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Rachel's Environment & Health News

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#660 - Pesticides In The News, July 22, 1999

Pesticides continue to produce unpleasant surprises around the world.

** In April, researchers in Switzerland announced that much of the rain falling on Europe contains such high levels of pesticides that rainwater would be illegal if it were supplied as drinking water. [1] Rain over Europe is laced with atrazine, alochlor and other common agricultural poisons sprayed onto crops.

The European Union has set a drinking water standard of 100 nanograms per liter for any individual pesticide. Stephan Muller at the Swiss federal Institute for Environmental Science and Technology in Dubendorf reported finding one sample of rain containing 4000 nanograms per liter of 2,4-dinitrophenol, a common pesticide (not to be confused with the weed killer 2,4-D).

Muller had previously studied samples of rain from 41 storms over Europe and found Atrazine at levels exceeding 100 nanograms per liter in 9 of them. A 1999 study of rainfall in Greece found one or more pesticides in 90% of 205 samples taken. Atrazine was measurable in 30% of the 205 samples. [2]

Atrazine is a weed killer used on 96% of the U.S. corn crop each year. Introduced in 1958, some 68 to 73 million pounds were used in the U.S. in 1995, making it the best-selling pesticide in the nation. Atrazine interferes with the hormone systems of mammals. In female rats, it causes tumors of the mammary glands, uterus, and ovaries. Two studies have suggested that it causes ovarian cancer in humans. EPA [U.S. Environmental Protection Agency] categorizes it as a "possible human carcinogen." Atrazine is found in much of the drinking water in the

midwestern U.S., and it is measurable in corn, milk, beef and other foods. (See REHW #553.)

** Last March, well-known Swedish scientists Lennart Hardell and Mikael Eriksson published a case-control study (404 cases and 741 controls) showing once again that non-Hodgkin's lymphoma (NHL) is linked to pesticide exposures. Hardell and Eriksson published their first study linking phenoxy herbicides to non-Hodgkin's lymphoma (NHL) in 1981.[3]

Non-Hodgkin's lymphoma (NHL) is a group of cancers that arise in the white blood cells. NHL is increasing rapidly in the U.S. and elsewhere in the industrialized world.

Between 1973 and 1991, the incidence of non-Hodgkin's lymphoma increased at the rate of 3.3% per year in the U.S., making it the third fastest-growing cancer (after prostate cancer, growing at 3.9% per year, and melanoma of the skin, also growing at 3.9% per year).[4] In Sweden, the incidence of NHL has increased at the rate of 3.6% per year in men and 2.9% per year in women since 1958.

In recent years, AIDS patients have contributed to the increase in NHL, but a steady rise in the incidence of this disease was apparent long before the AIDS epidemic. Together the known "risk factors" for NHL --including immune-suppressing drugs, rare immune-system diseases, and AIDS, explain only a small proportion of NHL cases.

One of the herbicides linked to NHL by the most recent Hardell study is glyphosate, sold by Monsanto under the trade name Roundup. A previous study of human subjects in 1998 had implicated Roundup in hairy cell leukemia (cancer of the blood-forming organs), a rare kind of NHL.[5] Several animal studies have shown that Roundup can cause gene mutations and chromosomal aberrations.[3]

The use of Roundup is expected to increase substantially in the next few years

because several of Monsanto's genetically engineered crops (such as potatoes and corn) are "Roundup Ready" which means they have been specifically designed to withstand a thorough dousing by Roundup. The goal is to create crops that are not affected by Roundup so that unusually large quantities of Roundup can be applied to eradicate weeds without harming the crop. Roundup is Monsanto's most profitable product. (See REHW #637, #638, #639.)

** Last month, researchers in the U.S. and Canada announced that they had measured pesticides in the amniotic fluid of 30% of a sample of 9 pregnant women in Los Angeles, California.[4] A baby growing in the womb floats in amniotic fluid for 9 months before birth.

The particular pesticide found in amniotic fluid -- p,p'-DDE -- is a breakdown byproduct of DDT and is known to interfere with male sexual development by de-activating the male sex hormone, testosterone. Until now, pesticides had not been measured in amniotic fluid.

The unpublished study of pesticides in amniotic fluid was reported at the 81st annual meeting of the Endocrine Society in San Diego, California, in June.[6] The researchers released a statement in San Diego saying, "The concentrations of p,p'-DDE found (range of 0.01 to 0.63 nanograms per milliliter [parts per billion]) are sufficient to cause concern, since the levels measured are in the same range as some steroids [hormones] which occur naturally in the fetus at the same time of development." The statement also said, "Of the various health problems associated with these chemicals, developmental abnormalities of the male reproductive tract, suppression of immune function, development of the brain and neurobehavioral problems in children are of major concern because they are potentially avoidable and irreversible."

One of the authors of the study, Siu Chan of the University of Calgary in Canada, told NEW SCIENTIST magazine that

researchers cannot be sure that DDE would have any affect on babies exposed continuously in the womb.[7] But Chan pointed out that alligators were harmed by exposure to a similar chemical in Florida after a chemical spill. "In males, the penis was much smaller than normal," Chan said. (See REHW #372.) Several studies of laboratory animals have confirmed that DDE can interfere with normal sexual development of males and can cause enlarged prostate glands.[8,9]

** A study published in May in ENVIRONMENTAL HEALTH PERSPECTIVES, a U.S. government science journal, makes the case that insecticides sprayed on forests in eastern Canada in the mid-1970s led to a dramatic decline in the population of Atlantic Salmon (45% reduction in small salmon, 77% reduction in large salmon).[10] Salmon are born in fresh water but after 2 or 3 years they undergo physical changes called "smoltification," after which they move downstream into salt water. Smoltification is controlled by hormones. Researchers believe the pesticide interfered with the hormones of the salmon, somehow disrupting smoltification, leading to the loss of large numbers of fish.

The pesticide in question was called Matacil 1.8D. The "active ingredient" in Matacil 1.8D is aminocarb, which makes up about 25% of the insecticide by weight. The other 75% of Matacil 1.8D is an "inert ingredient" called 4-nonylphenol (4-NP for short). In laboratory tests, 4-NP is anything but inert. It is a powerful hormone disrupter.

The authors of the study point out that many U.S. streams contain levels of hormone-disrupting chemicals comparable to the levels that they believe wiped out so many Atlantic salmon. (See REHW #545.)

** Consumer's Union, publisher of CONSUMER REPORTS magazine announced last February that many U.S. fruits and vegetables carry pesticide residues that exceed the limits that EPA considers safe for children. "Using U.S. Department of Agriculture

statistics based on 27,000 food samples from 1994 to 1997, the magazine looked at foods children are most likely to eat," the NEW YORK TIMES reported. [11] "Almost all the foods tested for pesticide residues were within legal limits, but were frequently well above the levels the Environmental Protection Agency says are safe for young children. According to the Consumer's Union Report, even one serving of some fruits and vegetables can exceed safe daily limits for young children," the TIMES reported.

"Methyl parathion accounts for most of the total toxicity on the foods that were analyzed, particularly peaches, frozen and canned green beans, pears and apples. Late last year [EPA] said that methyl parathion posed an 'unacceptable risk' but that it had not taken any action to ban it or reduce its use. Organophosphates [such as methyl parathion] are neurological poisons and work the same on humans as they do on insects," the TIMES said.

One of the main aims of the CONSUMER REPORTS study was to compare pesticide levels on U.S.-grown foods vs. imported foods. In almost every case imported foods had lower levels of pesticides and/or less toxic pesticides than U.S.-grown foods.

In sum, many of us are being exposed -- without our informed consent -- to industrial poisons starting in the womb, then in our food and water more or less continuously throughout childhood and into adulthood. Wildlife are being continuously exposed as well. Many of these substances interfere with mental and sexual development and can cause learning disorders and violent behavior. (See REHW #529, #551, and #648.) Science has no way of assessing what effects combinations of these poisons will have.

Yet risk assessors working for the poisoners, and their apologists in government, make a good living manipulating mathematical models to "prove" that all of this is acceptably safe. They are the conductors keeping the trains running on time to Auschwitz, just

doing their jobs.

But of course the owners of the trains are the industrial poisoners and the political representatives they own.

It boils down to this: we must get private money out of our elections so that we can choose political representatives who are not in the pockets of the poisoners. Until that happens, the poisoning will continue.

--Peter Montague (National Writers Union,
UAW Local 1981/AFL-CIO)

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[1] Fred Pearce and Debora Mackenzie, "It's raining pesticides; The water falling from our skies is unfit to drink," NEW SCIENTIST April 3, 1999, pg. 23. See www.newscientist.com/ns/-19990403/newsstory12.html .

[2] Emmanouil Charizopoulos and Euphemia Papadopoulou-Mourkidou, "Occurrence of Pesticides in Rain of the Axios River Basin, Greece," ENVIRONMENTAL SCIENCE & TECHNOLOGY [ES&T] Vol. 33, No. 14 (July 15, 1999), pgs. 2363-2368.

[3] Lennart Hardell and Mikael Eriksson, "A Case-Control Study of Non-Hodgkin Lymphoma and Exposure to Pesticides," CANCER Vol. 85, No. 6 (March 15, 1999), pgs. 1353-1360.

[4] Angela Harras and others, editors, CANCER RATES AND RISKS 4TH EDITION [NIH Publication No. 96-691] (Bethesda, Maryland: National Cancer Institute, 1996), pg. 17.

[5] M. Nordstrom and others, "Occupational exposures, animal exposure, and smoking as risk factors for hairy cell leukaemia evaluated in a case-control study," BRITISH JOURNAL OF CANCER Vol. 77 (1998), pgs. 2048-2052.

[6] Warren Foster, Siu Chan, Lawrence Platt, and Claude Hughes, "[P3-357] In utero exposure of the human fetus to xenobiotic endocrine disrupting chemicals:

Detection of organochlorine compounds in samples of second trimester human amniotic fluid [abstract presented June 14, 1999 at the Endocrine Society's 81st Annual Meeting in San Diego, California]."
Available from The Endocrine Society, 4350 East West Highway, Suite 500, Bethesda, MD 20814-4426. See also, "P3-357 Lay explanation of abstract" also available from the Endocrine Society.

[7] Alison Motluk, "Bad for the Boys," NEW SCIENTIST June 26, 1999, pg. 15.

[8] L. You and others, "Impaired male sexual development in perinatal Sprague-Dawley and Long-Evans hooded rats exposed in utero and lactationally to p,p'-DDE," TOXICOLOGICAL SCIENCES [ISSN 1096-6080] Vol. 45, No. 2 (October 1998), pgs. 162-173.

[9] I.K. Loeffler and R.E. Peterson, "Interactive effects of TCDD and p,p'-DDE on male reproductive tract development in in utero and lactationally exposed rats," TOXICOLOGY AND APPLIED PHARMACOLOGY Vol. 154, No. 1 (January 1, 1999), pgs. 28-39.

[10] Wayne L. Fairchild and others, "Does an Association between Pesticide Use and Subsequent Declines in Catch of Atlantic Salmon (SALMO SALAR) Represent a Case of Endocrine Disruption?" ENVIRONMENTAL HEALTH PERSPECTIVES Vol. 107, No. 5 (May 1999), pgs. 349-357.

[11] Marian Burros, "High Pesticide Levels Seen in U.S. Food," NEW YORK TIMES February 19, 1999, pg. unknown. See <http://- archives.nytimes.com> .

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[Image] back to the top

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