

Delaware researchers work to reduce nitrogen losses

GEORGETOWN, Del. — Nitrogen is the most expensive element in crop production, both in terms of its cash cost and the energy required for its production. It's also the element most likely to be lost.

Researchers at the University of Delaware Agricultural Experiment Station are always looking for ways to help farmers cut their production costs. They're also concerned with helping them work within the constraints of environmental controls. So they've devoted a lot of time in recent years to figuring out how this crop nutrient can be used most effectively. Since nitrogen moves

freely with soil water supplied by rainfall or irrigation, there's always the chance that it may leach from the root zone. This may result in crop losses. It may also result in contamination of drinking water, if nitrates penetrate deeper into the soil.

Station scientists like agronomists William Mitchell and Merle Teel, and crops specialist William Liebhardt have studied closely the nitrogen leaching patterns of several sandy soils, including the loamy sands of lower Delaware.

They've found most of the nitrogen that appears in drainage water is nitrate nitrogen. As much as half

the nitrate nitrogen applied to these soils may disappear from the root zone of plants within a few days, reports Mitchell.

Soluble fertilizer nitrogen contributes most to the leaching process. But during the growing season when microorganism activity in the soil is high, large amounts of soluble nitrogen are released from mineralized organic matter and also become subject to leaching.

It's hard to tell, says Mitchell, which are the natural occurring nitrates and those supplied by synthetic nitrogen fertilizers.

The researchers have found that losses of nitrogen due to leaching can be minimized by restricting irrigation and by using slow release ureaform type nitrogen. Slowing the nitrification process through use of a nitrification inhibitor has delayed the leaching process for about two weeks.

By comparing activated sewage sludge, slow release, and readily soluble nitrogen sources, scientists have concluded that slow release nitrogen — either natural or synthetic — is least subject to leaching. For this reason, they say, its use should be encouraged.

Research of this type shows farmers how to make more efficient use of fertilizer nitrogen and thus reduce their production costs.

It also helps protect water quality by showing them how to reduce potentially polluting runoff from their fields. Such so-called "nonpoint" pollution is one of the problem areas covered under Section 208 of the federal Water Pollution Control Act as amended in 1972.

Two general goals of the law are (1) wherever possible to achieve by July 1, 1983, water clean enough for swimming and other recreational uses and clean

enough for the protection and propagation of fish, shellfish and wildlife; and (2) to have no discharges of pollutants into the nation's waters by 1985.

Scientists at the Delaware Agricultural Experiment Station have been working to

solve the problems of water pollution and solid waste management since the early 70's when this law was first passed so that farmers can continue to farm economically within the constraints of this legislation.

Farm Calendar

(Continued from Page A10)

PA Dairy Princess training seminary begins; 6 p.m.; St Francis College, Loretta; continues through July 16.

Monday, July 14

Jefferson County town and country fair; Sykesville, continues thru July 19

Kimberton Fair, Phoenixville; continues thru July 19.

Middletown Community Fair; Middletown; continues thru July 19

Farmers-Keystone trail meeting, Embury Inn, Carlisle, 8 p.m.

PVATA convention, Penn State; thru the 16th

Tuesday, July 15

Baltimore County 4-H Fair, State Fairgrounds, Timonium, Maryland, continues thru July 19

Farm safety seminar, Messicks Farm Equipment; Rheems exit, Route 283; 7 p.m.

Wednesday, July 16

Chester County 4-H clothing review

Cecil County Maryland Johnsongrass tour, Rose Hill Farm, Route 213, 10 a.m., Earleville

York County 4-H dress revue, 4-H Center, 9 a.m.-3 p.m.

Friday, July 18

PA Seedsmen's Association, Bishop's Restaurant, Chocolate Avenue, Hershey, 9:30-2:30 p.m.

Delaware State Fair,

continues through July 26 at Harrington

Annual Registered Holstein promotion sale; New Holland Sales Stables; 7 p.m.

Saturday, July 19

Shippensburg Community Fair; Shippensburg, continues thru July 26.

Lancaster County 4-H Horse Roundup; Lower Hopewell Horse Center

Lancaster County FFA picnic, 12:30, Pequea Valley High School



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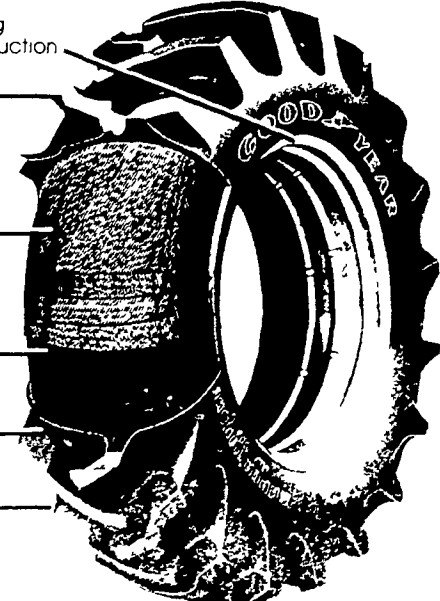
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