

# Health Effects of 30 Commonly Used Lawn Pesticides

## A Beyond Pesticides/NCAMP Fact Sheet

Pesticide	Cancer	Reproductive Effects	Neurotoxicity	Kidney / Liver Damage	Endocrine Disruptor	Sensitizer / Irritant	Birth Defects
<b>Insecticides</b>							
Acephate	POSSIBLE <sup>1</sup>	X <sup>2</sup>	X <sup>3</sup>			X <sup>2</sup>	
Carbaryl*	LIKELY <sup>4</sup>	X <sup>5</sup>	X <sup>6</sup>	X <sup>2</sup>	X <sup>7</sup>	X <sup>2</sup>	X <sup>8</sup>
Chlorpyrifos <sup>^</sup>		X <sup>8</sup>	X <sup>6</sup>	X <sup>9</sup>		X <sup>2</sup>	X <sup>8</sup>
Dichlorvos (DDVP)	POSSIBLE <sup>1</sup> , X <sup>10</sup>	X <sup>11</sup>	X <sup>2</sup>	X <sup>2</sup>		X <sup>2</sup>	
Malathion*	SUGGESTIVE <sup>12</sup>	X <sup>8</sup>	X <sup>3</sup>	X <sup>2</sup>	SUSPECT <sup>13</sup>	X <sup>8</sup>	X <sup>14</sup>
Trichlorfon		X <sup>2</sup>	X <sup>11</sup>	X <sup>2</sup>		X <sup>2</sup>	X <sup>2</sup>
<b>Herbicides</b>							
Atrazine	POSSIBLE <sup>1</sup> , X <sup>3</sup>	X <sup>6</sup>	X <sup>2</sup>	X <sup>2</sup>	KNOWN <sup>13</sup>	X <sup>2</sup>	X <sup>8</sup>
Benfluralin* (Benefin)	SUGGESTIVE <sup>12</sup>			X <sup>6</sup>		X <sup>15</sup>	
Bensulide			X <sup>6</sup>	X <sup>16</sup>	PROBABLE <sup>13</sup>	X <sup>2</sup>	
2,4-D*	UNKNOWN <sup>17</sup> , X <sup>2</sup>	X <sup>2</sup>	X <sup>14</sup>	X <sup>2</sup>	X <sup>7</sup>	X <sup>14</sup>	X <sup>2</sup>
DSMA (Disodium Methanearsonate)	POSSIBLE <sup>18</sup>	X <sup>18</sup>		X <sup>18</sup>		X <sup>18</sup>	
Dacthal (DCPA)*	POSSIBLE <sup>1</sup>			X <sup>8</sup>		X <sup>15</sup>	
Dicamba*	UNKNOWN <sup>17</sup>	X <sup>8</sup>	X <sup>8</sup>	X <sup>2</sup>		X <sup>2</sup>	X <sup>3</sup>
Endothall				X <sup>2</sup>		X <sup>2</sup>	
Glyphosate*	X <sup>8</sup>	X <sup>6</sup>		X <sup>14</sup>		X <sup>6</sup>	
Isoxaben	POSSIBLE <sup>1</sup>			X <sup>19</sup>			
MCPA		X <sup>2</sup>	X <sup>6</sup>	X <sup>2</sup>		X <sup>6</sup>	X <sup>2</sup>
MCPP (Mecoprop)*	SUGGESTIVE <sup>12</sup>	X <sup>2</sup>		X <sup>3</sup>		X <sup>2</sup>	X <sup>14</sup>
MSMA	POSSIBLE <sup>18</sup>	X <sup>18</sup>		X <sup>18</sup>			
Pendimethalin*	POSSIBLE <sup>1</sup>	X <sup>6</sup>		X <sup>3</sup>	X <sup>20</sup>	X <sup>16</sup>	
Pronamide	PROBABLE <sup>21</sup> X <sup>10</sup>			X <sup>3,6</sup>	X <sup>2,6</sup>	X <sup>2</sup>	
Siduron						X <sup>15</sup>	
Triclopyr	UNKNOWN <sup>17</sup>	X <sup>8</sup>		X <sup>6</sup>		X <sup>6</sup>	X <sup>8</sup>
Trifluralin	POSSIBLE <sup>1</sup>	X <sup>6</sup>		X <sup>2</sup>	PROBABLE <sup>13</sup> X <sup>7</sup>	X <sup>6</sup>	
<b>Fungicides</b>							
Chlorothalonil	LIKELY <sup>4</sup> , X <sup>10</sup>	X <sup>8</sup>	X <sup>22</sup>	X <sup>2</sup>		X <sup>6</sup>	
Maneb	PROBABLE <sup>21</sup> X <sup>10</sup>	X <sup>2</sup>	X <sup>15</sup>	X <sup>2</sup>	PROBABLE <sup>13</sup> X <sup>7</sup>	X <sup>2</sup>	X <sup>15</sup>
PCNB (Quintozene)	POSSIBLE <sup>1</sup>			X <sup>2</sup>		X <sup>15</sup>	X <sup>16</sup>
Sulfur						X <sup>2</sup>	
Triadimefon	POSSIBLE <sup>1</sup>	X <sup>10,3</sup>	X <sup>2</sup>	X <sup>3</sup>	X <sup>20</sup>		X <sup>3</sup>
Ziram	SUGGESTIVE <sup>12</sup>	X <sup>2</sup>	X <sup>15</sup>	X <sup>16</sup>	SUSPECT <sup>13</sup> X <sup>7</sup>	X <sup>2</sup>	
<b>TOTAL</b>	19	21	15	26	11	27	13

X = Adverse effect demonstrated.



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Source: List of chemicals compiled by Beyond Pesticides from information provided by the General Accounting Office 1990 Report, "Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue," U.S. Environmental Protection Agency (EPA) National Pesticide Survey (1990), *Farm Chemicals Handbook* (1989), The National Home and Garden Pesticide Use Survey by Research Triangle Institute, NC (1992), multiple state reports, current EPA Environmental Impact Statements and Risk Assessments, and EPA national sales and usage data.

^ Banned for residential use in 2001, still permitted for use on golf courses and for public mosquito control.

\* These pesticides are among the top 10 most heavily used pesticides in the home and garden sector, according to the latest sales and usage data available from EPA (2001).

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<sup>1</sup> EPA weight-of-evidence cancer classification, "possible human carcinogen." U.S. EPA, 2004. Office of Pesticide Programs, List of Chemicals Evaluated for Carcinogenic Potential. July 19, 2004.

<sup>2</sup> Extension Toxicology Network (EXTOXNET) Pesticide Information Profiles, <http://ace.orst.edu/info/extoxnet/ghindex.html>.

<sup>3</sup> U.S. EPA, 2000. Table 1: Toxicity Data by Category for Chemicals Listed Under EPCRA Section 313. Toxic Release Inventory (TRI) Program. [http://www.epa.gov/tri/chemical/hazard\\_categories.pdf](http://www.epa.gov/tri/chemical/hazard_categories.pdf).

<sup>4</sup> EPA weight-of-evidence classification, "Likely to be carcinogenic to humans." Available tumor effects and other key data are adequate to convincingly demonstrate carcinogenic potential for humans. U.S. EPA, 2004. (See Ref. 1 for full citation).

<sup>5</sup> Carbaryl has been shown to be a weak mutagen in humans. In animal studies, carbaryl increased the rate of sperm abnormalities, and decreased sperm counts and function. Frazier, L and ML Hage. 1998. *Reproductive Hazards of the Workplace*. Europe: Wiley. Table 10: Partial List of Reproductive Toxins. <http://cfaes.osu.edu/facultystaff/healthsafety/documents/Table10-11-00.pdf>.

<sup>6</sup> U.S. EPA. Office of Pesticide Program Reregistration Eligibility Decisions (REDs), Interim REDS (iREDs), and RED factsheets. <http://www.epa.gov/pesticides/reregistration/>.

<sup>7</sup> Colborn, T, et al., 1994. "Developmental Effects of Endocrine-Disrupting Chemicals in Wildlife and Humans," *Environmental Impact Assessment Review*, vol. 14, pp. 469-489.

<sup>8</sup> Northwest Coalition for Alternatives to Pesticides. Pesticides Factsheets. <http://www.pesticide.org/factsheets.html>.

<sup>9</sup> New Jersey Department of Health and Senior Services, Right to Know Hazardous Substances Fact Sheets. Available online at <http://www.state.nj.us/health/eoh/rtkweb/rtkhsfs.htm#I>.

<sup>10</sup> California Environmental Protection Agency, March 2005. Chemicals Known to the State to Cause Cancer or Reproductive Toxicity. Office of Environmental Health Hazard Assessment. [http://www.oehha.org/prop65/prop65\\_list/files/P65single3405.pdf](http://www.oehha.org/prop65/prop65_list/files/P65single3405.pdf).

<sup>11</sup> U.S. EPA, 1998. Hazard Assessment of the Organophosphates. Hazard ID Committee Report. <http://www.epa.gov/pesticides/op/hazidrpt.pdf>.

<sup>12</sup> EPA weight-of-evidence cancer classification, "suggestive evidence of carcinogenicity, but not sufficient to assess human carcinogenic potential." U.S. EPA, 2004. (See Ref. 1 for full citation).

<sup>13</sup> Illinois Environmental Protection Agency. *Endocrine Disruptors Strategy*. February 1997.

<sup>14</sup> Beyond Pesticides ChemWatch Factsheets, <http://www.beyondpesticides.org/pesticides/factsheets/index.htm>.

<sup>15</sup> Gosselin, RE, RP Smith, and HC Hodge. 1984. *Clinical Toxicology of Commercial Products*, 5<sup>th</sup> edition. Baltimore: Williams and Wilkins.

<sup>16</sup> National Library of Medicine, TOXNET, Hazardous Substances Database, <http://toxnet.nlm.nih.gov/>.

<sup>17</sup> EPA weight-of-evidence cancer classification, "not classifiable as to human carcinogenicity," due to inadequate evidence or no data. U.S. EPA, 2004. (See Ref. 1 for full citation).

<sup>18</sup> U.S. EPA. 1995. Monosodium Methanearsonate and Disodium Methanearsonate; Toxic Chemical Release Reporting; Community Right-to-Know. Federal Register Environmental Documents. <http://www.epa.gov/fedrgstr/EPA-TRI/1995/April/Day-20/pr-13.html>.

<sup>19</sup> U.S. EPA. Integrated Risk Information System Database. <http://www.epa.gov/iris/>.

<sup>20</sup> Colborn, T, D Dumanoski, and JP Myers, 1996. *Our Stolen Future: Are We Threatening Our Fertility, Intelligence and Survival?* New York: Dutton. <http://www.ourstolenfuture.org/Basics/chemlist.htm>.

<sup>21</sup> EPA weight-of-evidence cancer classification, "probable human carcinogen." There is sufficient evidence in animals and inadequate evidence or no data in humans." U.S. EPA, 2004. (See Ref. 1 for full citation).

<sup>22</sup> Environmental Defense Fund, Scoreboard Database, [www.scorecard.org/chemical-profiles/](http://www.scorecard.org/chemical-profiles/).