New method found for testing nitrogen in soils

UNIVERSITY PARK – A method has been found to quickly predict amounts of nitrogen available to plants growing in soils of the humid East. Dr. Richard H. Fox, assistant professor of soil science at the Pennsylvania State University, reported he and his colleagues are developing a method suitable for largescale soil testing programs. It is the first such test that works for soils of the humid East.

Fox indicated the method uses ultraviolet light to measure the organic matter contained in extracts of the soil, which in turn is an index of nitrogen availability in the soil.

The experimental process has been used successfully for three years with 16 major agronomic soils studied by the Agricultural Experiment Station at Penn State.

"Data in this study indicate a lot of our soils are supplying more nitrogen than we realize," Fox said. "This results in more nitrogen being applied than may be needed. Results of the study have potential to save Pennsylvania farmers millions of dollars and reduce risks of nitrate pollution," he indicated.

"Until now there has been no way we could test soil in a routine soil testing program to predict how much nitrogen the soil will provide to a crop grown under conditions in the East," says Fox.

Lacking a predictive test, nitrogen fertilizer recommendations are based on nitrogen needed for optimum crop response. Farmers must apply the total amount of nitrogen or risk inefficient crop yields.

In some instances, Fox and associates found as much as 100 pounds of excess nitrogen is applied. This is the result of a higher-than-expected contribution of nitrogen from the soil. Causes may include a residue of nitrogen in the soil from previous crops or from use of animal manures.

The researchers estimate that at current prices of about 20 cents per pound of fertilizer nitrogen applied, a farmer may be spending up to $20 an acre more than necessary to produce the crop. Accurate testing could lower these costs as well as reduce risks of polluting ground water supplies with nitrates.

Other nitrogen-availability tests proposed to date take several hours to days for completion, using caustic chemicals and elaborate laboratory methods, prohibitive in cost and time for practical uses.

"We are trying to develop a mass production method that large soil testing services, such as the one at Penn State, could run in 20 minutes or less," says Fox. Tests for inorganic nitrogen used successfully in arid soils, west of the Mississippi River, don't work in the humid East.

Dr. Fox affirms the need for this test becomes greater as the price of nitrogen fertilizer, and natural gas from which it is made, increases. The test is important to agriculture conducted in a wide range of soils and with varied management schemes.

"In Pennsylvania most dairy farmers apply heavy annual applications of manure and they grow alfalfa or other legumes. This has made it difficult to predict nitrogen availability in our soils, and to accurately recommend nitrogen fertilizer rates for our crops," Fox states.

Until a nitrogen availability test is developed it will be extremely difficult to attain maximum efficiency of nitrogen fertilizer use in the East, report the researchers.

If Fox and associates are successful they'll help Eastern farmers save money, reduce energy consumption in farming, and reduce the potential for nitrate pollution.

Farmers to visit Puerto Rico

NEWARK, Del. – A group of Delaware farmers plans to spend a week in February visiting dairy and vegetable farms in Puerto Rico. The group, which calls itself the Kent County Agricultural Tour, is finalizing arrangements now, according to County Extension Agent Dave Woodward, one of its organizers. In spite of the Kent county designation, the trip is open to any interested Delaware farmer, regardless of where in the state he resides.

Woodward says they hope to have about 55 people on the educational tour, which is being planned by him and University of Delaware Extension dairy specialist Dr. George Haenlein, in cooperation with representatives of Puerto Rico's Agricultural Experiment Station and the Puerto Rican extension service.

Haenlein spent several days on the island last Spring visiting farms there in connection with a U.S. government AID program being developed at the University of Delaware and feels a visit by Delaware farmers could be quite instructive.

The group plans to leave for the Washington, D.C., area Saturday, February 3. After spending a day there, they will fly to Puerto Rico. They will return on February 11. Cost of transportation and lodging is $545, excluding meals. Individuals interested in learning more about the trip should contact Woodward at 302-678-4675 as soon as possible.

This will be the seventh major educational farm tour for the Kent county group – the first outside the Continental U.S. In the past they have traveled to California, Arizona, Florida, and Louisiana to study farming techniques in these areas and consult with local farmers.

Sire Power adds to staff

TUNKAHANNOCK - Jim Martin and Steven Castrogiovanni have been added to the Sire Power laboratory and distribution staff in Tunkhannock, according to Director of Laboratory and Distribution, Norman Werkheiser.

Jim began working for NEBA in May, 1977, as a technician in Susquehanna County. He was employed by the Sire Power laboratory as a truck run driver, delivering semen to technicians and direct herd salesmen throughout the NEBA territory.

Jim trained his own replacement, Steve Castrogiovanni, to do semen distribution via truck and became a full time laboratory employee in November. Now he processes semen, makes extender for dilutions, diluting, packaging, and checking semen viability. In addition, Jim aids laboratory research projects.

Presently Steve services all of NEBA's technicians once a month supplying them with semen, A.I. equipment, and new information. He spends two days each week on the road, one day supplying the truck, and two days in the laboratory working in the "tank room" freezing semen and filling orders.

Woodland forestry course offered

UNIVERSITY PARK - If you have woodland, what do you plan for it? Build a hunting lodge? Plant Christmas trees? Sell logs or lumber? Provide food and cover for wildlife?

You may own woodland for profit or recreation, but management of the area is needed for useful development, remind specialist of the Cooperative Extension Service. Tree species can be controlled by planting seedlings. Growth of tall straight trunks can be encouraged by proper spacing and by removal of weed trees. Wildlife can be protected by growing food and cover plants. Picnic and camp areas need water supplies and toilet facilities.

To help owners manage woodlands, Penn State University offers a correspondence course of eight lessons titled "Woodland Forestry." Anyone may enroll by sending $4.50 to Woodlot Forestry, Box 5000, University Park, Pa., 16802. Make checks payable to Penn State.