

# Conservation tillage methods and the Bay

COLLEGE PARK, Md. — Almost three-fourths of the corn planted in Maryland each year escapes the plow, thanks in large part to conservation tillage, a modern farm practice that reduces erosion and some forms of water pollution.

But how well does it reduce agricultural pollution of the Chesapeake Bay, one of the world's most productive estuaries?

"It depends on the kind of pollution you're talking about," says Richard Weismiller, an agronomist of The University of Maryland.

One of the Bay's critical pollution problems is "nutrient overenrichment" — too much of the same fertilizers that, on land, make corn and other farm crops grow, according to Weismiller.

Nitrogen and phosphorus, in particular, set off a pollution explosion of algae which shut off sunlight to submerged aquatic vegetation and contribute to a depletion of the Bay's oxygen supply. Both consequences are blamed for dwindling marine resources in the Bay, Weismiller says.

Conservation tillage methods can keep topsoil on the land where it belongs, he adds.

"But it doesn't automatically follow that conservation tillage keeps all the nitrogen and phosphorus there, too," he says.

Conservation tillage — including



no-till, reduced tillage and minimum tillage methods — does its best job keeping phosphorus on farm lands, Weismiller explains.

Phosphorus binds chemically to soil particles. "So, if you keep the soil on the land and it doesn't wash away, the phosphorus stays with it," says Weismiller.

The only problem with that is most of the phosphorus entering the Chesapeake Bay during years of average rainfall comes from other sources — like municipal treatment plants — and not farmland, he says.

"During average or dry years, non-point sources of phosphorus such as farms, forests and roadways contribute 31 to 39% of the total load to the Chesapeake Bay," Weismiller says. "Almost two-thirds, the rest of it, comes from point sources such as factories and treatment plants."

Nitrogen is still another story, according to Weismiller.

Although non-point sources — the farms and forests — contribute anywhere from two-thirds to 80% of the nitrogen load to the Bay, most of that nitrogen is not lost from surface runoff or erosion.

"Conservation tillage may cut down on how much nitrogen is lost from the surface of farmlands," he says. "But almost 90% of the nitrogen lost from farmlands is through processes we call 'leaching' and 'nitrification'."

Explains Weismiller: "Leaching is the process by which the chemical moves from the root zone of the crop down, into the soil subsurface, where it can enter groundwater supplies, and move from there into the Bay."

"Nitrification is a chemical conversion process in which some forms of nitrogen fertilizer, such as ammonia, change to nitrates, which are highly mobile and easily lost from the soil, often through the soil subsurface."

Phosphorus pollution, therefore, can be reduced with conservation tillage methods. Nitrogen pollution, on the other hand, is best managed if farmers do not over-fertilize, says Weismiller.

He recommends some of the following "best management practices" to reduce both nitrogen and phosphorus pollution of nearby bodies of water in the Bay watershed:

- \* Use conservation tillage to reduce soil erosion and phosphorus pollution.

- \* Get a soil test to determine how much fertilizer (especially nitrogen) your soil needs, then apply fertilizer only at rates based on that test.

- \* Apply fertilizer at the right time. Split applications are best. Avoid applications just prior to an anticipated rainfall.

- \* Apply fertilizer using the right method for your farming system. Dribbling is one method recommended for conservation tillage. Avoid surface broadcast methods that contribute to runoff and pollution.

- \* Plant non-leguminous cover crops during the off season to use up residual nutrients from a

previous planting. Plant legume cover crops if you want to reduce the nitrogen requirements for the next crop.

For more information about

agriculture and water quality, or to learn more about "best management practices," call your local Extension agent or Soil Conservation District.



Mary Buffington presents the Public Service Award of Chester-Delaware Pomona Grange #3 to Rep. Samuel Morris, chairman of the House Ag and Rural Affairs Committee.

## Grange honors Morris

WAGONTOWN — At its annual Legislative Dinner on April 28 the Chester-Delaware Pomona Grange #3 presented the Grange Award for Public Service to Rep. Samuel Morris of the 155th Legislative District.

In making the presentation, Mary Buffington of Kennett Grange cited Morris' efforts on behalf of farmers during his six terms in Harrisburg. Morris is currently Chairman of the House Agriculture Committee and a member of the Conservation Committee.

The speaker for the evening was Brenda Burd, State Grange Legislative Assistant, who works with many of the legislators in attendance and their colleagues. She summarized the most important bills now before the House

and Senate, thanking the lawmakers present for their help in passing needed legislation and reminding Grangers that giving our opinions to our representatives in Harrisburg makes the job easier for all concerned.

One hundred forty Grangers attended the annual dinner, catered by the Ladies Auxiliary of the Wagontown Fire Co. Guests were Congressman Robert Walker, State Sen. Noan Wenger, State Reps. Arthur Hershey, Samuel Morris, Elinor Taylor, Peter Vroom and Joseph Pitts, and Commissioners Earl Baker, Robert Thompson and Patricia Baldwin. Musical entertainment was provided by the Chester Valley Grangers of the "Grass Root Symphony."

## Eastern Lancaster meeting Tuesday

UNION GROVE — The Eastern Lancaster County Adult Farmer Program in cooperation with the Conestoga Valley Growers Association will sponsor an educational meeting on the Growing of Carrots and Horseradish on Tuesday at 7:30 p.m. at the Eastern Lancaster County Alternative School.

The topics that will be discussed at the meeting will include the cultural practices in raising

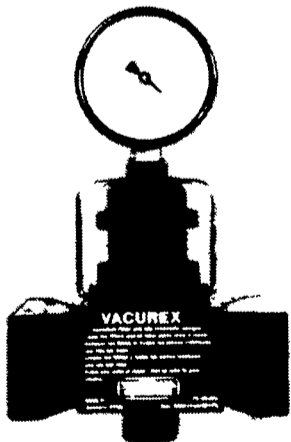
carrots and horseradishes and the contracts that are available through the Conestoga Valley Growers Association for the 1984 growing season.

All interested farmers are invited to attend. The meeting will be held at the Eastern Lancaster County Alternative School, which is located in Union Grove along Route 625 two miles north of Rt. 23 east of Blue Ball.

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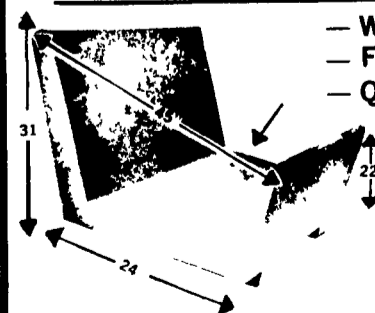
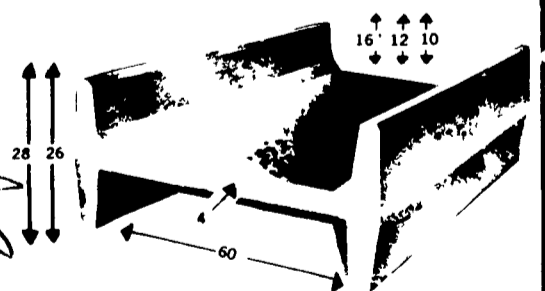
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