

# The Dangers of 2,4-D

## What is 2,4-D?

2,4-dichlorophenoxyacetic acid is one of the most common and most toxic pesticides applied to North American lawns and gardens. 2,4-D has a notorious past. It was one of the two chemicals in the defoliant Agent Orange, used during the Vietnam War. Forty years later, the Vietnamese population and Vietnam war veterans are haunted by the horrific effects of Agent Orange, including miscarriages, birth defects, and cancer<sup>1</sup>. (Second and third generations of Vietnam War survivors are known as “Agent Orange babies”<sup>2</sup>.) After the war ended, 2,4-D manufacturers needed to find a new market for their chemical product in order to protect their profits, so they peddled 2,4-D as a lawn care necessity. Today, 2,4-D is one of the top five pesticides used most frequently by professional lawn care applicators in Ontario<sup>3</sup>.

## How does 2,4-D affect humans?

2,4-D is easily tracked into homes following lawn applications<sup>4</sup>. Studies in the United States, Italy, Denmark, Sweden and Canada have linked 2,4-D to non-Hodgkins’ lymphoma<sup>5</sup>. Another study detected 2,4-D in urine and semen samples of men who apply this chemical<sup>6</sup>. 2,4-D is a serious eye and skin irritant<sup>7</sup>. Inhaling 2,4-D can cause coughing, burning, and dizziness<sup>8</sup>. 2,4-D can irritate the gastrointestinal tract, causing nausea, vomiting and diarrhea<sup>9</sup>. 2,4-D can also cause severe damage to the central nervous system; symptoms include stiffness in the arms and legs, inability to walk, loss of muscle coordination, fatigue, stupor, coma and death<sup>10</sup>. Lastly, 2,4-D can be contaminated with dioxin, a powerful poison that is linked to infertility, miscarriages, birth defects, and cancer<sup>11</sup>.

## How does 2,4-D affect pets, wildlife and the environment?

A study published in the Journal of the National Cancer Institute found “a positive association between canine malignant lymphoma and dog owner’s use of 2,4-D...the increased risk of lymphoma doubled for lawns that were treated four times per year”<sup>12</sup>. Once 2,4-D is applied, the killing process cannot be reversed. 2,4-D can cause birth defects in birds<sup>13</sup>. It is highly toxic to fish<sup>14</sup> and earthworms<sup>15</sup>. 2,4-D kills beneficial insects, including honeybees, beetles, and ladybugs<sup>16</sup>. It destroys the habitats and food sources of various wildlife species<sup>17</sup>. After 2,4-D is applied to lawns and gardens, it can leach from soils and contaminate ground water<sup>18</sup>. In 2003, the City of Ottawa detected trace amounts of 2,4-D in local waterways<sup>19</sup>.

## Which organizations support restrictions on the use of lawn and garden chemicals?

The Canadian Cancer Society, the Canadian Medical Association, the Canadian Public Health Association, the Ontario College of Family Physicians, the Ontario Public Health Association, the Registered Nurses’ Association of Ontario, the Children’s Hospital of Eastern Ontario, the Humane Society of Canada and the Ottawa Humane Society support reducing the use of toxic lawn and garden pesticides.



## Which jurisdictions restrict the use of 2,4-D on lawn and garden pesticides?

Sweden, Norway and Denmark have de-registered the use of 2,4-D. The Province of Quebec has enacted legislation banning the sale and use of toxic lawn and garden chemicals, such as 2,4-D, beginning in 2006. More than 70 Canadian municipalities, including Hudson, Toronto, Montreal, Vancouver and Halifax have pesticide bylaws.

## Beware of pesticide industry tactics:

Pesticide companies say that the Pesticide Management Regulatory Agency (PMRA) of Health Canada has approved 2,4-D, and it is safe when used as directed. But 2,4-D manufacturers spend millions of dollars each year pressuring governments worldwide to re-register 2,4-D based on safety studies which they fund. W5, an investigative news program, exposed another pesticide industry strategy by reporting that PMRA receives 25% of its funding from pesticide manufacturers<sup>20</sup>.

## What does the Auditor General of Canada say about the safety of pesticides?

The flow of pesticide industry money cannot hide the truth about these dangerous chemicals. In 2003, the Auditor General of Canada determined that PMRA “is not adequately ensuring that many pesticides used in Canada meet current standards for protecting health and the quality of the environment”<sup>21</sup>. The Auditor General of Canada concluded that “the lack of reliable information on pesticide use, exposure, and impacts is a major hurdle that continues to interfere with the Agency’s ability to regulate pesticides”<sup>22</sup>.

The bottom line is that the Canadian government requires 2,4-D manufacturers to label their products as poisons. There is only one safe way to use 2,4-D – and that is to not use it at all!

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### (Endnotes)

<sup>1</sup> Fawthrop, Tom. “Vietnam

’s war against Agent Orange”. BBC News World Edition. June 14, 2004.

<sup>2</sup> Fawthrop, Tom. “Vietnam

’s war against Agent Orange”. BBC News World Edition. June 14, 2004.

<sup>3</sup> Water Environment Protection Program, Development Services Branch, City of Ottawa. 2003. Surface Water Pesticide Monitoring Program Summary Report.

<sup>4</sup> Nishioka, M., et al. “Distribution of 2,4-D in Air and on Surfaces inside Residences after Lawn Applications: Comparing Exposure Estimates from Various Media for Young Children.” Environmental Health Perspectives 109 (11): 1185-1191.

<sup>5</sup> Beyond Pesticides. July 2004. 2,4-D chemicalWATCH Factsheet.

<sup>6</sup> Health Canada. 1999. Herbicide Residues Found in Semen. Farm Family Health Newsletter. Population and Public Health Branch. Vol. 7. No. 2.

<sup>7</sup> Extension Toxicology Network. 1996. Pesticide Information Profile for 2,4-D.

<sup>8</sup> Extension Toxicology Network. 1996. Pesticide Information Profile for 2, 4-D.

<sup>9</sup> U.S. Environmental Protection Agency. 2003. 2,4-D (2,4-Dichlorophenoxyacetic Acid). Technology Transfer Network Air Toxics Website.

<sup>10</sup> U.S. Environmental Protection Agency. 2003. 2,4-D (2,4-Dichlorophenoxyacetic Acid). Technology Transfer Network Air Toxics Website.

<sup>11</sup> Beyond Pesticides. July 2004. 2,4-D chemicalWATCH Factsheet.

<sup>12</sup> Hayes, H.M. et al. 1991. Case-control study of canine malignant lymphoma: positive association with dog owners’ use of 2, 4-D herbicides. Journal of the National Cancer Institute 83 (17): 1226-1231.

<sup>13</sup> Cox, Caroline. 1999. Herbicide Factsheet. 2,4-D: Ecological Effects. Journal of Pesticide Reform. 19 (3): 14-19.

<sup>14</sup> Cox, Caroline. 1999. Herbicide Factsheet. 2,4-D: Ecological Effects. Journal of Pesticide Reform. 19 (3): 14-19.

<sup>15</sup> Beyond Pesticides. July 2004. 2,4-D chemicalWATCH Factsheet.

<sup>16</sup> Cox, Caroline. 1999. Herbicide Factsheet. 2,4-D: Ecological Effects. Journal of Pesticide Reform. 19 (3): 14-19.

<sup>17</sup> Cox, Caroline. 1999. Herbicide Factsheet. 2,4-D: Ecological Effects. Journal of Pesticide Reform. 19 (3): 14-19.

<sup>18</sup> Beyond Pesticides. July 2004. 2,4-d chemicalWATCH Factsheet.

<sup>19</sup> Water Environment Protection Program, Development Services Branch, City of Ottawa. 2003. Surface Water Pesticide Monitoring Program Summary Report. p. 1.

<sup>20</sup> CTV W5. October 25, 2002. The Perfect Potato.

<sup>21</sup> Office of the Auditor General of Canada. 2003. Report of the Commissioner of the Environment and Sustainable Development to the House of Commons. Chapter 1. Managing the Safety and Accessibility of Pesticides. p. 1.

<sup>22</sup> Office of the Auditor General of Canada. 2003. Report of the Commissioner of the Environment and Sustainable Development to the House of Commons. Chapter 1. Managing the Safety and Accessibility of Pesticides. p. 25