Recycling program helps solve empty container dilemma

By Paul Baker

This North Carolina pesticide container recycling program may point the way to the future

American agriculture discards an estimated 40 million pounds of plastic pesticide containers every year. That's about 80 million individual bottles, jugs and barrels.

They are convenient, to be sure, but getting rid of the empty containers safely—and legally—is getting more inconvenient all the time.

In the past few years, however, many state and local authorities throughout the country have begun pesticide container recycling programs to help make safe disposal easier and reduce the amount of ag plastics going into landfills.

Pilot recycling projects in southern Texas and northern Florida are scheduled to go on-line this year, but a two-year-old North Carolina project is already changing the way farmers dispose of empties in that state.

A grassroots effort

Pitt County, a major peanut-growing center in eastern North Carolina, supports a thriving ag plastics recycling network. Begun in 1990 as a grassroots effort between local government, the Cooperative Extension Service, pesticide distributors and farmers, the project now boasts 14 collection sites, a growing number of participants, and serves as the model for several budding programs in eastern North Carolina and elsewhere.

County Extension Agent Sam Uzzell admits that initiating the project turned out to be easier than he had expected at first.

“We had a county government that wanted to do it,” he says. “It wasn't a matter of me or someone else trying to sell the idea to the powers that be. “We have a well-educated farm population. Our farmers are aware of environmental problems, and they are glad to have an opportunity to demonstrate that they do care about what's going on out here.”

In 1990, Uzzell signed up five ag chemical dealerships throughout the county to serve as collection sites. A 40-cubic-yard solid waste collection box was set up on each site to receive empties.

Farmers could deposit all their empty plastic containers at the sites. The only stipulation was that the containers had to be pressure rinsed, a requirement that proved to be somewhat of an obstacle.

“The use of pressure-rinse nozzles is a new step for most of our growers,” Uzzell says. To encourage pressure rinsing, Extension purchased 100 nozzles and offered them for sale through area chemical dealers, production meetings and on-farm visits.

A $1,000 grant from the Pesticide Association of North Carolina (PANC) enabled Extension to offer a $10 rebate to buyers, bringing the $23 rinsing nozzles down to $13. (The PANC also donated another $500 to have informational signs erected at the five collection sites.)

All 100 nozzles were sold during the first year. Although Extension no longer distributes nozzles, Uzzell says another 25 to 50 Pitt County farmers have since purchased nozzles from other sources.

Growers deposited more than 7,000 pounds of empty plastic containers during the program's first
Pitt County Extension Agent Sam Uzzell stands in front of a pesticide container recycling bin at one of his county's 14 collection sites. Other bins on the sites are reserved for household recyclables. Photo by Paul Baker.

six-week collection period which ran from mid-June to the first of August 1990. An additional 15,000 pounds poured in that fall. "We feel the program got off to a very good start," Uzzell says.

Concern about the possible liability hassles business owners faced by storing pesticide containers on their own property, however, prompted the county government to shoulder the storage responsibility itself. That winter the Pitt County Engineering Department took over responsibility for the containers by letting farmers deposit their pressure-rinsed empties at any of the county's 14 existing household recycling centers.

Previously reserved for paper, aluminum, plastic drink bottles, milk jugs and used motor oil, the facilities now have separate bins for ag plastics. Attendants inspect each load as it arrives for the telltale punctures pressure-rinsing nozzles leave behind.

The containers are crushed and baled on-site and then shipped to a plastics reclamation company to be processed and remanufactured as plastic drain pipe.

With 14 widely scattered collection centers, no Pitt County farmer has to haul empties more than 10 miles to get rid of them safely and legally. "We have a system now that has to be as convenient as it's ever going to get for our farmers to dispose of empty pesticide jugs," Uzzell says.

Carl Briley, a Pitt County peanut grower, agrees. "It works out pretty good. It gives us a way to get rid of the containers." In addition to 70 acres of peanuts, Briley grows tobacco and cotton, both of which use high volumes of pesticides. "It'd be hard to say how many containers I've recycled since we started," he says. And for Briley, pressure rinsing is a lot easier than triple rinsing. "I just punch the nozzle in the bottom, turn it on for about 30 seconds, and the container's clean."

Pressure rinsing crucial

Despite the apparent ease and convenience of Pitt County's recycling system, Uzzell says that it is the farmers' willingness to adopt pressure rinsing as standard procedure that will ultimately determine the recycling program's success.

"If we get our farmers pressure rinsing, we can't lose," he says. "There's a good chance that once they take that step, they will take the additional step of disposing of the plastic at a recycling center."

The traditional rinsing method, triple rinsing, still remains the very least a farmer can do to prepare a container for landfilling. But pressure rinsing, Uzzell says, scrubs a container several hundreds of
times cleaner than triple rinsing. Plus, it's less time-consuming and generates less rinsate.

Pressure rinsing does require some hardware, though, namely a pressure-rinsing nozzle. The device is connected to a nurse tank pump with a hose and a few inexpensive plumbing fixtures.

Saves money, too

Clean containers are not the only virtue of pressure-rinsing. Larry Siefken, an Iowa corn and soybean grower, developed one of the first pressure-rinsing nozzles in the late 1970s for his own use. His reason: economics.

To control weeds in his corn, Siefken used a thick, clay-based herbicide, which, in addition to being very expensive, was almost impossible to remove entirely from its 5-gallon containers.

"There might have been three-quarters of an inch of the stuff settled in the bottom that was hard to shake out or rinse out," he says. "I wanted to get that out of the container and into the spray tank. To me, it was what I was paying for."

The homemade nozzle worked remarkably well, Siefken says, so well, in fact, that he formed a company called Select Styled Systems, Ltd., and began mass producing them, selling them under the Jet Rinse trademark.

As a money saver, Siefken admits, Jet Rinse never really caught on, but as environmental benefits of pressure rinsing became apparent during the mid- to late-'80s, sales of Jet Rinse and similar nozzles increased dramatically.

Siefken notes, however, that just as environmental concerns have increased over the past few years, so has the cost of ag chemicals. A grower can still reap significant economic rewards by pressure rinsing. "Today we pay up to $500 a gallon for some of our chemicals. If there's one ounce of material left in the container, that's about $4 of

forceful spray rinses the jug's inside walls. Rinsate drains into the spray tank.

The whole process takes about 30 seconds and leaves behind a punctured, clean jug that is ready to be hauled to the nearest recycling facility or landfilled as non-hazardous solid waste.

Manufacturers of pressure rinse nozzles and related equipment:

Jet Rinse
Select Styled Systems, Ltd.
P.O. Box 123
Palmer, IA 50571
(712) 359-2467

Qwik Rinse
Qwik Rinse, Inc.
201 Kent Ave
Fredericksburg, VA 22405
(703) 373-5800

E-Z Rinse
Phil-Worth Mfg.
936 South Main St.
Findlay, OH 45840
(419) 424-5793

Spraying Systems Co.
Agricultural Division
P.O. Box 7900
Wheaton, IL 60189-7900
(708) 665-5000

Pressure rinsing nozzles, which puncture containers, can leave a jug hundreds of times cleaner than triple rinsing. Photo courtesy of Phil-Worth Manufacturing.
chemical that’s wasted and could be used.”

Bottom line
Convenience and economics aside, pressure rinsing and recycling may soon become one of the few viable disposal options available to farmers.

The Environmental Protection Agency, working under the auspices of Federal Insecticide, Fungicide and Rodenticide Act of 1988 (FIFRA), is writing new regulations regarding—among other things—the manufacture and disposal of pesticide containers. Those regulations, which go into effect in late 1993, are designed to reduce the number of containers going into the nation’s landfills by encouraging the re-use or recycling of empty containers.

As a result, many standard disposal practices will go by the wayside. Burning containers, for example, which in the Southeast is now allowed only in Florida, will not be an option under the new laws, nor will a farmer be able to bury containers on his own land.

And the fact that more and more landfill operators are already refusing to accept any empty pesticide containers, triple-rinsed or otherwise, also is an indication that recycling will soon become an integral part of every peanut farmer’s operation.

---

**Disposal hints to remember**

Simply rinsing plastic or steel containers can minimize health and environmental risks, make disposal easier, and even save money by ensuring that no crop protection chemicals are wasted. When rinsing, here are a few things to keep in mind:

- Follow the manufacturer’s instructions and applicable federal, state and local regulations.
- Rinse containers as soon as they are empty. Residue can become difficult to remove after it dries.
- Empty all water used to rinse empty containers into your spray tank and apply to your fields at the rate specified on the label. That will eliminate the need to dispose of the water and make sure you get the full benefit of your crop protection dollar. As much as two to four ounces of product can remain in an unrinsed container.
- Unless you are equipped to pressure rinse empty containers, make sure that each container is triple rinsed. Start by draining the container into your spray tank, holding it vertically for at least 30 seconds. Then add enough water, or other recommended diluent, to fill the container about a quarter of the way. Shake or roll the container to rinse all interior areas and drain the container again into the spray tank. Repeat the rinsing procedure two more times, and then puncture and crush the container so that it cannot be reused for other purposes.
- Pressure rinsers are easy to use and can be conveniently attached to the pump on your nurse tank. Place the empty container in a vertical position so that it will drain into your spray tank. Thrust the nozzle of the pressure rinser through the bottom or side of the container and rinse for 30 seconds. It is normally not necessary to repeat this procedure.
- Whether you triple rinse or pressure rinse, be careful not to spill any of the rinsate on yourself or the ground.
- Crush all empty and punctured containers to reduce their volume as an additional precaution. Never abandon empty pesticide containers or allow them to accumulate and become a public eyesore or a health hazard.
- Properly rinsed and crushed containers should be disposed of in accordance with label instructions and state requirements.

Source: Alliance for a Clean Rural Environment (ACRE) Fact Sheet Number 5: Disposing of Crop Protection Chemical Containers.