Farmers Should Consider Environment

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exactly how much fertilizer and animal waste is contributing to pollution in the Chesapeake Bay.

There were lots of questions, but little data prepared by the study, according to Fox. The study looked at very general models and little input data. So Penn State decided to do their own field studies — and came up with some startling findings.

A special soil profile test revealed that about 200 pounds per acre of nitrogen was left in the soil profile that could eventually be leaching, according to the report. What the researchers found out was that, the more nitrogen fertilizer applied, the more leached into the ground.

Potential source

"Heavily manured fields are a potential source of nitrate leaching," said Fox. Safe drinking water standards only allow about 10 parts per million (ppm) of nitrates, and the researchers found as much as 24 ppm in some studies.

The nitrogen applied in the fall was carefully tracked. What the researchers found was that some of it denitrified — and a great deal of it could not be accounted for.

Because of the inadequacy of trying to obtain results of nitate leaching tests using a simple laboratory, the researchers took their work outside. In 1988, a special tract of land on Penn State's agronomy farm was used.

Eighteen 8-foot deep pits were dug up, and plywood boxes were placed and soil was backfilled around them. A four-foot trench was dug out on the sides, and 2-foot by 2½ -foot stainless steel pans, containing polystyrene beeds, were inserted. The pans were used to collect leached water and test for possible nitrate leaching.

Amount applied

The results were conclusive: Nitrate leaching occurs and the amount increases with the amount of fertilizer applied to the land.

"With manure, you had the nitrogen that could be mineralized after the corn harvest," said Fox. "You can be producing nitrates in the fall that are not used, so it could be actually leaching more with manure than with just straight inorganic fertilizers."

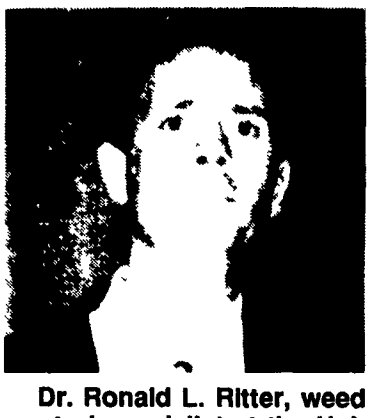
Fox said that the "take-home message here is that with our best economic nitrogen rate, the amount of nitrates in the leaching water is going to be closer to 20 parts per million than to 10 parts per million."

Fox said the researchers . . running the project for a third year, and are also looking at different models. "We're looking at much more sophisticated models than they use for the Chesapeake Program, to see if we can be able to predict the nitrate leaching in anybody's field," he said.

New chemistry

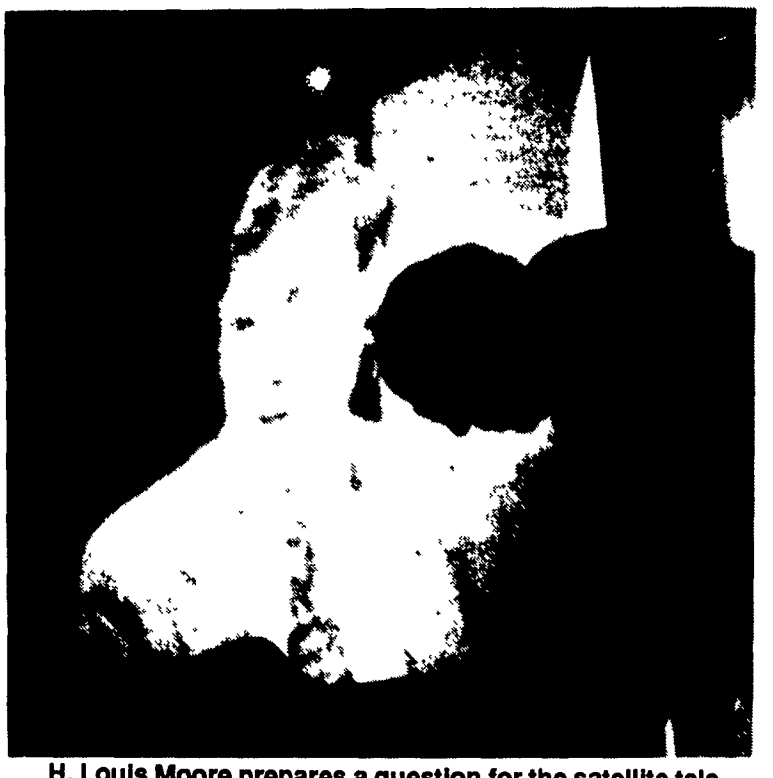
Ronald L. Ritter, weed control specialist with the University of Maryland, pointed out that new herbicides emphasize a new chemistry and less application rates.

"I'm sure that many of you are recognizing the fact that we're not using a whole lot of it," he said. "A little of it goes a long way."



Dr. Ronald L. Ritter, weed control specialist at the University of Maryland, talks about new weed control products at the Mid-Atlantic Tillage Conference Wednesday.

Richard H. Fox, Field Crop Production Systems, Dept. of Agronomy at Penn State, answers questions about the special nitrate leaching project at the agronomy farm.



H. Louis Moore prepares a question for the satellite teleconference panel. On the screen, broadcast live from Ohio State University, is Luther Tweeten, professor of ag economics.

Some of the tougher weeds farmers deal with — such as Canada thistle, Johnsongrass, wild garlic, pigweed, lambsquarters, etc. — can be battled now with the new "broad spectrum" pesticides. (See the related story, "The Latest In Chemical Weed Control," by Ritter this issue.)

"The industry and weed scientists like myself have responded to this problem," said Ritter. "There's a lot of good material out there — the Lassos, the Duals, the Atrazines — but there's a lot of new ones coming out, the sulfo nylur eas, the Accents, the Beacons. Many of them are nothing more than packaged mixes."

New herbicides

Some of the new herbicides labeled for use in the mid-Atlantic region include the sulfonylureas such as Accent, Beacon, Canopy, Classic, Gemini, Harmony Extra, and Pinnacle, and the imidazolinones such as Pursuit and Scepter.

But farmers should carefully

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