Children and Lawn Chemicals Don't Mix

Lawns and landscapes can be effectively managed without toxic chemicals that are harmful to human health and the environment. This fact sheet on children's vulnerability to lawn pesticides provides the documented science on the hazards of lawn pesticides.

Children are especially vulnerable to pesticides

- The National Academy of Sciences reports that children are more susceptible to chemicals than adults and estimates that 50% of lifetime pesticide exposure occurs during the first five years of life.[1]
- EPA concurs that children take in more pesticides relative to body weight than adults and have developing organ systems that are more vulnerable and less able to detoxify toxic chemicals.[2]
- Infants crawling behavior accounts for a greater potential than adults for dermal exposure to contaminants on carpets, floors, lawns, and soil.[3]
- Children with developmental delays and those younger than six years are at increased risk of ingesting pesticides through nonfood items, such as soil.[4]
- Studies find that pesticides such as the weedkiller 2,4-D pass from mother to child through umbilical cord blood and breast milk.[5]
- Consistent observations have led investigators to conclude that chronic low-dose exposure to certain pesticides might pose a hazard to the health and development of children.[6]

Common Home and Garden Weedkillers

Lawn Chemical	Pounds Per Year*
2,4-D	8-11 million
Glyphosate	5-8 million
MCPP (Mecoprop)	4-6 million
Pendimethalin	3-6 million
Dicamba	2-4 million

* EPA Pesticide Sales and Usage Report for 2000/2001.

Alternatives

Develop healthy soil with the use of a slow-release natural organic fertilizer to avoid weed problems. Corn gluten is an effective natural pre-emergent. Safe spot treatments include fatty-acid soaps and botanicals such as vinegar or citrus-based products.

Children, cancer and pesticides

- The probability of an effect such as cancer, which requires a period of time to develop after exposure, is enhanced if exposure occurs early in life.[7]
- A study published in the *Journal of the National Cancer Institute* finds that household and garden pesticide use can increase the risk of childhood leukemia as much as seven-fold.[8]
- Studies show that children living in households where pesticides are used suffer elevated rates of leukemia, brain cancer and soft tissue sarcoma.[9]
- Pesticides can increase susceptibility to certain cancers by breaking down the immune system's surveillance against cancer cells. Infants and children, the aged and the chronically ill are at greatest risk from chemically induced immune-suppression.[10]
- The most commonly used nonagricultural herbicide, 2,4-D, has been linked to Non-Hodgkin's lymphoma in scientific studies.[11]
- A study published by the American Cancer Society finds an increased risk for Non-Hodgkin's lymphoma (NHL) for people exposed to common herbicides and fungicides, particularly the weedkiller mecoprop (MCPP). People exposed to glyphosate (found in Roundup®) are 2.7 times more likely to develop NHL.[12]
- 75 out of all 99 human studies done on lymphoma and pesticides find a link between the two.[13]
- Four peer-reviewed studies demonstrate the ability of glyphosate-containing herbicides to cause genetic damage to DNA (mutagenicity), even at very low concentration levels.[14]

Studies show children's developing organs create "early windows of great vulnerability" during which exposure to lawn pesticides can cause great damage.

Children, asthma and pesticides

- A 2004 peer-reviewed study finds that young infants and toddlers exposed to herbicides (weedkillers) within their first year of life are four and a half times more likely to develop asthma by the age of five, and almost two and a half times more likely when exposed to insecticides. [17]
- EPA material safety data sheets for the common herbicides 2,4-D, mecoprop, dicamba, (often combined as Trimec®) and glyphosate (Roundup®) list them as respiratory irritants that can cause irritation to skin and mucous membranes, chest burning, coughing, nausea and vomiting.

Children, learning and developmental disorders and pesticides

- Roughly one in six children in the U.S. has one or more developmental disability, ranging from a learning disability to a serious behavioral or emotional disorder.[20]
- Scientists believe that the amount of toxic chemicals in the environment that cause developmental and neurological damage are contributing to the rise of physical and mental effects being found in children.[22]
- Studies show children's developing organs create "early windows of great vulnerability" during which exposure to lawn pesticides can cause great damage.[23]
- Lawn pesticide products containing herbicides and fertilizers (such as "weed and feed" products) tested on mice show increased risk of infertility, miscarriage and birth defects at very low dosages.[24]
- Additional studies on lawn pesticide product formulations show effects on learning ability, aggressiveness, memory, motor skills and immune system function.[25]
- A 2002 peer-reviewed study finds children born to parents exposed to glyphosate (Roundup®) show a higher incidence of attention deficit disorder and hyperactivity.[26]
- A study of 210,723 live births in Minnesota farming communities finds children of pesticide applicators have significantly higher rates of birth defects than the average population.[27]
- In a 2004/2005 review of 2,4-D, EPA concurs that, "there is a concern for endocrine disruption."[28]

Pesticide accumulation and drift

- Children ages 6-11 nationwide have significantly higher levels of lawn pesticide residues in their bodies than all other age categories.[29]
- Biomonitoring testing in Canada finds residues of lawn pesticides, such as 2,4-D and mecoprop, in 15 percent of children tested, ages three to seven, whose parents had recently applied the lawn chemicals. Breakdown products of organophosphate pesticides are present in 98.7 percent of children tested.[30]
- Scientific studies show that 2,4-D applied to lawns drifts and is tracked indoors where it settles in dust, air and surfaces and may remain for up to a year in carpets.[31]
- Samples from 120 Cape Cod homes, where elevated incidence of breast, colorectal, lung, and prostate cancers are reported, find high indoor air and dust concentrations of carbaryl, permethrin, and 2,4-D.[32]

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