

Acid rain

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fishermen are now fishless, apparently because of much greater than normal acidity. The dead lakes are at high elevations, where soil lacks buffering agents that neutralize acid as it pours into the streams.

Scientists there think the fish probably died out because, in the acid-laden water, they lost capacity to reproduce. Some have been killed more directly, in sudden surges of acid resulting from quick snow thaws.

The sterile lakes don't appear murky or polluted. Instead, they are blue and clear, the "ideal of a pristine lake," observed Thomas J

Butler of Cornell University, who is studying acid precipitation's effects on aquatic life.

"I've been diving in some of these lakes and there's nothing left except a few water bugs," he said. "People who used to fish there in the 50's just don't go there anymore."

The high acidity already has taken an economic toll. The Adirondack Park Agency estimates the decline of game fish has meant an annual loss of at least \$1 million in recreational revenue.

Exactly what acid precipitation does to plants and crops is not as clear, but preliminary data show reduced seed germination, damage to seedlings, interference with photosyn-

thesis, lowered resistance to disease, and lesions on leaves. And there is direct evidence that acid precipitation leaches minerals from soil and can even release soil's metals, sometimes sending them into streams or water supplies.

Some of the world's most majestic man-made structures — the Parthenon, the Colosseum, Taj Mahal — also are feeling acid precipitation's effects. The progressive disfiguring of the sculptures on the Acropolis, for example, has been the work of acid rain.

"We can even see streaking on the Washington Monument — possibly the result of acid rain's grooving and pitting effects," Hood said. "Rock that might last hundreds of years is lasting only decades." Wood, metal, and other minerals are not immune either.

In this country acid precipitation first was detected in the Northeast, but it appears to have spread south and west in the last 20 years despite the prevailing west-to-east winds. All states east of the Mississippi now are regularly stung by abnormally acidic rain or snow, and acid precipitation has found its way to urban areas of the West such as Los Angeles, San Francisco, and Seattle.

What perplexes scientists is how acid precipitation moves. Often shoved high into the atmosphere by tall smokestacks, the pollutants can be picked up and carried for weeks and miles before being dropped in rain or snow. The spring shower that drenches New England might be loaded with pollution from an Ohio Valley power plant.

Some of our pollutants even wind up in storms over Canada, and the amount is expected to increase under a plan to convert dozens of

American utilities to coal use. Officials on both sides of the border are negotiating to try to limit the fallout.

In Scandinavia, where acid rain first was detected, the industrial areas of Britain and northern Europe are blamed. And some experts think an acidic haze over the Arctic was made in Japan.

"Not being able to tell whose pollution is whose makes it difficult to do something about the problem," Hood pointed out.

Because its sources are so hard to pin down, acid precipitation passes over most of the country's clean air regulations. Bruce Jordan of the Environmental Protection Agency's Office of Air Quality, Planning and Standards, says the EPA probably will recommend to Congress that the clean air act be amended to address acid precipitation.

One way to dry up acid rain sources is to cleanse coal of some of its chemicals before it is ever burned, Jordan said. Another possible remedy for factories and plants is the scrubber, which removes the byproducts of combustion before they are released into the atmosphere.

But some people are not convinced that acid precipitation is really hurting anything.

"We recognize the potential for harm, but we're not convinced that acid rain actually is doing damage in the real world," said Ralph Perhac, acting director of the Electric Power Research Institute, an organization set up to do research for power companies.

"We also know that coal-fired plants contribute to acid rain, but do they contribute 5 percent or 100?" The institute is funding studies of acid precipitation in the Adirondacks as well as in Britain.

Most scientists agree that the effects of acid precipitation are still in question, but they'd rather not wait around for a more precise picture to be drawn.

As a plant physiologist studying the phenomenon said "By the time we determine the full effects of acid rain, it will be too late to reverse them."

Soybean group to study grain transportation

ST. LOUIS, Mo. — The American Soybean Association has appointed a four-member task force to study and recommend actions to modernize and improve the U.S. transportation system.

"The transportation system is vital to our efforts to expand soybean and grain exports in competition with other producing countries," says ASA President Allan Aves.

"U.S. farmers are dependent upon the transportation system. As the nation's leading export crop, soybeans must be able to move efficiently and freely to our ports. At the direction of the ASA voting delegates and Board of Directors, I have appointed this task force to develop recommendations which our farmer-delegates will consider in New Orleans in August."

ASA Board Chairman Merlyn Groot of Manson, Iowa, will chair the task force. Other members include James M. Ferguson,

Calhoun City, Mississippi, vice president of the Mississippi Soybean Association; Roger Asendorf, St. James, Minnesota, president of the Minnesota Soybean Growers Association; and Andrew Winslow, Hertford, North Carolina, a member of the North Carolina Soybean Producers Association.

"In order to avoid reinventing the wheel, we plan to meet with other groups who are currently studying the transportation problems," Groot said.

"We will study all three major transportation systems: rail, barge and truck. We hope to develop recommendations that will consider cost efficiency and utility of the systems, as well as ways in which the three modes can work together."

Groot said the ASA committee will be working closely with transportation committees already at work for the Iowa Soybean Association and the Minnesota Soybean Growers Association.

Fertilizer cutback may be profitable

UNIVERSITY PARK — For the first time in many years farmers need to take a serious look at the amount of fertilizer they are applying to their crops, says Frederick A. Hughes, extension farm management specialist, at Penn State.

Fertilizer prices for many years did not change. Farmers were able to fertilize for maximum yield and not worry about the most economic level of fertilization.

With fertilizer prices tripling in the last several years, farmers need to consider whether that last increment of fertilizer is returning enough production to pay for

the cost of the fertilizer.

On many crops such as corn, that require a sizable amount of nitrogen for maximum production, it would be well for a farmer to try to determine what response he gets from incremental applications of nitrogen fertilizer.

It is questionable whether the last 10 to 30 pounds of nitrogen will be profitable in trying to obtain an extra 10 or 15 bushels of corn.

In many cases, that extra 10 to 30 pounds of nitrogen will only yield one or two bushels of corn and thus will hardly pay for the price of the additional nitrogen, Hughes points out.

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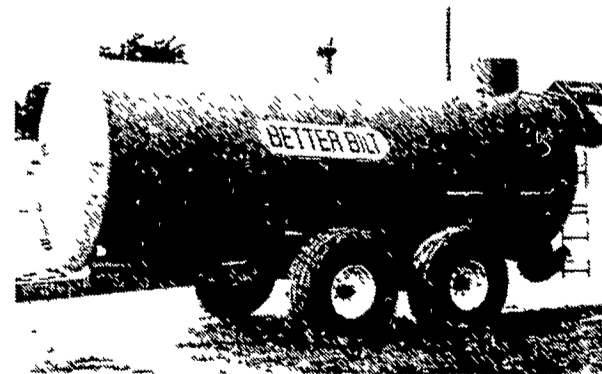
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