

Acid rain damages discussed

HARRISBURG — About 50 interested people turned out for the Thursday evening meeting on acid rain, mostly government officials and planning commission members.

But two farmer representatives sat through the meeting at the Swatara Township Municipal Building.

Guy Donaldson and Arthur Mussleman, both Adams County fruitgrowers, listened to James Lynch of Penn State discuss the effects of acid precipitation on water quality, forests, and agricultural land.

Lynch told the group that there is a growing concern about acid rain across the state. He admitted there was a lot the researchers don't know about the impact acid rain has on the environment, but he noted it is definitely a problem.

Lynch has been studying the problem since 1973. He said, however, it is difficult to get viable data because of the sensitivity of the monitoring equipment.

"The sampler is so sensitive to pollution that if you just put your hand in the container for an instant, you'll ruin the sample."

Lynch's data points out that the acid rain pollution problem is intensifying in the East, and is starting to spread towards the South and West.

He said that in Pennsylvania over the past 6 years, the average pH for the rainfall was 4.04. Considering neutral is 7.0, this

means the rainfall was acidic.

The lowest pH recorded was 3.23, and as Lynch explained, was recorded when the winds were coming from the West. These winds carry the pollution from the states along the Ohio River and Great Lakes Region across Pennsylvania.

The highest pH Lynch recorded at his sampling stations in Huntingdon Co. was 5.1. This measurement was taken last year, he said, when Hurricane David came up the East coast.

Lynch told the group the lowest pH's are recorded during the growing season, with an average of 3.94. The lowest level recorded, he said, was 3.75 back in 1975.

During the dormant period, October through April, Lynch pointed out, the pH levels raise slightly to 4.14.

What causes this fluctuation in pH levels? Lynch said he believes it might be related to the sulfate levels in the air, with the lowest pH levels being recorded when the sulfate levels are highest.

Another theory, pointed out by James Salvaaggio of the Pa. Department of Environmental Resources, Bureau of Air Quality, is that snow is less efficient in removing sulfur dioxide from the air, therefore there is a higher pH, or less acid precipitation, during the winter months.

"We are in the eye of the hurricane," remarked Lynch. He said the areas

surrounding Pennsylvania generally have less acidic rain than what falls on the Commonwealth.

There is a lack of information on the impact of this rainfall, he said, but there are reports that it causes crop damage, kills fish, causes apple spotting, and reduces the water quality.

Lynch added there is information that documents there is direct injury to forest land from the acid rain.

"The rain actually dissolves the waxy surface on the leaf, and destroys the guard cells that control moisture loss in the tree. As a result the guard cells are prevented from closing, and the vapor is allowed to escape."

He hypothesized that in a period of drought, when the tree is under stress, the acid rain could possibly kill the tree.

Studies show that acid rain increases the leaching of minerals and nutrients from the soil, Lynch noted, lowering its fertility. But, he added, it also increases the rate of weathering of bedrock, creating new soil, and may actually be increasing the nutrient level somewhat.

The acid rain has been demonstrated to kill off hardwood and pine seedlings, also, he noted. However, he said, some of the studies were done under simulated green house conditions.

"The green house studies

do show cause and effect, but under much different conditions than those which would occur in nature."

Even if the acid rain cut the annual growth rate by 1/3, Lynch said it would not have much impact on the economy of the forest product industry.

What does have an effect on industry is the rapid change in pH in the streams as the result of acid rainfall, Lynch stressed. He said there are serious fish kills because of sudden changes, like one stream that measured a pH change in one hour dropping from 7.0 to 5.5.

"Such a drastic change does not give plants and fish a chance to get acclimated," he said.

The acid rain accumulation in snow may change the fish specialists theory on Spring kills, he noted.

"When the snow melts and releases the acid and heavy metals into the streams at a fast rate, this may be what's killing the fish rather than the build up of organic acids—what it was formerly attributed to," said Lynch.

As far as the acid rains long range effect on the pH of soil, Lynch noted it will depend on the buffering capacity of each individual soil type. He pointed out an EPA study showed the acid rain actually stimulated the growth of certain plants—it injures the foliage but doesn't hurt the productivity.

What's being done about

Adams Co. fruitgrower, said he was leaving the meeting with more questions about acid rain than were answered.

"I know that I have to keep my soil between a pH of 6 and 7 for good production, so if this acid rain lowers the soil pH it will have an effect. Other than that, we just don't know what these rains are doing to agricultural products, or how to deal with them."

Until more research and funding comes through to answer some of these questions, farmers will not be sure whether to be happy or upset when it rains.—SM

Two new farm bills begin 1981 debate

WASHINGTON, D.C. — Senator Max Baucus of Montana, Senator George McGovern of South Dakota and Senator Carl Levin of Michigan have introduced two bills designed to ensure the continued viability of family farms in America.

The first is the Family Farm Development Act of 1980. This comprehensive bill: encourages the development and ownership of family farms; reorients USDA research and education relating to family farms; discourages tax-loss farming; provides opportunities for beginning farmers; provides financial assistance for farmers involved in small-scale alcohol production and appropriate technologies; and broadens marketing programs within USDA and encourages direct marketing.

The second bill, the Farm Tax Equity Act of 1980, makes the following changes in the federal tax code: the total amount of tax deductions allowed for an agricultural investor could not exceed his income derived from farming plus \$17,500. Taxpayers with

adjusted income less than \$17,500 could continue to subtract all allowable farm losses; farmers whose gross income from farming exceeded \$100,000 would be required to use accrual (as opposed to cash) accounting methods to determine taxable income; and foreign investors would be required to pay capital gains on profits from sales of farm or other rural land.

Senator Baucus said, "There is extensive evidence that family farms are efficient economically and productively. The reasons why many family farmers are having trouble staying on the land and newcomers are having trouble beginning farming are structural ones — reasons that have more to do with tax laws, research policies, marketing systems and farm price support policies than they do with economic efficiency."



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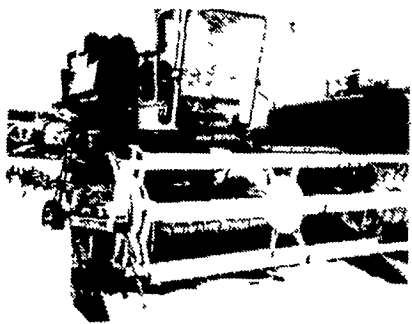
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