

Weed and feed expansion seen this year

LANCASTER — A new weed-and-feed system for corn, after hundreds of commercial trials covering 30,000 acres last year, is expanding to more acres and new research horizons in 1984.

The system, called AH-1 for anhydrous and herbicide in one pass, involves mixing a herbicide with anhydrous ammonia, then injecting the mixture into the soil.

The technique saves trips over fields by combining fertilizer and herbicide applications, and eliminating the need to incorporate the PPI herbicides used. It also cuts out the hauling and mixing of water for spraying herbicides, and uses the lowest-cost form of nitrogen available.

The volatility of the anhydrous/herbicide mixture spreads it through the soil, resulting in uniform and weed control and nitrogen distribution, according to Stauffer Chemical Company, which is developing the system. Sutan+, Eradicane and Eradicane Extra herbicides are used for AH-1 because they have the volatility and soil mobility required.

Acreage increase

Dave Martin, Stauffer's director of marketing, says he expects a tenfold increase in acreage put out with the system this spring. "In addition, researchers will be exploring new uses for the concept and possible agronomic benefits from it," he said.

Farmers who tried AH-1 last year used modified light tillage

implements—field cultivators, finishing disks and combination tools—for the application. Cultivator shanks were simply plumbed to inject the materials into the soil, while disks were fitted with tine application kits to handle the injection.

Combination tools—those that have a row of disks followed by a cultivator section and then a harrow—gave the best results, according to Martin. Field cultivators were close behind, generally giving weed control equal to conventional PPI treatments.

Disks performed well in some trials but were less consistent than the other tools in marginal application conditions.

Setting up one of these tools for AH-1 isn't difficult and will generally cost \$1,000 to \$2,000, Martin says. A Stauffer rebate program on AH-1 applications can substantially lower this cost, he adds.

Tooling Up

According to Stauffer's Chuck Jongeward, a farmer will need five basic pieces of equipment to convert a tillage tool for AH-1. They are: 1.) an anhydrous ammonia meter, 2.) a herbicide pump, 3.) a herbicide holding tank, 4.) one or two manifolds, and 5.) drop tubes.

When the equipment is working, anhydrous flows from the tank to the meter, which is usually attached near the rear of the tillage tool. Herbicide is pulled out of the

holding tank and pumped into the flowing anhydrous between the meter and the manifold. The manifold then distributes the mixture to individual drop tubes for injection into the ground.

Injection points should be spaced no more than 10 inches apart, and should release the mixture 4 to 5 inches deep in the soil.

Jongeward says the most crucial elements of the system are the herbicide pump and the shank-and-outlet combination that places the mixture in the soil.

"Farmers should use Stauffer-recommended pumps, which are made by Decah Manufacturing, F.M.I., John Blue Company, and WALM, Inc.," he said.

The hardware that injects the anhydrous and herbicide into the soil must seal the mixture at a depth of 4 to 5 inches. Simple field cultivator anhydrous spikes worked well on some rigs, according to Jongeward.

With standard field cultivator sweeps, special shovels, or field cultivator spikes, outlets that shoot the anhydrous and herbicide out to the sides, instead of straight back behind the cultivator shank, tended to seal best, Jongeward adds.

"Generally, sealing wasn't a big problem for most farmers," he says.

New Uses, Benefits

Farmers and researchers this year will be fine-tuning the one-pass, reduced tillage AH-1 system used in 1983. They'll be looking at

new hardware and various soil and crop residue conditions.

Meanwhile, Stauffer and university researchers will be exploring possible new uses and benefits of the basic concept.

One agronomic benefit that may come into play is possible corn yield increases from a nitrogen stabilizing effect of the herbicides injected with anhydrous.

"We know that some compounds in the thiocarbamate family inhibit the conversion of nitrogen from the ammonia form to the nitrite and then the nitrate forms," says John Saylor, Stauffer's manager of product development.

Saylor says 1984 trials are designed to measure any nitrogen stabilization effects or resultant yield increases from Sutan+, Eradicane or Eradicane Extra applied along with anhydrous ammonia.

Early applications of AH-1 are another area of study. Some applications were made in the fall of 1983, and more will go out in the early spring. These will be compared with weed control results from treatments applied just before planting.

No-till PPI?

Research at Purdue University will focus on experimental anhydrous/herbicide injection equipment that leaves nearly all surface residues undisturbed on top of the soil.


Agronomists Don Huber and Merrill Ross put out trials last year using modified sweeps and anhydrous knives, trying to achieve a virtual no-till injection of the PPI herbicides.

One knife in particular—a thin anhydrous knife with a 12-inch horizontal wing that runs 4 inches under the ground—gave outstanding results.

"This knife gave us weed control bands 20 to 22 inches wide," Huber says.

With a no-till coulters slicing through trash in front of it, the knife operated in heavy surface residues without plowing the surface or plugging up. "All you see after the application is a thin knife track in the surface residue," Huber says.

Huber and Ross will use the winged knives to experiment with different spacings and placements of corn rows this year.



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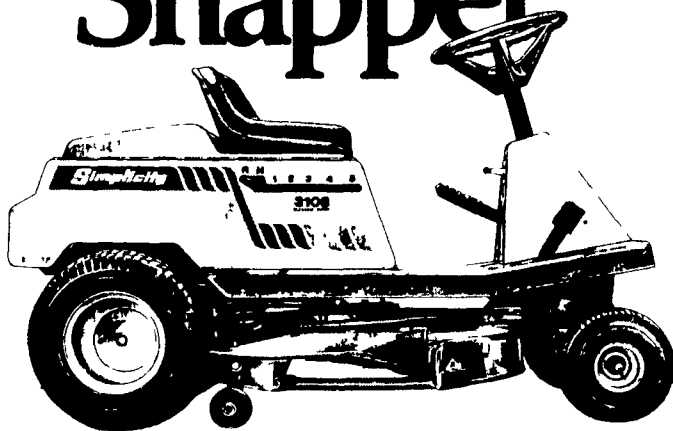


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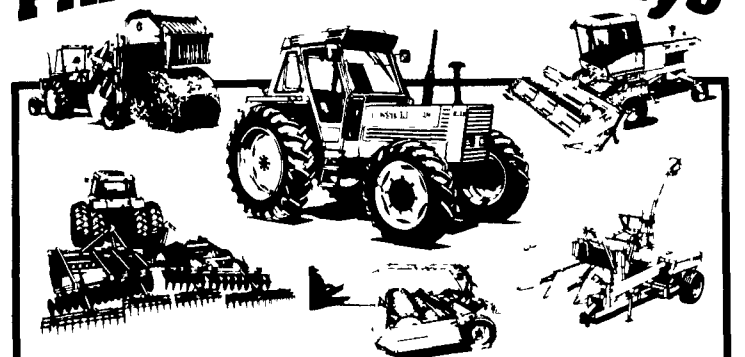
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