

# Penn State To Field Test Soil Nitrogen Test

LANCASTER — Lancaster County farmers, along with farmers in many other parts of the country, are under fire for the high nitrate found in groundwater. For many years, farmers may have been mismanaging nitrogen fertilizer and manure nitrogen in a variety of ways. Recent research has shown that much of the excess nitrogen applied to crops eventually ends up in groundwater. The nitrogen content of manure and legumes has been recognized for a long time, but often it was forgotten when developing fertilizer recommendations because of the uncertainty of the availability of nitrogen from an organic source. Traditionally, fertilizer recommendations erred on the side to ensure that sufficient nitrogen was applied to meet the desired yield potential.

Dr. Richard Fox with the Penn State agronomy department has been looking at a variety of tests for many years to bet a better handle on these organic sources of nitrogen. His original purpose was to reduce input costs, however, the research fits well into today's issue of water quality.

Several years ago while using a soil nitrate test, Fox noted that the soil content of nitrate nitrogen would start to increase in the spring and reach a maximum level during mid to late May. Once the soil nitrates reach their maximum level, they remained fairly constant throughout the season when organic nitrogen sources had been applied to the land. Subsequent research showed soils that containing 25 ppm or more Nitrate Nitrogen at this time of the year do not show a yield response to additional nitrogen fertilizer. During 1987 and 1988 he conducted plots across the state with a very high correlation to these earlier findings.

This year the new nitrogen test will be offered on a trial basis through county extension offices, some Soil Conservation District offices, and crop management associations. If the testing procedure is successful, testing kits will be marketed to farmers, consultants, fertilizer dealers, etc. next year. Extension will not be getting into the business of doing soil nitrogen tests after the trial period. Merkle Laboratory at Penn State has of-

ferred a nitrogen test for several years and will continue to offer this service in the future.

In Lancaster County, the county extension office, P.S.U. Nutrient Management Office in New Holland, P.S.U. Southeast Research Farm in Landisville, and the Lancaster County Conservation District will be field testing the new soil nitrogen testing procedure. The procedure that is used is very similar to a laboratory test used for testing blood nitrogen. The test uses a paper test strip that is sensitive to nitrate nitrogen. The test strip turns a darker color as the level of nitrogen in the sample increases. An electronic meter is being used to read the intensity of the color change rather than just using an eyeball comparison to a color chart. The color reading is then calculated in parts per million of nitrate nitrogen.

The quick test will be free of charge during the trial period. Merkle Laboratory also offers a nitrate test for \$5 if someone prefers a chemical analysis. In Lancaster County, Farm Managers and Ag Industry Representatives can have samples tested under the

following conditions:

1. A maximum of three samples will be done per farm unit.
2. Farm unit must be located in Lancaster County, farmers outside the county should contact the county extension or conservation district in the county where they are located.
3. A FARM DATA SHEET must be complete before the test is run. The sheet helps to estimate the tons of manure per acre applied.
4. Fields tested should receive regular applications of manure or have been in a legume crop during 1988.
5. Field should not receive more than 40 pounds of plow down or surface applied nitrogen plus the nitrogen in starter fertilizer for the 1989 growing season before testing.

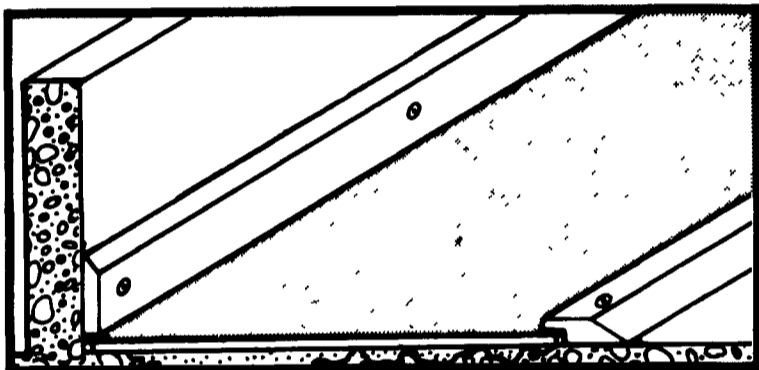
Soil samples should be done as close to analysis time as possible. Soil samples should be randomized over the entire field with a

minimum of 18 samples to a depth of one foot. Immediately after sampling, they must be dried. Wet samples will not be tested. To dry samples using a convection oven, use a low heat setting of 200 to 250 degrees until sample is dry, do not over dry. With a microwave oven, use the high setting for five to eight minutes or until dry. Air drying of samples on paper can also be done, however it takes too long to get the sample dry, the results will be less accurate. Once dry, the sample can be held for several days. Testing will be available through the end of June at the following locations at the times listed.

TIME - 10 a.m. to noon - TUESDAYS: E-Town Vo Ag Dept., Solanco Vo Ag Dept., Ephrata Jr. High Ag.; THURSDAYS: Penn Manor Vo Ag Dept. Summit Valley School Ag.

TIME - 1 to 3 p.m. - TUESDAYS: Bart Township Bldg., Manheim Cent. Vo Ag; THURSDAYS: G. King Store-White Horse, Strasburg Township Bldg.

Samples can also be brought to the County Extension Office, Conservation District Office or the Penn State Research Farm near Landisville.

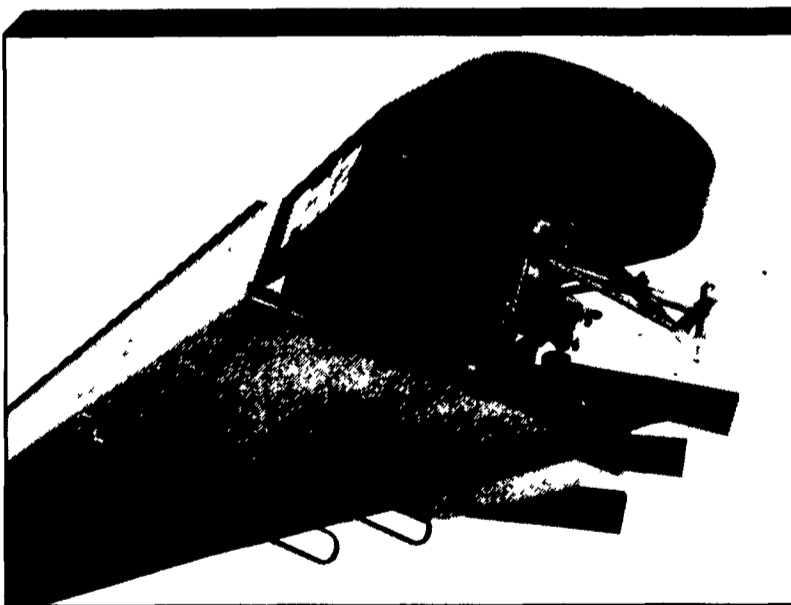


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