

'Smart' Fertilizer Improves Plant Growth, Prevents Runoff Pollution

UNIVERSITY PARK (Centre Co.) — A new "smart" phosphorus fertilizer, developed by Penn State horticultural scientists reportedly, improves plant root growth, drought tolerance, shoot quality and flowers while also preventing up to 90 percent of the nutrient runoff that can foul waterways.

The new fertilizer is currently undergoing its first Pennsylvania field trials with the aid of a grant from the Pennsylvania Department of Agriculture. However, field trials in Florida have been ongoing since 1998 and have shown high performance of ornamentals grown in sandy soils prone to leaching.

The fertilizer has also been shown to improve plant growth and drought tolerance while virtually eliminating leaching in nursery or greenhouse plants grown in peat or soilless media. In the soilless systems tested by the Penn State researchers with a wide variety of ornamental plants and vegetables, leaching was reduced to less than one percent of conventionally fertilized plants.

The new field fertilizer, which is being patented by the universi-

ty, was developed by Dr. Jonathan Lynch, associate professor of plant nutrition, Dr. Kathleen Brown, professor of post harvest physiology, and Robert H. Snyder, research support associate, in Penn State's College of Agricultural Sciences. The inventors say that, besides uses in agriculture and floriculture, the new fertilizer may be useful for stadium fields and golf courses as well.

Lynch explained that, in traditional fertilizer systems, the amount of nutrient available to the plant is large immediately after application and declines as the plant takes it up and the nutrient runs off when it rains. However, in the new "smart" system, the supply of phosphorus available to the plant always matches a level typically found in "natural" soils.

In the new "smart" system, phosphorus is automatically released and maintained at low, natural levels to meet the plants' needs by the chemical buffering action of aluminum oxide. The phosphorus is bound on the surface of aluminum oxide granules, which allows only a limited amount of the nutrient to be re-

leased. More of the bound phosphorus is released only as the initial amount is used up. The low levels of phosphorus released by the "smart" fertilizer mean that there is less to enter ground and surface waters.

Lynch notes that environ-

mental regulations on runoff can be expected to become tighter in the near future. Sudden growths or blooms of microorganisms caused by nutrient runoff can cause life threatening human illness as well as make rivers, streams, lakes, and beaches unat-

tractive and unhealthy for wildlife. He adds that Europe already has tighter regulations than the U.S.

While the low, natural levels of phosphorus released by the new

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Senate Approves 4-H Partnership Bill

WASHINGTON, D.C. — When 4-H celebrates its centennial next year, senators Dick Lugar (R-IN) and Tom Harkin (D-IA) want the National 4-H Council's proposed public-private partnership to set new strategies for youth development for the next century. Their bill supports the centennial and the 4-H motto, "To make the best better."

"In celebrating its centennial, the National 4-H Council has proposed a public-private partnership to develop new strategies for youth development for the next century. The funding authorized in this bill will allow the National 4-H Council to convene meetings and hold discussions at the national, state, and local levels to form strategies for youth development. A final report will summarize the discussions, make specific youth development recommendations, and propose an action plan," said Lugar.

"We need to build on the tradition and success of 4-H to develop new approaches for youth de-

velopment that are appropriate and effective in the 21st Century. Youth today face ever-growing pressures, demands and challenges far different from those of the past. 4-H has a great deal to offer them, but to be fully successful, 4-H must adapt to the realities of an increasingly complex and rapidly changing world. This legislation is designed to bring 4-H into its second century by developing new strategies for youth development," said Agriculture, Nutrition and Forestry Committee Chairman Harkin.

The 4-H program operates in more than 3,000 U.S. counties, encompassing all 50 states and the District of Columbia. Last year, more than 6.8 million youths ages 5-19 participated, as well as over 600,000 volunteer youth and adult leaders.

In the past two decades, 4-H has seen substantial growth in urban areas, now the home of one of every four 4-H members (1.8 million youths). The 4-H mission is to create supportive environments for culturally diverse

youth and adults to reach their fullest potential. The program combines the cooperative efforts of youth; volunteer leaders; state land-grant universities; federal, state and local governments; and the U.S. Department of Agriculture Cooperative State Research, Education and Extension Service. Educational programs include plant, animal, and earth sciences; civics and leadership; personal development, family and health; and communications and expressive arts.

The distinctive green four-leaf clover emblem represents the 4-H pledge:

- My Head to clearer thinking,
- My Heart to greater loyalty,
- My Hands to larger service,
- My Health to better living.

For my Club, my community, my country, and my world.

The Lugar-Harkin bill would authorize up to \$5 million plus private funds for the 2002 centennial events.

Additional information on 4-H can be found at www.4-H.org and www.fourhcouncil.edu.

Vegetable Industry Gives Research Money

(Continued from Page A37)

we are providing growers is realistic and the commercial-size high tunnels will also serve as an excellent educational resource for field days and for tours by growers and other interested organizations.

• Vegetable irrigation scheduling, Timothy Elkner, Lancaster County, \$1,100, to evaluate the effectiveness of soil tensiometers as reliable indicators of the need to irrigate, and to evaluate the most useful depth to take tensiometer readings to indicate soil water status.

The two small fruit research projects approved for funding and their objectives are as follows:

• Strawberry plasticulture in Pennsylvania: influence of planting date and cultivar, Kathleen Demchak, Michael Orzolek and William Lamont, Penn State, \$2,300, to obtain information on yields expected from the use of plasticulture system in Pennsylvania and to determine desirable planting dates and cultivars suited to plasticulture and how the interact to produce optimum yields.

• Herbicides for the establishment year of strawberries: A statewide trial (continuation), Kathleen Demchak, Penn State, \$2,750, to test the most promising herbicide treatments from a 1999 trial at Rockspring on a variety of soil types under a variety of environmental

conditions in order to determine their value to Pennsylvania strawberry growers. Data from the study will be useful in determining whether a Special Local Needs label should be pursued for any new herbicides.

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