

Report tells of Md. ag research

COLLEGE PARK, Md. — "Agricultural Research: An Investment in Maryland's Future" is the title of the latest annual report from the Maryland Agricultural Experiment Station, headquartered at the University of Maryland in College Park. The report describes the work of the station in areas of environmental quality, pest management, new crop development, animal

nutrition, and poultry and egg production.

Scientists at the station are attacking problems facing agriculture in the future in a number of ways, according to the 1977 annual report.

As part of protecting and improving water quality, scientists are identifying and assessing problems caused by specific categories of pollutants. The researchers

are looking at several agricultural practices to see what effects they have on sediment, soil nutrients and pesticide problems under differing soil and water conditions. Further data from the experiments will be used to evaluate the effects of management practices on reduction of pollutants.

Another environmental study under way is establishing guidelines for the safe use of sewage sludge on agricultural lands. Methods have been developed to monitor heavy metals in sewage sludges, soils, and plants. This enables researchers to determine the influence that soil properties and temperature have on the availability of heavy metals to plants. Once safe guidelines for sewage sludge use are developed, a big part of the problem of disposing of municipal wastes will be resolved.

Pest management is another new approach to an environmental and economic problem facing farmers and other members of the agricultural community. It allows farmers to increase the available food supply in a more efficient and economical way. The Maryland Agricultural Experiment Station conducts a multi-pronged research effort in this area, involving plant breeding, and use of safe chemical and biological controls along with the study of ecological and cultural practices in reducing pest numbers.

An example of new crop development involves research on strawberries. Two new Maryland varieties have been released since 1974, and scientists continue work to improve and breed new strains that will be resistant to diseases and insects.

The station also has

research programs with field crops, vegetables, fruit, urban horticultural products, flowers and new cash crops suited to Maryland's soil and climatic conditions.

In livestock research, the experiment station is placing increased emphasis on animal nutrition and the nutritive value of animal food products.

Maximum use of grain by-products, forages, high-fiber by-products and nonprotein nitrogen sources by dairy and beef cattle and sheep are important goals of the experimental work.

The experiment station also provides a research

foundation for maintaining several areas, including and expanding the poultry diseases, management, and egg industry in the state. This research — both basic nutrition and product technology.

Nitrogen on no-till corn causes problem

UNIVERSITY PARK — Farmers planting no-tillage corn should be aware of potential problems in using nitrogen fertilizer, a research agronomist at Penn State declared recently.

"No-tillage corn fields given high rates of ammonium sulfate or ammonium phosphate will most likely need to be limed or plowed every other year to avoid soil surfaces so acid that herbicides won't work," stated Dr. Richard H. Fox, crop scientist dealing with soil fertility. "The fact is," he affirmed, "weeds must be controlled chemically in no-till corn fields."

And he pointed out that significant amounts of nitrogen can be lost as a gas when urea-containing fertilizers are used. That's because the fertilizer is not incorporated into the soil in no-till corn management, he said.

In addition, Dr. Fox recommended that ammonium-containing or ammonium-yielding fertilizers should not be spread on fields where lime has not been worked into the soil. He

explained that lime may cause a large fraction of the nitrogen to be lost as ammonia gas.

"Under the above circumstances, the best nitrogen fertilization for no-tillage corn is to use ammonium nitrate and plow in lime when necessary, or to 'knife-in' anhydrous ammonia," he stated.

In three years of no-till experiments at Penn State, Dr. Fox and associates found that 180 pounds of nitrogen per year as ammonium sulfate reduced the average pH of the surface inch of soil to 5.1, almost two pH units below the soil which received no nitrogen.

At this low pH, herbicides such as atrazine and simazine are ineffective and aluminum and manganese may approach toxic levels. Such toxicity can reduce stands and yields. The pH of the surface inch in some plots treated with the high rate of ammonium sulfate was 4.8. Taking a normal sample to a depth of six inches may miss the problems of soil surface acidity, he cautioned.

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