



# Lawn & Garden Pesticides

## FACTS & FIGURES

### PESTICIDE USAGE

- 88 million households in the U.S. use pesticides around their home.<sup>1</sup>
- Herbicides account for the highest usage of pesticides in the home and garden sector, with over 28 million pounds applied on lawns and gardens in 2012.<sup>2</sup>
- Suburban lawns and gardens receive more pesticide applications per acre (3.2-9.8 lbs.) than agriculture (2.7 lbs. per acre on average).<sup>3</sup>
- Pesticide expenditures (or sales) by the chemical industry average \$9 billion. Annual sales of the landscape industry are over \$53.9 billion.<sup>4</sup>
- Included in the most commonly used pesticides in pounds per year are: 2,4-D (7-9 million), glyphosate/ Roundup (4-6 million), MCPP (Mecoprop) (2-4 million), pendimethalin (2-4 million), carbaryl (2-4 million).<sup>5</sup>
- A 2004 national survey reveals that 5 million homeowners use only organic lawn practices and products and 35 million people use both toxic and non-toxic materials.<sup>6</sup>

### HEALTH & EXPOSURE RISKS

- Of the 30 commonly used lawn pesticides, 16 are probable or possible carcinogens, 12 are linked with birth defects, 21 with reproductive effects, 14 are neurotoxic, 25 cause liver or kidney damage, 26 are sensitizers and/or irritants, and 17 have the



potential to disrupt the endocrine (hormonal) system.<sup>7</sup>

- Pregnant women, infants and children, the elderly, and the chronically ill are at greatest risk from pesticide exposure, which can increase risk of chronic diseases.<sup>8</sup>
- Scientific studies find significant pesticide residues inside homes due to drift through the air and chemicals tracked in, where they contaminate air, dust, surfaces, and carpets. Higher levels of pesticides in a child's home has been associated with higher levels of pesticide residue in their urine.<sup>9</sup>

### CHILDREN & PESTICIDES

- Children take in more pesticides relative to body weight than adults and have developing immune, nervous, and digestive systems that make them more vulnerable to environmental toxins.<sup>10</sup>
- The President's Cancer Panel on Environmental Cancer Risk notes that leukemia rates are consistently elevated among children whose parents used pesticides in their home and garden.
- The National Academy of Sciences estimates 50% of lifetime pesticide exposure occurs during the first



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five years of life.<sup>11</sup> A study in Cancer Causes and Control suggests that preconception pesticide exposure and possible exposure during pregnancy is associated with an increased risk of childhood brain tumors.<sup>12</sup>

- Studies show low levels of exposure to lawn pesticide products are linked to increased rates of miscarriage, and suppression of the nervous, endocrine, and immune systems.<sup>13</sup>
- Research finds that young infants and toddlers exposed to herbicides (weedkillers) within their first year of life are 4.5 times more likely to develop asthma by the age of five, and almost 2.5 times more likely when exposed to insecticides.<sup>14</sup>
- Researchers at Cincinnati Children's Hospital Medical Center found an association between increasing exposures to commonly used synthetic pyrethroid insecticides and attention deficit/hyperactivity disorder (ADHD), with a higher association in boys than girls.<sup>15</sup>
- Children ages 6–11 have higher levels of lawn chemicals in their blood than all other age categories. Biomonitoring studies find that pesticides pass from mother to child through umbilical cord blood and breast milk.<sup>16</sup>

## WILDLIFE, PETS & PESTICIDES

- A study published in *Environmental Research* found that dogs whose owners' lawns are professionally treated with pesticides are associated with a significantly higher risk of canine malignant lymphoma.<sup>17</sup>
- Of the 30 commonly used lawn pesticides: 22 are toxic to birds, 14 are toxic to mammals, 30 are toxic to fish and aquatic organisms, and 29 are deadly to bees.<sup>18</sup>
- Pesticides can be toxic to wildlife and cause food source contamination, behavioral abnormalities that interfere with survival, and death.<sup>19</sup>
- Lawn and garden pesticides are deadly to nontarget species and can harm beneficial insects and soil microorganisms essential to a naturally healthy lawn.<sup>20</sup>
- Home and garden insecticides in the neonicotinoid class have been linked to pollinator decline, with harm to bees' reproduction mobility, navigation, feeding, foraging, memory and learning.<sup>21</sup>

*Lawn and garden pesticides . . . harm beneficial insects and soil microorganisms essential to a naturally healthy lawn.*

## PESTICIDES IN THE WATER

- Of the 30 commonly used lawn pesticides, 19 are detected in groundwater, and 20 have the potential to leach.<sup>22</sup>
- In a U.S. Geological Survey study of glyphosate contamination in 38 states, scientists detected the chemical in more than 50% of samples of sediment, ditches and drains, precipitation, large rivers, and streams.<sup>23</sup>
- Half of shallow wells within the U.S. have detectable levels of pesticides, while 20% of private wells contain at least one contaminant at levels of potential health concern.<sup>24</sup>
- After the Canadian Province of Ontario implemented restrictions on the use of pesticides, a government report found a staggering decline in herbicide concentrations. Median concentrations for herbicides 2,4-D, dicamba, and MCPP, commonly used by both private individuals and lawn care companies, declined by 81%, 83%, and 71%, respectively.<sup>25</sup>
- In addition to harming pollinators, neonicotinoid contamination has been detected in rivers, lakes, and streams in 29 states, at levels that can result in detrimental effects to keystone aquatic organisms and the entire aquatic food web.<sup>26</sup>

- Runoff from synthetic chemical fertilizers pollutes streams and lakes and causes algae blooms, depleted oxygen and damage to aquatic life.

## THE REGISTRATION SYSTEM & PESTICIDE REGULATION

- The health data assessed by the U.S. Environmental Protection Agency (EPA) for the registration of pesticides comes from the manufacturer of the pesticide. EPA is not obligated under the *Federal Insecticide Fungicide and Rodenticide Act (FIFRA)* to review peer-reviewed scientific literature.
- EPA often registers pesticides through a program called “conditional registration.” In these cases, the agency permits a pesticide to go to market without all of its required data on health and environmental impacts because the agency assumes that no harm will result as it waits for this data. The U.S. Government Accountability Office (GAO) has criticized the agency for this process, noting that EPA “does not have a reliable system...to track key information related to conditional registrations.”<sup>27</sup>
- EPA’s evaluation of endocrine (hormone) disrupting pesticides is years behind schedule and has been criticized for using outdated methods. The National Academy of Sciences has urged the agency to alter its approach to adequately address the low dose impacts of these chemicals.<sup>28</sup>
- EPA only tests the active ingredient in pesticide formulations. Despite the fact that a pesticide product can contain multiple ingredients, the agency does not look at synergistic effects. Science shows that combinations of active ingredients can increase or decrease the toxicity of a product, but this impact is simply not evaluated by the agency.<sup>29</sup>
- Most states have preemption laws that prohibit localities from passing ordinances that restrict pesticides on private property more stringently than the state policy.<sup>30</sup>

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## “INERT” INGREDIENTS

- Pesticide products are made of an active ingredient and several “inert,” or other, ingredients. “Inert” ingredients are not chemically, biologically, nor toxicologically inert. “Inerts” are not disclosed to the public due to their status as “trade secrets.”
- Active ingredients usually comprise only 5% of the actual product; the other ingredients make up the majority of a given pesticide product or formulation.<sup>31</sup>
- “Inert” ingredients can be more toxic to humans than the active ingredient. Polyethoxylated tallow amine, or POEA, often found in Roundup formulations with glyphosate, is an example of an “inert” ingredient linked to damage to embryonic, placental and umbilical cord cells.<sup>32</sup>
- After a 2006 proposal by EPA to disclose “inert” ingredients allowed in pesticide formulations, the agency retracted its original intent and released information about only 72 of the 371 “inerts” allowed in pesticide product formulations. EPA further indicated the disclosed “inerts” were no longer in use.<sup>33</sup>

## ENDNOTES

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