

Commonly Used Pesticides – Human Health & Environmental Impacts

Pesticide	Use	Impacts	Alternatives
<p>2,4-D</p> <p>2,4-Dichlorophenoxyacetic acid</p> <p>(e.g., <i>Trimec, Ortho Weed-B-Gon Max, Scotts Lawn Pro Step 2 Weed Control & Fertilizer, Scotts Lawn Pro Super Winterizer with Plus 2 Weed Control, Triplex, Triplet, Killex, Escalade, Bayer Advanced Lawn Fertilizer Plus Weed Control II, Bayer Advanced All-in-One Weed Killer for Lawns, Vigoro Ultra Turf Weed & Feed, Scotts Liquid Turf Builder Plus 2 Weed Control, Ortho Basic Solutions Lawn Weed Killer</i>)</p>	<p>broad leaf weeds</p>	<ul style="list-style-type: none"> • Component of Agent Orange¹ • Potential for dioxin contamination² • Contaminates surface and groundwater^{3,4} • Linked to non-Hodgkin's lymphoma in several studies^{5, 6,7,8,9} • Linked to prostate cancer in farmers¹⁰ • Found in residential carpet dust up to one year after application outdoors on lawns¹¹ • Endocrine (hormone) disruption¹² • 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^{13,14} • Reduced sperm counts and/or increased abnormalities in sperm^{15,16} • Linked to fetal skeletal abnormalities and increased fetal mortality¹⁷ • Chlorophenoxy herbicides, including 2,4-D, are classified as possible carcinogens by the International Agency for Research on Cancer¹⁸ 	<p>Preventative turf management program, including:</p> <ul style="list-style-type: none"> • mowing high with sharp blades • proper fertilization • overseeding • aeration • infrequent, deep watering <p>Corn gluten meal (organic pre-emergent weed control)</p>
<p>Dicamba</p> <p>2-Methoxy-3,6-dichlorobenzoic acid</p> <p>(e.g., <i>Trimec, Tripower, Ortho Weed-B-Gon Max, Scotts Lawn Pro Step 2 Weed Control & Fertilizer, Tracker, Trooper, Triplet, Escalade, Bayer Advanced Lawn Fertilizer Plus Weed Control II, Bayer Advanced All-in-One Weed Killer for Lawns, Vigoro Ultra Turf Weed & Feed</i>)</p>	<p>broad leaf weeds</p>	<ul style="list-style-type: none"> • Listed by the U.S. EPA as a developmental toxin¹⁹ • Negative reproductive effects²⁰ • Cholinesterase inhibitor (neurotoxin)²⁰ • Linked to non-Hodgkin's lymphoma²⁰ • Surface and groundwater contaminant³ 	<p>Same as above</p>
<p>Mecoprop (aka MCPP)</p> <p>2-(4-chloro-2-methyl phenoxy) propionic acid</p> <p>(e.g., <i>Ortho Weed-B-Gon Max, Scotts Lawn Pro Step 2 Weed Control & Fertilizer, Scotts Lawn Pro Super Winterizer with Plus 2 Weed Control, Scotts Lawn Pro Super Turf Builder with Plus 2 Weed Control, Triplet, Tripower, Triamine II, Bayer Advanced Lawn Fertilizer Plus Weed Control II, Bayer Advanced All-in-One Weed Killer for Lawns, Vigoro Ultra Turf Weed & Feed, Scotts Liquid Turf Builder Plus 2 Weed Control, Ortho Basic Solutions Lawn Weed Killer</i>)</p>	<p>broad leaf weeds</p>	<ul style="list-style-type: none"> • Linked to cancer of soft tissues and non-Hodgkin's lymphoma¹⁴ • Medium toxicity to birds¹⁴ • Surface and groundwater contaminant³ • Listed as a possible carcinogen by the International Agency for Research on Cancer¹⁸ 	<p>Same as above</p>
<p>MCPA</p> <p>2-Methyl-4-chlorophenoxyacetic acid</p> <p>(e.g., <i>Tripower, Triamine II</i>)</p>	<p>broad leaf weeds</p>	<ul style="list-style-type: none"> • Linked to reproductive effects; mutagenic (alters genes)¹⁴ • Potential groundwater contaminant^{3,14} • Can cause severe eye irritation, slurred speech, muscle spasms¹⁴ • Listed as a possible carcinogen by the International Agency for Research on Cancer¹⁸ 	<p>Same as above</p>

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Pesticide	Use	Impacts	Alternatives
<p>Glyphosate</p> <p>N-(phosphonomethyl) glycine</p> <p>(e.g., <i>Roundup, Touchdown, Rodeo, Accord, Vision</i>)</p>	<p>broad spectrum herbicide (total vegetation killer)</p>	<ul style="list-style-type: none"> • Linked to spontaneous abortion²¹ • Kills turf and other desirable plants if applied incorrectly²² • Some formulations contain toxic surfactants²² • Used in conjunction with genetically (“Roundup Ready”) modified crops • Implicated in disappearance of Houston toad²² 	<p>Same as above; for spot killing weeds, use vinegar spray, herbicidal soap, or weed torch (flamer); for killing large areas of vegetation, smother with newspaper & mulch</p>
<p>Pendimethalin</p> <p>(e.g., <i>Scotts Crabgrass Preventer, Scotts Lawn Pro Super Turf Builder with Halts, Prowl, Sovereign, Squadron, Stomp</i>)</p>	<p>broadleaf weed control</p>	<ul style="list-style-type: none"> • Possible human carcinogen^{23,24} • Suspected endocrine (hormone) disruptor²⁵ • Highly toxic to fish and aquatic invertebrates²⁴ • Half-life (amount of time required for half of the pesticide present after an application to breakdown) in soil of 42-101 days²⁴ • Has been detected in lower Great Lakes tributaries²⁴ 	<p>Same as above</p>
<p>Triclopyr</p> <p>3,5,6-trichloro-2-pyridinyloxyacetic acid</p> <p>(e.g., <i>Garlon, Access, selected Ortho Weed-B-Gon products</i>)</p>	<p>control of woody and broadleaf plants</p>	<ul style="list-style-type: none"> • Some forms and degradate (breakdown product) toxic to fish & aquatic organisms²⁶ • Half life in soil ranges from 30 to 90 days; one of the breakdown products can persist for up to 279 days²⁷ • Potential to groundwater contaminant²⁶ 	<p>Same as above and mechanical removal for woody plants</p>
<p>Bifenthrin</p> <p>(e.g., <i>Scotts Lawn Pro Insect Control Plus Fertilizer, Scotts Turf Builder with Summer Guard, Scotts Turf Builder with Fire Ant Killer, selected Ortho Bug-B-Gon products, Talstar</i>)</p>	<p>insect control</p>	<ul style="list-style-type: none"> • Restricted use pesticide due to its toxicity to fish and aquatic organisms²⁸ • Moderately toxic to many birds, bees²⁹ • Half-life in soil is 7 days to 8 months²⁹ • Possible human carcinogen²³ 	<p>Boric acid, diatomaceous earth, nematode products, insecticidal soaps</p> <p>For fire ants: spinosad baits (use with caution, as this organic control is toxic to fish)</p>
<p>Carbaryl</p> <p>1-Naphthyl-N-methylcarbamate</p> <p>(e.g., <i>Sevin, Sevimol, Latox, Ortho Bug-Geta</i>)</p>	<p>insect control</p>	<ul style="list-style-type: none"> • Potential endocrine (hormone) disruptor³⁰ • Linked to spontaneous abortion²¹ • Linked to non-Hodgkin’s lymphoma^{31,32} • Toxic to fish, bees and earthworms¹⁴ • Possible human carcinogen²³ 	<p>Boric acid, diatomaceous earth, nematode products, insecticidal soaps</p>
<p>Permethrin</p> <p>aka synthetic pyrethroid</p> <p>(e.g., <i>Ortho Bug-B-Gon products, Spectracide Bug Stop Granules, Ambush, Torpedo, Dragnet</i>)</p>	<p>insect control</p>	<ul style="list-style-type: none"> • Restricted use due to aquatic toxicity and association with tumors²⁸ • Neurotoxin³³ • Toxic to wildlife and extremely toxic to bees³³ 	<p>Same as above</p>

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Pesticide	Use	Impacts	Alternatives
Malathion <i>(e.g., Cekumal, Cythion, Fosfothion, Fyfafon, Malixol, Maltox, Sadophos, and Zithiol)</i>	insect control (esp. mosquitoes)	<ul style="list-style-type: none"> • Linked to inducement of breast cancer cells³⁴ • May affect immune system, central nervous system, adrenal glands, liver and blood³⁵ • Produced detectable mutations in human white blood cells and lymph cells³⁵ • Toxic to birds, fish, aquatic invertebrates and honeybees³⁵ • Commercial products often contain impurities and hydrocarbon solvents, such as xylene or toluene, which themselves are toxic³⁶ 	Same as above; also eliminate standing water where mosquitoes breed; larvicides containing the soil bacterium <i>Bacillus thuringiensis</i> (B.t.) are safer

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Originally prepared by the Partnership For Pesticide Bylaws (Canada), 2002-2004; Updated & adapted by the Healthy Communities Project (Whitefish Bay, WI), 2006.

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