## Pesticides Used in Our Communities - Human Health and Environmental Impacts

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Use</th>
<th>Impacts</th>
<th>Alternatives</th>
</tr>
</thead>
</table>
| **2,4-D** 2,4-Dichlorophenoxyacetic acid (e.g., used in “weed and feed” products and often formulated in combination with Dicamba and Mecoprop – such as in Killex, Par III or Trillion)** | Broad leaf weeds | • Component of Agent Orange;¹  
• Potential for dioxin contamination and/or 2,4-D exposure occurring in mixtures with other pesticides has resulted in widely varied results investigating cancer risks;²  
• Contaminates urban bodies of water;³ (detected in Grenadier Pond, Humber and Don Rivers⁴)  
• Surface and groundwater contaminant;³,⁴,⁵  
• May be linked to non-Hodgkin's lymphoma;⁶,⁷,⁸,⁹,¹⁰  
• May be linked to prostate cancer in farmers;¹¹  
• Found in residential carpet dust up to one year after application outdoors on lawns;¹²  
• Endocrine disruption¹³  
• Acute effects of pesticide exposure range from irritation of the nose, eyes and throat, burning, itches and rashes to nausea, vomiting, headaches and general malaise;¹⁴,¹⁵  
• Reduced sperm counts and/or increased abnormalities in sperm¹⁶,¹⁷  
• Chlorophenoxy herbicides - which include 2,4-D - are classified in Group 2B (possible carcinogen) by International Agency for Research on Cancer (IARC).¹⁸,¹⁹ | ✓ Comprehensive turf care management program to reduce weeds. Program elements include:  
- proper watering  
- overseeding  
- aeration  
- use of slow-release organic fertilizers  
- monitoring |
| **Dicamba** 2-Methoxy-3,6-dichlorobenzoic acid (e.g., Banvel, Scott's Pro-Turf K-O-G)** | Broad leaf weeds | • Listed by the U.S. EPA as a developmental toxin.²⁰  
• Negative reproductive effects;²¹  
• Cholinesterase inhibitor;²¹  
• Linked to non-Hodgkin's lymphoma;²¹  
• Surface and groundwater contaminant;³  
• Listed as a possible carcinogen by the International Agency for Research on Cancer.²³ | ✓ Same as above |
| **Mecoprop** 2-(2-Methyl-4-chlorophenoxy)propionic acid, broad leaf weeds | • Linked to cancer of soft tissues and non-Hodgkin's lymphoma;¹⁵  
• Medium toxicity to birds,¹⁵  
• Surface and groundwater contaminant;³  
• Listed as a possible carcinogen by the International Agency for Research on Cancer.¹⁸ | ✓ Same as above |
| **MCPA** 2-Methyl-4-chlorophenoxyacetic acid, broad leaf weeds | • Often used with 2,4-D, mecoprop and/or dicamba;  
• Linked to reproductive effects, mutagenicity;¹⁵  
• Potential groundwater contaminant;³,¹⁵  
• Can cause severe eye irritation, slurred speech, muscle spasms;¹⁵  
• Listed as a possible carcinogen by the International Agency for Research on Cancer.¹⁸ | ✓ Same as above |
| **Glyphosate** N-Phosphonomethyl)glycine (e.g, Roundup, Touchdown)** | Broad leaf weeds | • Linked to spontaneous abortion²²  
• Leaches from sandy soils and contaminates water, highly toxic to fish;²³  
• Broad spectrum herbicide that kills turf if applied incorrectly²³ | ✓ Same as above |
| **Malathion** O,O-Dimethyl phosphorodithioate of diethyl mercaptosuccinate ** | Insect control | • Mutagenic;²³  
• Acute exposure causes headaches, loss of vision, nausea;¹⁵  
• Highly toxic to birds, bees, fish, amphibians, earthworms;¹⁵  
• Listed as a possible carcinogen by the International Agency for Research on Cancer.¹⁸ | ✓ Boric acid, diatomaceous earth, nematode products, insecticidal soap |
| **Carbaryl** 1-Naphthyl-N-methylcarbamate (e.g., Sevin, Sevinol, Latox; mixed in some products with Chlorothalonil or Dicofol)** | Insect control | • Potential Endocrine disruptor;²⁴  
• Exposures may cause sterility or decreased fertility, impaired development, birth defects of the reproductive tract, and metabolic disorders.²⁵  
• Linked to spontaneous abortion²²  
• Linked to non-Hodgkin’s lymphoma²⁶,²⁷  
• Toxic to fish, bees and earthworms;¹⁵ | ✓ Same as above |
| Chlorothalonil Tetrachloroisophthalonitrile (e.g., Daconil, Nuocide, Nopocide, Rigo Exotherm, etc.) | fungus control | • Highly toxic to fish, aquatic invertebrates and marine organisms; 28  
• Acute exposure causes severe eye and skin irritation; 28  
• Listed as a possible carcinogen by the International Agency for Research on Cancer. 18  
• Reproductive toxin, 28 | ✓ Investigate use of compost formulations to combat fungus |

| Benomyl Methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate (e.g., Wilson’s Benomyl 50, Benlate Toss-N-Go) | fungus control on golf courses, bowling greens | • Listed by the U.S. EPA as a developmental toxin and possible carcinogen. 20  
• Voluntary cancellation by industry in US; numerous products still registered in Canada  
• Suspected endocrine disruptor. 24 Exposure may cause sterility or decreased fertility, impaired development, birth defects of the reproductive tract, and metabolic disorders; 25 | ✓ Use compost formulations to combat fungus |

| Quintozene Pentachloronitrobenzene (sold as Quintozene 75% Wettable Powder Fungicide or as technical active ingredient) | fungus control and fertilization on golf courses and bowling greens | • Exposure may cause sterility or decreased fertility, impaired development, birth defects of the reproductive tract, and metabolic disorders; 25  
• Listed as a possible carcinoigen by the U.S. EPA. 25  
• Can contain traces of hexachlorobenzene (a suspected teratogen, mutagen and endocrine disruptor); 29  
• Extremely persistent -- half-life of 117 to 1,059 days; 30 | ✓ Same as above |

| Bendiocarb 2,2-dimethyl-1,3-benzodioxol-4-yl methylcarbamate (a.k.a. Ficam, a fungicide and in Raid Ant Terminals) | fungus control on golf courses, bowling greens | • Endocrine disruptor; 24 Exposure may cause sterility or decreased fertility, impaired development, birth defects of the reproductive tract, and metabolic disorders. 25  
• Listed by the U.S. EPA as a reproductive toxin. 20  
• Toxic to unborn children and infants under 6 months children, highly toxic to humans, especially those with asthma, diabetes and cardiovascular problems; 31  
• Toxic to fish and bees, 31 | ✓ Same as above |

**Endnotes**

11. Endnote 24 Exposure may cause sterility or decreased fertility, impaired development, birth defects of the reproductive tract, and metabolic disorders; 25  
19. Viewed on 9/12/02.  
30. Municipality of Metropolitan Toronto, Parks and Property Department. Use of Pesticides in Metropolitan Parks. April, 1991  

**Prepared by the Partnership For Pesticide Bylaws. 2002; Revised, September, 2003**