

Subject: Pesticides - 2, 4-D and Roundup (glyphosate)
From: Monica Craver <mecraver@shaw.ca>
Date: Fri, 15 Jun 2007 12:43:46 -0700
To: Corrie Kost <kost@triumf.ca>, fonvca@fonvca.org
CC: council@dnv.org

My response to Corrie Kost:

There is plenty of evidence proving pesticides are harmful to both our physical and mental health. *Unsafe with any Application!* My chemical sensitivity was triggered by accidental overexposure of pesticides during an apartment spraying in the mid-eighties. I suffer the effects of downwind spraying, etc, every Spring when the chemical lawn people are out in force with their herbicides, chemical fertilizers, and pesticides, in general. And during the Summer when they come again to do more spraying. I have approached many of these lawn people before spraying if the wind is blowing in the direction of my home. Why should I have close my windows, etc. to protect myself?

Why should my health suffer so my neighbour can keep his grass weed-free? Frankly, in my books, grass is just another weed, and not as pretty as wild violets, buttercups and those many bee and butterfly attracting dandelions. My lawn and weed care is as easy as mowing and mulching, frequently. **My health, and yours, is of greater worth than a "green" lawn.** Please look to banning pesticides, for my health, your children, your pet dogs, cats, etc. We will all thank you for it.

--Monica Craver--
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Pesticides - 2,4-D and Roundup (glyphosate)

Two of the "Safer?" Pesticides:

2,4-D

The phenoxy herbicides were the first to be applied commercially. The best known are 2,4-D and 2,4,5-T. Although effective, 2,4-D may cause cancer in animals, and 2,4,5-T cannot be manufactured without producing an extremely toxic dioxin. That dioxin induces cancer in laboratory animals and also affects reproduction in mammals. As a result, 2,4,5-T is no longer commercially available in Canada. **Products containing 2,4-D, however, now account for one-quarter of Canada's total pesticide use.**
("Waiting for the Fiddler," Pesticides and the Environment in the Atlantic Region, www.ns.ec.gc.ca/epb/fiddle/herbicide.html - April 2002)

Problems with the drinking water come from a chemical known as DCP (2,4 dichlorophenol). DCP is formed from the chlorinating of municipal water and from the breakdown of the widely used weed killer 2,4-D. Rats whose drinking water contained levels of 300 parts per million showed depression of the part of the immune system regulating cell mediated immunity, thereby affecting helper T-cell communication.

("Drinking Water Can Weaken Immune Function," www.chem-tox.com - 2002)

2,4,-D is an herbicide, and although it is moderately toxic, it is labeled highly toxic due to incidences of serious skin and eye irritation among agricultural workers. Reports give conflicting results as to it being carcinogenic. However, significant increases of damage occurred in chromosomes in cultured human cells at low exposure. While there is some conflicting evidence about the reproductive effects of the compound in animals, most of the evidence suggests that 2,4-D causes reproductive effects at moderate doses in animals. **Despite its short half-life in the soil and in aquatic environments, the compound has been detected in groundwater supplies in at least five states and in Canada.** 2,4-D is slightly toxic to wildfowl, and some formulations of 2,-D are highly toxic to fish while others are less so.
(Total Environment Centre, 2,4-D, April 2002 - references given; Extoxnet, ENVCHEM, and Worksafe website)

In two year dietary tests in mice and rats, toxic effects of 2,4-D in the animals kidneys were seen at low doses. Nervous system damage has resulted from absorption of 2,4-D through the skin, and this damage to the nerves may be irreversible. Prolonged inhalation may cause dizziness, burning in the chest or coughing. Direct contact to the eyes may cause irreversible eye damage, and 2,4-D has limited potential to cause cancer (although this risk is still being evaluated). Poisoning from lower doses of 2,4-D has led to symptoms, such as neuromuscular problems, that lasted for several months after ingestion. Existing medical conditions such as asthma or skin lesions may be aggravated.

There are potential adverse health effects from the toxic inert ingredients and other herbicides (each herbicide would have to be consulted for their added effects) contained in the formulated product of 2,4-D. 2,4-D is considered "highly toxic" due to its hazard to the eyes. Workers are cautioned to wear goggles or a face shield, protective gloves and protective clothing when handling 2,4-D products. Avoid breathing vapor or spray mist. When mixing or loading 2,4-D, workers should wear chemical-resistant gloves. Gloves should be washed with soap and water before removal. Remove contaminated clothing and wash before reuse. Workers should wash thoroughly with soap and water before eating, drinking, or using tobacco. Individuals with skin lesions, disease, or sensitivity should avoid contact with 2,4-D.

There is some uncertainty as to 2,4-D's reproductive and developmental effects. As a precaution the Forest Service advises that female workers should not be employed in backpack or hack-and-squirt applications of 2,4-D. If on skin wash promptly with soap and water; rinse thoroughly if irritation develops. Get medical attention. In case of eye contact, flush with eyes with plenty of water for 15 minutes. If swallowed, promptly drink plenty of milk, egg white, gelatin solution, or water; do not drink alcoholic beverages. The mixing and loading of spray mixtures into the spray equipment must be carried out on an impervious pad such as a concrete slab or plastic sheeting large enough to catch any spilled material.

Do not apply 2,4-D directly to water. If spilled on the ground, the affected area should be removed to a depth of one or two inches, placed in a plastic bag and the disposal instructions on the label should be followed.

("2,4-D Pesticide Fact Sheet," Prepared for the U.S. Dept. of Agriculture, Forest Service by Information Ventures, Inc., Nov. 1995)

In 1979 a Swedish investigator Hardell postulated a possible association between exposure to 2,4-D and cancer in humans. Then the investigators at the U.S. National Cancer Institute published a report suggesting an association between suspected use of herbicides by Kansas farmers and an increased incidence of non-Hodgkin's lymphoma (NHL). These same authors also reported in 1990 a possible association in Nebraska farmers of increasing risk of NHL with increasing use of 2,4-D. In contrast Wigle and co-workers of Health Canada published results in 1990 of a study of cancer incidence among Saskatchewan farmers, the authors reported there was no increase in the overall cancer. **Some municipal and school jurisdictions have banned the use of 2,4-D in public areas. Several provincial and state governments now require that some areas be posted with signs when treated with pesticides so that people can choose to avoid using the area and thereby minimize their chance for exposure.**
("Environmental Persistence And Human Exposure Studies With 2,4-D And Other Turfgrass Pesticides," Stephenson, Solomon, and Ritter, Centre for Toxicology, University of Guelph, Guelph, Ontario Canada, April 2002)

The common lawn pesticide, 2,4-D has been shown to increase the risk of lymphatic cancer in farmers six times the normal rate according to a National Cancer Institute report.
(Science News, Sept. 13, 1986 at web site www.chem-tox.com)

Groups of tests exposed animals to different pesticides used in agriculture and lawn care, and the result showed over 50% more activity (hyperactivity) following a single exposure to the chemical. ("Common Pesticides Cause Hyperactivity in Test Animals After Single Dose," Neurotoxicology and Teratology, 1989, in www.chem-tox.com - 2002)

2,4-D was a major component (about 50%) of the product Agent Orange used extensively throughout Vietnam. However, most of the problems associated with the use of Agent Orange were associated with a contaminant (dioxin) in the 2,4,5-T component of the defoliant. The association of 2,4-D with Agent Orange has prompted a vast amount of study on the herbicide. 2,4-D is a "Restricted Use Pesticide" (RUP) in the U.S. Restricted Use Pesticides may be purchased and used only by certified applicators. While the LD50 of 2,4-D suggests that it is only mildly toxic, the product carries the DANGER signal word on the label indicating that it is highly toxic. This is because 2,4-D has produced serious eye and skin irritation among agriculture workers. In humans, prolonged breathing of 2,4-D causes coughing, burning, dizziness, and a temporary loss of muscle coordination.

Symptoms of poisoning can be fatigue and weakness with perhaps nausea. On rare occasions there can be inflammation of the nerve endings with muscular effects following high levels of exposure. Symptoms vary with the different commercial products because of the specific amounts and type of additives such as surfactants and solvents.

Evidence suggests that 2,4-D causes reproductive effects at moderate doses in animals. This indicates that humans may be at risk with 2,4-D exposure but there is no direct evidence of this. Significant increases of damage occurred in chromosomes in cultured human cells at low exposures levels of 2,4-D. Low doses fed to rats for 2 years caused an increase in malignant tumors. Female mice given a single injection of 2,4-D developed cancer (reticulum-cell sarcomas). There is a report of liver dysfunction from long term exposure. Peak concentrations of 2,4-D were found in the blood, liver, kidney, lungs and spleen with lower levels in muscle and brain between 6 and 8 hours after small doses were given to rats.

("2,4-D," Extoxnet - Extension Toxicology Network, a Pesticide Information Project of Cooperative Extension Offices of Cornell University, Michigan State University, Oregon state University, and University of California at Davis -publication date Sept. 1993)

The authors of a 1991 published study in the Journal of the National Cancer Institute observed that owners of dogs with malignant lymphoma were twice as likely to treat their lawns with 2,4-D four times a year or more than owners of dogs who did not have cancer. The more frequently 2,4-D was applied, the more likely the dog was to develop cancer. Some veterinarians advise dog owners not to use 2,4-D on their lawns.

("2,4-D and Cancer," Kaneene et al, Re-Analysis of 2,4-D Use and the Occurrence of Canine Malignant Lymphoma, Journal of Veterinary and Human Toxicology, 1999 - www.24D.org/dogs.html) Editor's comment: See www.24d.org/pub.html for a list of dozens of recently published reports or studies on 2,4-D.

According to a 1982 EPA manual, 2,4-D is irritating to the skin, eyes and mucous membranes, and, since it is easily absorbed dermally or by inhalation, can injure liver, kidney, muscle and brain tissues. Acute symptoms of exposure include: chest and abdominal pain, vomiting, dizziness and muscle twitching tenderness or stiffness. A study in rats has demonstrated that 2,4-D can migrate into nervous tissue and concentrate in certain areas of the brain. In humans seemingly minor dermal exposures have been known to cause peripheral neuropathy (irreversible loss of feeling in extremities). Depression, lethargy and coma have also been documented in animals and humans.

2,4-D is a WHO class II "moderately hazardous" pesticide. Some medical reports from practitioners who have treated victims of acute exposure to 2,4-D mention severe and sometimes long lasting or even permanent symptoms. These include nausea, weakness, fatigue, diarrhea, temporary loss of vision, respiratory tract irritation, confusion, numbness and tingling, bleeding and chemical hypersensitivity, and in some cases neurotoxic effects including inflammation of the nerve endings.

(Extoxnet data sheet on 2,4-D, Cornell University, 1994 & "Health Effects of 2,4-D Herbicide," Ruth Shearer, North West Coalition for Alternatives to Pesticides, Jan., 1990) ("chemicalWATCH Factsheet - 2,4-D," Pesticides and You, National Coalition Against the Misuse of Pesticides - NCAMP, March 1995)

2,4-D is unusual among herbicides in that it causes an array of adverse effects to the nervous system: myotonia (the inability of muscles to relax), disruption of the activity of nervous system chemicals, and behavioral changes. Maturing nervous systems may be particularly vulnerable: in laboratory tests juvenile rats exposed to 2,4-D developed smaller brains than unexposed rats. The ability of the blood to carry oxygen and to form clots is reduced by 2,4-D. 2,4-D has also caused genetic damage in tests using both cell cultures and laboratory animals. Medium-term studies have found 2,4-D caused loss of muscle and body weight, or decreased weight gain.

The U.S. Environmental Protection Agency has reported that 2,4-D is contaminated with dioxins, which cause a variety of reproduction problems, cancer, and damage to the immune system. 2,4-D exposure has been linked with increased risk of the cancer Non-Hodgkin's lymphoma in a series of studies. The National Cancer Institute (NCI) found that men with non-Hodgkin's lymphoma (NHL) were more likely to have used farm herbicides than men without the disease. Looking at just 2,4-D exposure, men with NHL were 2.6 times more likely to have used 2,4-D than men without the disease. The relative risk of NHL increased with the number of days of herbicide exposure per year and the length of time since the first exposure. Frequent herbicide users had a six-fold increase in risk. (JAMA 1986)

A study of workers in a U.S. 2,4-D manufacturing plant found that cancers of the lymph system were 3 times more frequent than expected (Br. J. Ind. Med. 1988). In rats, 2,4-D "markedly increases" iodine uptake by the thyroid (Endocrinology, 1962) and decreases the ability of blood to bind with thyroxin (Endocrinology, 1963) In addition, 2,4-D changes the distribution of thyroxin in the body, so that more is stored in the liver and the brain (Endocrinology, 1962). Another study of ten Italian farmers who used phenoxy herbicides (2,4-D and the related MCPA) found a variety of changes in the immune system, and some of the changes persisted 2 months after exposure. ("2,4-D: Toxicology, Part I & II, Herbicide fact sheet, Journal of Pesticide Reform, Spring 1999)

2,4-D is a widely used herbicide in the phenoxy family with a startling number of adverse effects on species other than the weeds it is designed to kill. 2,4-D reduces successful hatching of bird eggs, and destroys bird's food and nesting habitat. It is acutely toxic to earthworms and harms beneficial insects and acutely toxic to fish. 2,4-D causes genetic damage in barley, wheat, rice, and onions, and an increase in the severity of plant diseases. 2,4-D spraying has injured horses, and can injure livestock by damaging their food. 2,4-D increases the amount of sugar in ragwort (a toxic weed) so cattle seek it out. According to the EPA, 2,4-D use jeopardizes 13 endangered species of plants. ("2,4-D: Ecological Effects," Herbicide Factsheet, Journal of Pesticide Reform, Fall 1999)

Many chemicals are harmful in very low doses, like the herbicide 2,4,5-T, which is harmful in parts per trillion. ("Chemical Sensitivity, It's a Serious Problem More Often Than You Think!!! Adrienne Buffaloe, M.D., Medical Director of New York City's First Chemical Free Environmental Medicine Center)

Roundup

A recent study by eminent oncologists Dr. Leonard Hardell and Dr. Mikael Eriksson of Sweden, has revealed clear links between one of the world's biggest selling herbicide, glyphosate (commonly known as Roundup, marketed by Monsanto), to non-Hodgkins lymphoma, a form of cancer - NHL. There are even requests for permits for higher residues on genetically engineered foods because they are highly resistant to herbicides, instead of reducing herbicide use, glyphosate resistant crops may result in increased residues. They are already on sale. Farmers knowing that their crop will tolerate or resist being killed off by the herbicides will tend to use them more liberally. There have been no risk/benefit analysis carried out, so the regulatory authorities have failed to implement the precautionary principle with respect to GMOs.

("Herbicide Tolerance," New Study Links Monsanto's Roundup to cancer," www.biotech-info.net/glyphosate_cancer.html - June 2001)

The Women's Cancer Resource Center (WCRC) and CHOSE (Coalition for a Healthy Oakland School Environment), showed that chemicals such as Round-Up (glyphosate) can result in reproductive damage as well as damage to the kidney and liver, and some studies show a link between the chemical and cancer.

(Chemical Injury Network, June 2001)

Glyphosate (Roundup) is one of the most toxic herbicides, and is the third most commonly reported cause of pesticide related illness among agricultural workers. Products containing glyphosate also contain other compounds, which can be toxic. Glyphosate is technically extremely difficult to measure in environmental samples, which means that data is often lacking on residue levels in food and the environment, and existent data may not be reliable.

("Greenpeace Report - Not ready for Roundup: Glyphosate Fact Sheet," greenpeace.org - April 1997)

Glyphosate is found in weed killers and may cause cardiovascular, gastrointestinal, nerve, and respiratory damage.

("Special Report: what you need to know about pest control," Natural Health Magazine, May/June 2001)

Roundup: Label - Keep out of reach of children, harmful if swallowed, avoid contact with eyes or prolonged contact with skin. Remove clothing if contaminated. Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas that may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source. Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid contamination of seed, feed, and foodstuffs. Soak up a small amounts of spill with absorbent clay. Do not reuse container for any other purpose. (Roundup - Label, farmcentral.com - June 2001)

Monsanto's advertising campaigns have convinced many people that Roundup is safe, but the facts just don't support this. Independent scientific studies have shown that Roundup is toxic to earthworms, beneficial insects, birds and mammals, plus it destroys the vegetation on which they depend for food and shelter. Although Monsanto claims that Roundup breaks down into harmless substances, it has been found to be extremely persistent, with residue absorbed by subsequent crops over a year after application. Roundup shows adverse effects in all standard categories of toxicological testing, including medium-term toxicity, long-term toxicity, genetic damage, effects on reproduction, and carcinogenicity.

Studies have shown that Roundup's active ingredient, glyphosate, made bean plants more susceptible to disease, and reduces the growth of beneficial soil-dwelling mycorrhizal fungi. In rabbits exposed to glyphosate, sperm production was diminished by 50%, and caused genetic damage in the livers and kidneys of mice exposed to the herbicide. Monsanto does not have to reveal the precise composition of Roundup.

("Common Weed Killer (Roundup) Shows Evidence of Environmental and Health Problems," Organic Gardening, July 2000 - in www.chem-tox.com - 2002)

Pharmacia Corporation owns Monsanto, and Monsanto makes Roundup insecticide. (www.mercola.com - May 2002) The Pharmacia Corporation's core prescription pharmaceutical business claims to be a good citizen wherever they operate, and they are implementing a new, comprehensive system for managing environmental, safety, and health issues and has

adopted a series of ESH standards to guide operations worldwide. (Pharmacia.com - May 2002) **Some may question the ownership of a company that produces so many harmful chemicals to people, animals and plants.** Roundup accounts for half of Monsanto's corporate profits says Organic Gardening, July 2000.

Dangers that affect children's progress and interactions at school include learning disabilities and behavior problems. Among the dangerous chemicals is Roundup, which kills all green plants that it touches (users are advised to avoid the area for 24 hours). Another is Diazinon, used for killing insects in lawns (this one has a warning to keep away from edible plants because of its high degree of toxicity). Some schools have opted to pull weeds by hand, thus eliminating the need for spraying. ("Keep those pests away from school," Alternative Medicine magazine, March 2002)

*****"CHEMICAL SENSITIVITIES" - We are told that pesticides are one of the main causes and contributors to the emergence of chemical sensitivity.** They are the perpetrators of the perfect crime, as they are almost everywhere and they are generally odorless. They can cause insidious or delayed, yet progressive symptoms even weeks after an exposure, once the threshold for an individual's tolerance has finally been exceeded.***

Some chemically sensitive patients (MCS- Multiple Chemical Sensitivities) say their illness started after an overwhelming exposure to chemicals, such as a spill on their job or exposure to pesticides.
("MCS: A Sensitive Issue," Environmental Health Perspectives, www.herc.org - Sept. 1994)

One particularly dangerous, and frequently hidden, source of chemical exposure is the common practice of applying pesticides to apartment complexes, restaurants, schools, hospitals, and other public and private buildings without notifying the occupants. The disease may occur when the "total load" of biological, chemical, physical, and psychological stressors exceeds a critical threshold for a particular individual, and the sensitivity to one chemical, can then lead to being sensitive to another.
("Multiple Chemical Sensitivity," Ann McCampbell, M.D.)