

Rachel's Environment & Health News

#250 - Pet Dogs Get Cancer From Weed Killers

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Pet dogs exposed to the weed killer 2,4-D are dying of cancer at twice normal rates, according to a study just published in the JOURNAL OF THE NATIONAL CANCER INSTITUTE.[1] Dog owners who spray or dust their lawns with weed killers containing 2,4-D are doubling Fido's chances of getting cancer, the study shows. Dogs walk across, or roll in, herbicide-treated lawns and then ingest toxic chemicals when they lick their coats or paws. Popular lawn-care products containing 2,4-D include Weedone, Weed-B-Gone, and many others (see below).[2]

Naturally, children who play on treated lawns will also come in contact with the chemical; dogs and children can also track the chemical indoors where prolonged exposure to humans may occur, but, so far as we know, no one has yet studied effects of weed killers on children or other family members inhabiting treated home sites.

In the past decade, several studies of farmers, and a few of railroad workers, have shown a connection between exposure to 2,4-D and an increased risk of human cancers. This latest study shows that dogs get some of the same kinds of cancers from weed killers that farmers in Nebraska,[3] Kansas,4 and Saskatchewan,5 and workers in Sweden[6],7,8 are reported to get from using 2,4-D on crops and to clear weeds along railroad tracks. In humans, the cancers are known as soft tissue sarcomas (STS), malignant lymphomas, and non-Hodgkin's lymphomas. In dogs, malignant lymphomas and non-Hodgkin's lymphomas predominate. The occurrence of such cancers in the American people has been rising slowly but steadily for several decades, tracking the emergence of the modern life style in which the dandelion-free lawn has come to symbolize the good life.[9] Non-Hodgkin's lymphomas--the kind dogs are reported to get most often from exposure to 2,4-D--have been the second fastest-growing cancer in humans in the U.S. during the past 15 years.

It is not clear exactly which components of weed killers are responsible for the cancers. There are three possible sources of the problem: (a) the active ingredient in the weed killer, (b) the so-called "inert" ingredients that are used as carriers for the chemicals that actually kill weeds, and (c) the dioxins that contaminate the active ingredients during manufacture.

About 600 million pounds of 2,4-D are spread on American soil each year by homeowners and farmers--about 60 million pounds of "active ingredients" and about 540 million pounds of "inert" ingredients that can include carbon tetrachloride (a carcinogen), chloroform (a carcinogen), chloroethane (a carcinogen) and 20 or more other ingredients that are labeled "inert" but which have well-known toxic properties.[10] Federal pesticide law does not require chemical companies to disclose what is in the "inert" ingredients in their products. Furthermore, federal law provides a \$10,000 penalty for any government employee who reveals the make-up of "inert" ingredients in pesticides.

2,4-D and its closely-related chemical cousin, 2,4,5-T (which is now banned in the U.S.), are contaminated with dioxins during manufacture. Dioxins are extremely potent toxins that have a wide spectrum of effects in humans, wildlife, and laboratory animals (see RHWN #249). A recent study by the National Institutes of Occupational Safety and Health (NIOSH) revealed a 46% cancer increase among workers in factories manufacturing these weed killers. (See RHWN #219.) Previous studies by scientists employed by herbicide manufacturing companies (BASF and Monsanto) had purported to show no effects in workers but there is now a growing concern among government officials that some of these studies were falsified.[11]

People spread 2,4-D around their homes and gardens to kill broad-leaf weeds, crab grass and dandelions. Farmers use it on tomatoes to cause all fruits to ripen at the same time for

machine harvesting, and to increase the red color in potatoes. Utility

companies, highway departments, and railroads use it to clear brush beneath power transmission lines and along highways and tracks. It is used heavily on corn, sorghum, rice and other crops to keep weeds down. From 1962 to 1971 during the Vietnam War, 2,4-D and its chemical cousin 2,4,5-T mixed together formed Agent Orange; it was sprayed by soldiers and airmen to defoliate the jungle where the Vietcong were living. Thousands of GIs have filed lawsuits against the U.S. government and against individual companies that supplied components of Agent Orange, such as Monsanto, Dow, Uniroyal, Hercules, Diamond Shamrock and others. A recent study in the AMERICAN JOURNAL OF PUBLIC HEALTH reveals that Vietnam veterans are 70% more likely to father children with one or more major birth defects, compared to men with no military service; it is unclear whether herbicide exposure is the most important cause.[12]

Common names for weed killers containing 2,4-D include Weedone, Weed-B-Gon, Green Cross Weed No More 80, Lawn-Keep, Salvo, Red Devil Dry Weed Killer, De-Pester Ded-Weed, Plantgard, Dormon, Dormone, Brush Killer 64, Weed-Rhap, Bladex-B, Butoxy-D, Dicofur, Ipaner, Moxon, Netagron, Pielik, U 46 DP, Verton 38, B-Selektionon, Silvaprop, Agricorn D, Acme LV 4, Acme LV 6, Coprider, D50, DMA 4, Emulsamine, Fernesta, Fexone, Macondray, Pennamine, Tributon, Weedatul, Agroxone, Spritz-Hormin, Desormone, Decamine, Weedar, R-H Weed Rhap 20, and Scott's 4-XD Weed Control.[2]

--Peter Montague

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[1] Howard M. Hayes and others, "Case-Control Study of Canine Malignant Lymphoma: Positive Association With Dog Owner's Use of 2,4-Dichlorophenoxyacetic Acid Herbicides," JOURNAL OF THE NATIONAL CANCER INSTITUTE Vol. 83 (Sept. 4, 1991), pgs. 1226-1231.

[2] Product names were gathered from a search on "2,4-D" in the National Library of Medicine's online Hazardous Substances Data Bank; to learn details of this online system, write National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894.

[3] Shelia Hoar Zahm and others, "A Case-Control Study of Non-Hodgkin's Lymphoma and the Herbicide 2,4-Dichlorophenoxyacetic Acid (2,4-D) in Eastern Nebraska," EPIDEMIOLOGY Vol. 1 (September, 1990), pgs. 349-256.

[4] Shelia K. Hoar and others, "Agricultural Herbicide Use and Risk of Lymphoma and Soft-Tissue Sarcoma," JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Vol. 256 (Sept. 5, 1986), pgs. 1141-1147; see RHWN #3.

[5] A. Blair, "Herbicides and non-Hodgkin's lymphoma: New evidence from a study of Saskatchewan farmers," JOURNAL OF THE NATIONAL CANCER INSTITUTE Vol. 82 (1990), pgs. 544-545.

[6] Olav Axelsson and others, "Herbicide Exposure and Tumor Mortality," SCANDINAVIAN JOURNAL OF WORK, ENVIRONMENT, AND HEALTH Vol. 6 (March, 1980), pgs. 73-79.

[7] Mikael Eriksson and others, "Exposure to Dioxins as a Risk Factor for Soft Tissue Sarcoma: A Population-Based Case-Control Study," JOURNAL OF THE NATIONAL CANCER INSTITUTE Vol. 82 (March 21, 199), pgs. 486-490.

[8] Lennart Hardell and Mikael Eriksson, "The Association Between Soft Tissue Sarcomas and Exposure to Phenoxyacetic Acids," CANCER Vol. 62 (Aug. 1, 1988), pgs. 652-656.

[9] Kenneth P. Cantor and Others, "Distribution of Non-Hodgkin's

Lymphomas in the United States Between 1950 and 1975,"
CANCER RESEARCH Vol. 40 (August, 1980), pgs. 2645-2652.

[10] U.S. Environmental Protection Agency staff members estimate that use of 2,4-D "active ingredient" is between 57 and 62 million pounds per year. Federal law does not allow EPA officials to gather exact data. See PESTICIDE INDUSTRY SALES AND USAGE; 1987 MARKET ESTIMATES (Washington, DC: Economic Analysis Branch, Biological and Economic Analysis Division, Office of Pesticide Programs, [U.S.] Environmental Protection Agency, September 1988), Table 9. However "active ingredients" account for only about 10% of an herbicide like 2,4-D; see Susan Jaffe, Michael Sorgan, and Timothy P. Urban, THE SECRET HAZARDS OF PESTICIDES: INERT INGREDIENTS (Albany, NY: Office of the Attorney General, June, 1991), Table 1. Free copies of this Attorney General's report are available through the mail by contacting Office of Public Information, NY State Department of Law, 120 Broadway, NY, NY 10271. You can try to place a phone order by calling (212) 341-2000.

[11] See, for example, Leslie Roberts, "Monsanto Studies Under Fire," SCIENCE Vol. 251 (February 8, 1991), pg. 626. A Monsanto public relations spokesperson says the company's studies of worker health were sound; nevertheless, Roberts reports, U.S. Environmental Protection Agency has recently opened a criminal investigation to determine whether Monsanto "falsified" three epidemiological studies of its workers. For further evidence of concern expressed by government officials, see RHWN #171.

[12] Ann Aschengrau and Richard R. Monson, "Paternal Military Service in Vietnam and the Risk of Late Adverse Pregnancy Outcomes," AMERICAN JOURNAL OF PUBLIC HEALTH Vol. 80 (October, 1990), pgs. 1218-1224.

Descriptor terms: 2,4-d; cancer; dogs; inert ingredients; herbicides; pesticides; farming; occupational safety and health; studies;