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Letters

Possible perils of PAM

I commend the promising research using polyacrylamides (PAMs) in irrigation water to prevent soil erosion and improve water infiltration ("Holding on to the Earth," SN: 10/30/93, p.280). However, further research is urged with respect to two possible adverse effects.

First, we must be certain that the polymer does not increase infiltration of pesticides into the aquifer. The increase in water infiltration rate might bypass the biodegradation step that normally occurs in topsoil. Once in the aquifer, many pesticides no longer biodegrade. Also, if the polymer uses up ionic binding sites on clay particles, pesticides that normally bind to the clay might leach to the aquifer.

Second, we must be certain that the acrylamide monomer does not accumulate in the aquifer. The monomer is an Environmental Protection Agency-regulated toxic trace by-product in the manufacture of the polymer. Research is needed into the environmental

This Week

- 100 Prying Open the Cryptographic Door
- 100 Puzzling atmospheric bursts spark interest
- 101 Laser may loosen the buckyball's bonds
- 101 Mother's smoking linked to child's IQ drop
- 102 Ancient city found on Mexican farmland
- 102 Non-smoking-related cancers rise
- 103 Proposed federal budget keeps R&D afloat

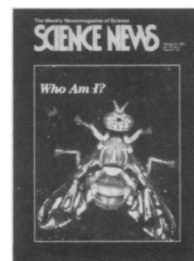
Research Notes

- 110 Astronomy
- 110 Earth Science
- 111 Environment

Articles

- 106 Mendelson's Web
- 108 Name That Fly

Cover: Not much bigger than a housefly, this melon fly, *Dacus cucurbitae*, menaces crops when it infiltrates U.S. borders. Now, computer programs can help make identification of this pest, and eventually all species, easier. (Photo from U.S. Department of Agriculture, Agricultural Research Service, Beltsville, Md.)



Departments

- 98 Books
- 99 Letters

Science Service, which publishes SCIENCE NEWS, is a nonprofit corporation founded in 1921. It gratefully accepts tax-deductible contributions and bequests to assist its efforts to increase the public understanding of science, with special emphasis on young people. More recently, it has included in its mission increasing scientific literacy among members of underrepresented groups. Through its Youth Programs it administers the International Science and Engineering Fair, the Science Talent Search for the Westinghouse Science Scholarships, and publishes and distributes the *Directory of Student Science Training Programs for Precollege Students*.

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fate of both the monomer and the polymer.

Since our aquifers are essential to our drinking water supply, widespread use of PAMs should go forward only after we are certain our aquifers are protected.

Howard Woods
Idaho Department of Health and Welfare
Division of Environmental Quality
Drinking Water Program
Boise, Idaho

I question the wisdom of continuing research and politics that promote irrigation in areas of the country that were never meant to grow the crops they currently support. While PAM provides great reduction in soil erosion rates, it distracts from this greater issue.

Where does this water for irrigation come from in an area that only receives 7 inches of precipitation annually? I am guessing it is from future generations and an ecosystem that can ill afford it.

Todd Hubbard
Ankeny, Iowa

In regard to your comment "no one knows exactly why the negatively charged PAM works so well on soils," I suggest the following.

Water loves to lose electrons, making all of the contained particulate matter share the same positive charge. Thus the similarly charged particles repel each other and tend to remain suspended. Either the negatively charged PAM adheres to the positively charged clay, pulling it together and causing it to flocculate, or the negatively charged PAM serves as a conduit for electrons to flow down from the ground to the positively suspended clay.

Bob Barefoot
Wickenburg, Ariz.

CORRECTION

The article "Water habits on land cause oceans to swell" (SN: 1/8/94, p.21) reported that deforestation in the tropics contributes 0.14 centimeter per year to global sea-level rise. The correct amount is 0.14 centimeter per decade.