 to \$10 per acre for each post-directed herbicide application and \$12 per acre for hand hoeing. My cost for LP gas averages only \$4.50 to \$4.85 per acre under moderate to heavy weed pressure. I can operate the flame cultivator at 2.5 to 4 mph under most conditions and cover 12 to 15 acres before I have to refill. I could switch to a 300-gal. tank to get more capacity. To start the flames, I turn on a valve from the tractor seat that ignites a pilot light on each burner. I turn another valve to pump water from a tractor-mounted tank to the



"Water shield" mounts above burner.

"watershield" nozzles. Valves mounted in the tractor cab allow me to switch from 8 to 4 rows for spot control.

"I generally make a test run before I flame cultivate the entire field. I make one pass, then wait a half hour to an hour to see the results so I know whether I need to adjust the burner or pressure."

Proper height adjustment of burners is important for effective control and to reduce injury to cotton stalks. Burners can be adjusted up or down, from side to side, or tilted at different angles with a wrench.

Williams received help from county agent Joe Vestal, Lewisville, Ark. (ph 501 921-4744), in designing his burner and water shield system. The water shield nozzle mounts about 2 1/2 in. above the burner. "It confines the heat to a localized area by wetting down the cotton plant," says Vestal. "The water reduces the flame temperature on the cotton canopy by 35% to greatly reduce crop injury."

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Manure is unloaded from truck into receiver, then pumped into spreader.

TRANSFERS MANURE FROM TRUCK TO SPREADER

"Reloader" Lets You Haul Manure By Truck

You can save a lot of time hauling manure to fields by truck but conditions don't always let you get into the fields. That's why Jeffrey Bragg, Waterville, Maine, came up with his manure "reloader" which lets him quickly transfer a truckload of liquid manure to a tractor-pulled spreader.

"It lets me haul manure from pit to the field at road-speed using farm trucks I already owned. No need to rig up a truck-mounted spreader with flotation wheels, etc. The idea works especially well when fields are too far away to economically haul with a tractor spreader and field conditions are too wet for a truck spreader," says Bragg.

Manure can be hauled with a scaled-up grain box with a modified gate, a semi-tanker, or any kind of tank mounted on a truck body. By going back and forth with a truck, all you need is one spreader which never has to leave the field.

Bragg's "reloader" consists of a receiver tank made from an old 500-gal. fuel tank. It's fitted with a 1,000-rpm pto-driven pump

that discharges through a 6-in. fill pipe that runs up and over the top of the tractor. A rubber hose runs up the vertical column to the fill pipe. The edges of the opening on the tank are "fish bowled" to help reduce splatter and there's a sliding gate on back to drain the tank after use. Because the reloader mounts in a straight line with the tractor and is totally self-contained, Bragg says he can easily position the reloader on the road and move quickly to get into position.

"Because this system lets me get to distant fields faster and more economically, I no longer over-spread fields closer to home, resulting in more efficient use of manure and less nutrient run-off," notes Bragg. "The system also lets me make more use of farm trucks, which would otherwise sit idle much of the year, and reduces wear and tear on tractor and spreader."

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Receiver is fitted with 1,000-rpm pto-driven pump that discharges through 6-in. fill pipe that runs up and over top of tractor.

Where To Get More Information on Flame Cultivation

Last year nearly 80 Northeast potato growers used propane flame cultivators to control Colorado potato beetles. Plans for the "beetle burners" were developed by Dale Moyer, Cornell Cooperative Extension potato specialist. Most of the flame cultivators are tractor-mounted. However, one farmer, Mike Padula, Bath, Penn., mounted his on an ATV 4-wheeler to avoid compacting soils. Padula invested \$1,500 in

four 8-gal. tanks, manifolds, solenoids and propane torches. He flames adult beetles at 2 to 4-day intervals, burning about 4 gal. of propane per acre.

For a copy of the plans "Fabrication and Operation of a Propane Flamer for Colorado Potato Beetle Control", write to: Cornell Cooperative Extension - Suffolk County, 246 Griffing Ave., Riverhead, N.Y. 11901-3086.