

Further evidence that chemical crop sprays cause adverse health effects

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Recent scientific research has pointed again to the far-reaching health effects of chemicals such as pesticides and weed killers. The results are published in *New Scientist* magazine. In an article, "It's raining pesticides", Stephan Müller and Thomas Bucheli of the Swiss Federal Institute for Environmental Science show that rain water often contains pesticides above the limits allowed in drinking water. It is already well known that crop sprays drain into rivers and underground supplies, but the Swiss scientists say they can also evaporate from fields and become absorbed into clouds. The highest concentrations of such pollutants are found in the first rainfall after long dry periods.

The article also refers to evidence about one of the most rapidly increasing cancers in the West, non-Hodgkin's lymphoma. Swedish scientists say there is a significant link with exposure to some sprays, including the weed killer glyphosate. This is particularly worrying as this type of chemical is now widely used because it breaks down quickly.

While the *New Scientist* article is the latest to warn about the environmental problems of crop sprays, the subject first reached a broader audience in the 1960s with the publication of books such as Rachel Carson's *Silent Spring*, dealing with the pesticide DDT.

At about the same time, scientists began to uncover evidence of a link between these types of chemicals and cancer. The US Food and Drug Administration drew attention to two chemicals, aldrin and dieldrin, in 1962, and the manufacturer Shell eventually confirmed their harmful effects. In 1972, a federal court in Missouri ruled that exposure to dieldrin was the cause of one case of Hodgkin's disease.

Until the US government banned them in 1975, aldrin and dieldrin were widely used to prevent crop

infestations, usually by aerial spraying. In the early 1970s the US Environmental Protection Agency found dieldrin in 85 percent of air samples and in virtually all samples of human body fat. Even after aerial spraying was stopped, the contamination was still found to exist at lower levels. At the time, scientists thought one explanation was that the pesticides evaporated and then spread.

Since then, the use of crop sprays has increased. Whereas in 1975 farmers in the UK hardly sprayed pesticide or fungicide on cereal crops, by 1990 nearly all crops received one spray of pesticide and three of fungicide. For weed killer, the figures were 1.5 sprays in 1975 and 2.5 in 1990.

Their increased use worldwide means that these substances have become part of global climate patterns, evaporating in warm climates and blowing northwards. Four years ago, high levels of crop spray chemicals were discovered in an Arctic lake.

Recently, more evidence has been found of the effects of pesticides on human health, often at very low levels. The *Journal of the American Medical Association* published a paper this year about Parkinson's disease. This is a progressive disease of the nervous system that affects about one in 500 of the population, rising to one in 100 in those over 65 years old. The research concluded, from studies of twins, that the environment was more responsible for the disease than the genetic background of the patient. However, the environmental cause suggested by the present study is not yet known.

Many pesticides and weed killers can mimic human hormones and disrupt reproduction. Scientists have linked hormone-disrupting chemicals to breast, testicular and prostate cancer, reduced sperm count and problems with fetal development. A strong link is suggested between the higher rate of breast cancer in

the English agricultural county of Lincolnshire and the use of the pesticide lindane in sugar beet production.

Manufacturers and government bodies have made the situation worse by denying there is a problem, or delaying research and investigation. Last year in the UK, the government allowed manufacturers to use 340 active ingredients to make pesticides, but it has not looked closely at 194 of them since 1986.

At an international level, a UN Convention was agreed by 95 countries last year to try and control the trade in harmful chemicals. Some chemicals cannot be exported without the consent of the importing country. The list includes aldrin, dieldrin and lindane. However, the Convention still allows a country to export chemicals that it bans in its own territory and use less stringent labelling. Industry spokesmen point out that, in a global economy, if companies are not allowed to export chemicals they will shift production to those countries with less environmental regulation.

The use of pesticides and weed killers has made possible more efficient farming methods and greater yields and has reduced some human diseases. However, while the manufacturers have usually profited from their use, the wider health and environmental consequences are usually forgotten. The human and economic costs of diseases such as Parkinson's are enormous.

Also see:

Food Safety Issues

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"It's raining pesticides"

[*New Scientist* article]



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