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# Prevail Against Pests without Pesticides... Natural New Solutions for Your Pest Problem

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# Stop Poisoning Yourself: The Problem of Toxic Pesticides and How to Combat Them Naturally

In your busy world today, you have to contend with an endless array of pests:

- Ants in your kitchen
- Wasps in your sunroom
- Squirrels in your attic
- Bugs in your garden

It has become so convenient to just run down to the hardware store for the latest bug killer to solve the problem, you don't think twice about it. But perhaps you should.

For in trying to solve one small challenge, you could be creating an even bigger one.

One of the main issues with pesticides is that you cannot see them and they tend to easily spread by the wind. If they would just remain where they were sprayed, that would be one thing, but they do not. Volatile pesticides drift all over when sprayed,<sup>1</sup> and can spread a good distance if there is circulating air or a breeze.

Most spray droplets are so small in fact, they can stay suspended in the air and carried by air currents until they contact a surface, or drop to the ground.

What that means is they can contaminate many different surfaces inside and outside your home, including yourself, your family, pets, wildlife and their habitats, as well as the plants, trees, and grass around your home.

And those who come in contact with areas that have been sprayed or where spray has drifted—for example, a pet rolling on the grass (or eating it), or a child playing in the garage or sunroom—can also be negatively affected.



## How Extensive is Pesticide Use?

In 2001, Senator Patrick Leahy reported that there had been a 40-percent increase in annual pesticide use since 1993.<sup>2</sup> We now use over 4.5 billion pounds of “registered” pesticides annually.<sup>3</sup>

In addition, it has been estimated that about 70-75 million pounds of over 300 different active pesticide ingredients are applied to lawns and gardens yearly.<sup>4</sup>

Thousands of pounds of these poisons then find their way, intentionally or unintentionally, into your food and water supplies on an annual basis.

## The Impact on Our Environment

The damage caused by reliance on pesticides has resulted in pesticide-related destruction of many natural enemies of pests, as well as the development of pesticide resistance; crop pollination problems and honeybee losses<sup>5</sup>; crop and crop product losses; and bird, fish, bats,<sup>6</sup> and other wildlife losses.

Crop losses caused by pesticides cost farmers and producers approximately \$1.4 billion yearly; bird losses due to pesticides ring up at \$2.2 billion yearly; and groundwater contamination at \$2.0 billion yearly.<sup>7</sup>

Ironically, studies have shown that often less than 0.1 percent of an applied pesticide reaches the target pest, leaving 99.9 percent as an unintended pollutant in the environment.<sup>8</sup>



Groundwater and soil contamination is caused when pesticides that are sprayed or applied directly to soil are then washed off by rain, irrigation, or flooding, into nearby bodies of water. Or they may seep through topsoil into lower layers of soil and into deeper groundwater.

Some pesticides, which are applied directly to bodies of water for weed control, or indirectly from soil runoff or other factors, can cause not only a buildup of pesticides in water, but can lead to a buildup of pesticides in the air, through evaporation.

## Pesticide Persistence in Soil

Some pesticides break down faster and more easily than others, having shorter “half lives,” but some may remain longer in soil.

The chart on the next page shows some of the major pesticides and their relative duration in soil:<sup>9</sup>

Low Persistence (half-life 30 days)	Moderate Persistence (half-life 30-100 days)	High Persistence (half-life >100 days)
Aldicarb Captan Dalapon Dicamba Malathion Methyl Parathion Oxamyl 2,4-D 2,4,5-T	Aldrin Atrazine Carbaryl Carbofuran Diazinon Endrin Fonofos Glyphosate Heptachlor Linuron Parathion Phorate Simazine Terbacil	TCA Picloram Bromacil Trifluralin Chlordane Paraquat Lindane

The more difficult a pesticide is to break down, the more damage it can cause to the environment and living beings, because it is more susceptible to soil runoff and evaporation into the air. In addition, measurable amounts can move through the atmosphere and accumulate in more distant locations.

Furthermore, most pesticides contain unregistered and untested “inert ingredients.” These so-called inert substances can be more dangerous (or can contaminate an area longer) than the active or “registered” poisons in the pesticide formula itself.<sup>10</sup>

## Pesticide Resistance

Over time, pesticides can become ineffective at killing pests because they develop resistance to it. Most farmers and other growers became familiar with pesticide resistance in the 1950s, as a result of widespread insect resistance to DDT.

Since then, growers have come to expect the eventual loss of pesticide effectiveness because of resistance. By the mid-1980s, there were records of about 450 resistant species of insects and mites.

Resistance occurs when products of a chemical group are used repeatedly. At first, only a very small proportion of a pest population survives exposure to the pesticide, but each time the pesticide is reapplied, a greater proportion of resistant pests survive.

The resistant pests then pass on the genes for pesticide resistance to their progeny. Each subsequent use of the pesticide increases the proportion of the less-susceptible pests in the population.<sup>11</sup> And because the resistance happens so quickly, it is generally not recognized until wide-spread resistance has occurred.

When pests do become resistant, more virulent and dangerous pesticides are rolled out to address the resistance, causing greater human and environmental damage. It is estimated that the cost of catering to pest resistance costs the government at least \$1.5 billion annually.<sup>12</sup>

Ironically, while bugs and other pests have very short life spans and can easily become resistant to these toxic chemicals. You live much longer than these pests and are unable to develop resistance in your lifetime.<sup>13</sup> So the poisons in pesticides, which are often stored in your fatty tissue, can become carcinogenic, or they can emerge later to cause further harm.

## The Problem of Bioaccumulation

There is another inherent hazard to allowing pesticides to contaminate water supplies and other areas of the environment. Fish that live in, or animals that drink pesticide-tainted water or eat vegetation, become “carriers” of the pesticide. In other words, they store and accumulate the pesticide in their bodies over time.

The bioaccumulation by fish, for example, of a very water-insoluble pesticide (which means it doesn't break down in water) means that if a tainted fish were eaten by a human, who can also store the pesticide, the levels of the poison in the human can reach much higher levels than those present in either the water, or in the fish.



Since levels of a pesticide in a fish can be tens, to hundreds of thousands of times greater than in the water in which the fish lived, you can see how this problem escalates tremendously. Scientists call this toxic buildup *bioaccumulation*.<sup>14</sup>

Because you and your family are at the top of the food chain, you are all exposed to these high levels of toxins whenever you consume fish or other animals that have bioaccumulated pesticides or other organic chemicals in their bodies.

## Environmental Illnesses: Can Be Caused by Pesticides

Zane Gard, M.D., noted that current clinical, scientific and governmental studies indicate a staggering increase in the incidence of environmentally induced illnesses.<sup>15</sup>

Virtually all commercial pesticides are neurotoxins. That means they can damage your nervous system. It is no surprise then that they can cause all sorts of illnesses.

According to Thomas Kerns, author of *Environmentally Induced Illnesses*, pesticides may be responsible for many “adverse health effects” including cancer, immune system dysfunction, neural damage such as Parkinson’s Disease, and respiratory disorders, just to name a few.<sup>16</sup>

Studies have found that pesticide residue can be found not only in yards and outside areas where children and adults play and sit, but on household items such as carpets, toys, pillows, bedding, furniture, and other items.<sup>17</sup>

A few years ago, the Environmental Protection Agency had to stop builders from using the pesticide Dursban in new homes, because studies showed it affected the nervous system of children.<sup>18</sup>

Because these poisons have become so pervasive and have been seeping into your soil, water, and air for many years, it is becoming increasingly difficult to control their impact on you and your environment.

## Who are the Most Susceptible to Pesticides?

While everyone is susceptible to environmental pesticides, some groups of people are more sensitive than others. One group is pregnant women.

Research has shown that exposure to a number of different environmental chemicals has been linked with infertility.<sup>19</sup> Chemicals contained in such items as Teflon cookware, floor wax, food wrapping, carpet treatments, and other cleaning products were blamed.

It is not a far stretch to assume that pesticides, composed of even more toxic ingredients than these household products, could also adversely affect fertility—for males as well as females.<sup>20</sup>

In fact, a 2007 article in the *Los Angeles Times* reported that women who lived near California farm fields sprayed with organochlorine pesticides were more likely to give birth to autistic children.<sup>21</sup>



Additional studies have found that exposure to chemicals is believed to be a causative factor in miscarriages<sup>22</sup> and stillbirths.<sup>23</sup> And alarmingly, recent research shows a drug often given to stop premature labor could be making the brains of young children more vulnerable to contaminants in the environment.

One of the studies involved rats that were exposed to terbutaline, the pre-term labor drug. Researchers found the rats getting the drug suffered more brain cell damage upon exposure to an insecticide than those not given the drug.<sup>24</sup>

It is not unusual for one drug to cause a heightened sensitivity to another drug or chemical, because chemical exposure has been known to sensitize you to future exposures. It seems you have the opposite problem of pests; instead of becoming resistant to repeated exposures—you unfortunately can become more sensitized to them!

## Pregnant Women and Children at Increased Risk

You can see just how dangerous pesticide exposure can be, and even more so for children in the womb. Pregnant women need to be excessively cautious during this time and make as great an effort as possible to avoid these chemicals.

Another study, on the pesticide Atrazine, a toxin that has been banned in seven European countries, showed it could cause mutations in frogs.<sup>25</sup> Atrazine is widely found in U.S. waters, particularly after planting season, when rain causes the chemical to spread from the fields into the water supply.

Given that toxins like this are migrating into your waterways, and likely into your drinking water, it would not surprise me to soon find they are clearly implicated in human birth deformities.

And another very susceptible portion of the population is undoubtedly young children.

According to one study, which tested over 2,600 people for levels of 34 different kinds of pesticides, a large percentage of those tested were found to carry harmful levels of pesticides in their bodies.

Children, women, and Mexican Americans showed the greatest effects of exposure to these chemicals.

Children ages 6 to 11 in the study had been exposed to chlorpyrifos, a pesticide designed to kill insects by altering the nervous system, and had four times the level considered safe by the U.S. Environmental Protection Agency.<sup>26</sup>



Research also shows that a vast majority of schools are now routinely using pesticides, whether they need to or not.<sup>27</sup> Entomologist Mark Lane believes this is an entirely unnecessary practice that carries more risks than benefits to students and faculty.

The most widely used pesticides are actually nerve poisons. They cause uncontrolled nerve firing and disrupt delicate hormone systems. Children are most susceptible to being affected by these toxins.

They should never be used around schools, especially when children are present, either in the classrooms, or especially when children are outside.

## Protecting Yourself from Pesticides

Despite all the influx of pesticides into your environment, there are ways you can protect yourself from exposure, and minimize future exposure. One of my best suggestions, if you live in a geographical area that uses a great deal of pesticides, is to move to a more rural, protected area.

There are other ways you can avoid pesticides and common household toxins, and thereby reduce your total body burden of chemicals.<sup>28</sup> But first and foremost, if you have children in your home, you must protect them from any contamination by removing all dangerous pesticides and toxic products in your home.

## EPA Study: Most Home Storage of Pesticides is Unsafe

A recent survey conducted by the U.S. Environmental Protection Agency<sup>29</sup> regarding pesticides in and around the home revealed some startling findings:

1. Almost half of all households with children under the age of five had at least one pesticide stored in an UNLOCKED cabinet less than four feet off the ground, which was within a child's reach.
2. Approximately 75 percent of households without children under the age of 5 also stored pesticides in an UNLOCKED cabinet, again less than four feet off the ground.
3. Bathrooms and kitchens were cited as areas most likely to have improperly stored pesticides — for example, common household pesticides such as roach spray, chlorine bleach, disinfectants, insect repellents, pet shampoo, and flea and tick products. All these products, plus swimming pool products and lawn products like weed killer, can potentially cause poisoning if not used and stored properly.<sup>30</sup>

These numbers are very significant, because 13 percent of all pesticide poisonings occur in homes other than the child's home.<sup>31</sup>

## Basic Precautions to Protect Your Family from Pesticides

- Get rid of any pesticides or herbicides in your home, including insecticides or lawn and garden products. There are safe natural alternatives that can be used



in their place. See the section below, called *The Safe Alternatives*.

- Make sure the food you eat is organically grown<sup>32</sup> and organically produced. Especially avoid the non-organic produce that tends to be the highest in pesticides.<sup>33</sup>

The following 12 foods have the **lowest pesticide load** when conventionally grown. Consequently, they are the safest conventionally grown crops to consume:

Broccoli	Eggplant	Cabbage	Banana
Kiwi	Asparagus	Sweet peas	Mango
Pineapple	Sweet corn	Avocado	Onion

Meanwhile, these 12 fruits and vegetables had the **highest pesticide load**, making them the most important to buy or grow organic:

Peaches	Apples	Sweet bell peppers	Celery
Nectarines	Strawberries	Cherries	Lettuce
Grapes (imported)	Pears	Spinach	Potatoes

- Unless you have an Artisan well or well water that has been tested so you know it is safe and clean, then the water you use for showering, bathing, washing dishes, cooking, and drinking is likely to be contaminated with pesticides, herbicides, and other toxins. I recommend you use or purchase a Reverse Osmosis water system,<sup>34</sup> or at very least, a good charcoal filter that will eliminate the main contaminants, such as chlorine, fluoride, lead, arsenic, residual pesticides, and other toxins.
- Never spray pesticides—such as DEET-containing insect repellents<sup>35</sup>—directly on your body. Look for natural repellents instead, or simply wear long-sleeved shirts and pants.

Is there any doubt that pesticides and herbicides -- not to mention fertilizers, plastics, and toxic metals -- are affecting American children's mental capacities, emotional balance, and social adjustment? Not in my mind.

Talk to your child's school administration about their use of pesticides. Open up a dialog and raise awareness to the fact that there are other, safer alternatives out there.

## Safe Alternatives

More and more companies are responding to consumer demand for cleaner, “greener,” products. Suppliers are increasingly providing cleaning products that contain natural or naturally derived ingredients, while avoiding the use of environmentally harmful chemicals.

However, it can still be a challenge to find a truly safe yet effective cleaner.



After extensive research and development, I’m proud to be able to announce Greener Cleaner as our latest product in the Mercola Healthy Home line of products created especially for your health, safety, and wellbeing. I have been using this in my home for the last year, testing it to make sure it works well. It will soon be available for purchase on [Mercola.com](http://Mercola.com).

Made from naturally occurring enzymes that are known to have super powerful cleaning properties, Greener Cleaner is so safe and nontoxic you could actually eat it with no harmful side effects.

An additional alternative is boric acid powder. Boric acid powder has been found to be a very effective deterrent to roaches and ants.<sup>36</sup> Sprinkle some in the inner corners of your cabinets and in the corners under your cabinets. Pests will carry it back to their nests on their feet and kill the remainder of the infestation.

Cinnamon oil has been found to be a better and healthier alternative to DEET.<sup>37</sup>

What about head lice? Avoid using the pesticide lindane<sup>38</sup>. Instead, use an old-fashioned nit comb, plus the oils of anise and ylang ylang combined into a natural spray. This has been found to be highly effective in eliminating about 92 percent of head lice.

For more types of natural pest solutions, check out the book *Dead Snails Leave No Trails*, by Nancarrow and Taylor, or visit the website [betterbasics.com](http://betterbasics.com).

[BeyondPesticides.org](http://BeyondPesticides.org) is yet another excellent source of information on how to limit pesticides in you and your family’s environment.

## References

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- <sup>1</sup> U.S. Environmental Protection Agency, December 1999, Spray Drift of Pesticides, <http://www.epa.gov/pesticides/factsheets/spraydrift.htm>, (Accessed February 16, 2009)
- <sup>2</sup> Stephen Tvedten, 2002, The Bug Stops Here, <http://www.thebestcontrol.com>, (Accessed February 16, 2009)
- <sup>3</sup> Stephen Tvedten, 2002, The Best Control 2, <http://www.safesolutionsinc.com/>, (Accessed February 18, 2009)
- <sup>4</sup> Jess Silver, Becky Riley, 2001, Environmental Impact of Pesticides Commonly Used on Urban Landscapes, <http://www.pesticide.org/RHSEnvironImpofPs.pdf>, (Accessed February 18, 2009)
- <sup>5</sup> Honeybees are Not Healthy, <http://articles.mercola.com/sites/articles/archive/2008/09/30/honey-bees-are-not-healthy.aspx>, (Accessed February 18, 2009)
- <sup>6</sup> Why are Bats Dying?, <http://articles.mercola.com/sites/articles/archive/2008/05/01/why-are-bats-dying.aspx>, (Accessed February 19, 2009)
- <sup>7</sup> Cornell University, Prof. David Pimentel, Pesticide Impact on the Environment, 2005 Impact Statement, <http://vivo.cornell.edu/individual/vivo/individual20939>, (Accessed February 18, 2009)
- <sup>8</sup> Jess Silver, Becky Riley, 2001, Environmental Impact of Pesticides Commonly Used on Urban Landscapes, <http://www.pesticide.org/RHSEnvironImpofPs.pdf>, (Accessed February 18, 2009)
- <sup>9</sup> Movement of Pesticides in the Environment, <http://extoxnet.orst.edu/tibs/movement.htm>, (Accessed February 18, 2009)
- <sup>10</sup> Stephen Tvedten, 2002, The Bug Stops Here, <http://www.thebestcontrol.com>, (Accessed February 16, 2009)
- <sup>11</sup> Washington State University, Timothy J. Dennehy and John Dunley, 2009, Managing Pest Resistance, <http://jenny.tfrec.wsu.edu/opm/displaySpecies.php?pn=-70>, (Accessed February 18, 2009)
- <sup>12</sup> Cornell University, Prof. David Pimentel, Pesticide Impact on the Environment, 2005 Impact Statement, <http://vivo.cornell.edu/individual/vivo/individual20939>, (Accessed February 18, 2009)
- <sup>13</sup> Stephen Tvedten, 2002, The Bug Stops Here, <http://www.thebestcontrol.com>, (Accessed February 16, 2009)
- <sup>14</sup> Movement of Pesticides in the Environment, <http://extoxnet.orst.edu/tibs/movement.htm>, (Accessed February 18, 2009)
- <sup>15</sup> Stephen Tvedten, 2002, The Best Control 2, <http://www.safesolutionsinc.com/>, (Accessed February 18, 2009)
- <sup>16</sup> Thomas A. Kerns, 2001, 301 pp, Environmentally Induced Illnesses, [http://books.google.com/books?id=TyARDVVnjm8C&pg=PA54&lpg=PA54&dq=environmentally+induced+illnesses+pesticides&source=bl&ots=MPgkUOy2ST&sig=Ls6G3HiofM\\_RB\\_BvnCr-XDAqi6s&hl=en&ei=XbScSeTfMYLqNi6SzJYF&sa=X&oi=book\\_result&resnum=1&ct=result](http://books.google.com/books?id=TyARDVVnjm8C&pg=PA54&lpg=PA54&dq=environmentally+induced+illnesses+pesticides&source=bl&ots=MPgkUOy2ST&sig=Ls6G3HiofM_RB_BvnCr-XDAqi6s&hl=en&ei=XbScSeTfMYLqNi6SzJYF&sa=X&oi=book_result&resnum=1&ct=result), (Accessed February 16, 2009)
- <sup>17</sup> The Mid-Atlantic Center for Children's Health and the Environment, 2008, Pesticides, <http://www.gwu.edu/~macche/parents/pesticides.html>, (Accessed February 18, 2009)
- <sup>18</sup> Controversial Pesticide Used in New Home Construction Halted by the EPA, <http://articles.mercola.com/sites/articles/archive/2005/01/12/dursban-pesticide.aspx>, (Accessed February 19, 2009)
- <sup>19</sup> Common Chemicals Linked to Infertility, <http://articles.mercola.com/sites/articles/archive/2009/02/17/Common-Chemicals-Linked-to-Infertility.aspx>, (Accessed February 18, 2009)
- <sup>20</sup> Pesticides May Decrease Male Fertility, <http://articles.mercola.com/sites/articles/archive/2008/01/02/pesticides-may-decrease-male-fertility.aspx>, (Accessed February 19, 2009)
- <sup>21</sup> Los Angeles Times. July 30, 2007, Maria Cone, Pesticide Link to Autism Suspected - A State Study Suggests Two Farm Sprays May Raise Chances of Having a Child with the Disorder, <http://articles.latimes.com/2007/jul/30/local/me-autism30>, (Accessed February 18, 2009)
- <sup>22</sup> Hidden Story Behind Baby Carrots, <http://articles.mercola.com/sites/vitalvotes/archive/2007/05/15/hidden-story-behind-baby-carrots.aspx>, (Accessed February 18, 2009)
- <sup>23</sup> Pesticides Linked to Stillbirths, <http://articles.mercola.com/sites/articles/archive/2008/01/02/stillbirths.aspx>, (Accessed February 18, 2009)
- <sup>24</sup> Pre-term Labor Drug Makes Babies' Brains Susceptible to Pesticide Injury, <http://articles.mercola.com/sites/articles/archive/2004/04/17/labor-drug.aspx>, (Accessed February 18, 2009)

- 
- <sup>25</sup> Common Pesticide Causes Frog Mutations, <http://articles.mercola.com/sites/articles/archive/2003/07/05/pesticide-mutation.aspx>, (Accessed February 18, 2009)
- <sup>26</sup> How Many Dangerous Pesticides are in Your Body?, <http://articles.mercola.com/sites/articles/archive/2004/05/29/pesticides-body.aspx>, (Accessed February 18, 2009)
- <sup>27</sup> 80 Percent of Schools are Applying Pesticides, <http://articles.mercola.com/sites/articles/archive/2007/08/16/80-percent-of-schools-are-applying-pesticides.aspx>, (Accessed February 18, 2009)
- <sup>28</sup> How Many Dangerous Pesticides Are in Your Body?, <http://articles.mercola.com/sites/articles/archive/2004/05/29/pesticides-body.aspx>, (Accessed February 18, 2009)
- <sup>29</sup> An Introduction to Indoor Air Quality, <http://www.epa.gov/iaq/pesticid.html>, (Accessed February 19, 2009)
- <sup>30</sup> Pesticides Stored Improperly in Most Homes, <http://www.ssnewstelegram.com/news/2005/september/nt090905larryspradlin.html>, (Accessed February 19, 2009)
- <sup>31</sup> Head Start Staff: What You Need to Know about Pesticide Poisoning, <http://www.epa.gov/oppfead1/Publications/whatyouneed-hsstaff.pdf>, (Accessed February 19, 2009)
- <sup>32</sup> How to Get Inexpensive, Organic, Locally-grown Vegetables, <http://articles.mercola.com/sites/articles/archive/2006/08/17/how-to-get-inexpensive-organic-locally-grown-vegetables.aspx>, (Accessed February 19, 2009)
- <sup>33</sup> The "Dirty Dozen" Fruits and Vegetable Containing the Most Pesticides, <http://articles.mercola.com/sites/articles/archive/2006/11/28/the-dirty-dozen-fruits-and-vegetables-containing-the-most-pesticides.aspx>, (Accessed February 19, 2009)
- <sup>34</sup> Tap Water Toxins: Is Your Water Trying to Kill You?, <http://articles.mercola.com/sites/articles/archive/2009/02/07/tap-water-toxins-is-your-water-trying-to-kill-you.aspx>, (Accessed February 19, 2009)
- <sup>35</sup> The Dangers of DEET & How You Can Safely Repel Mosquitoes Instead, <http://www.mercola.com/article/pesticides/deet.aspx>, (Accessed February 19, 2009)
- <sup>36</sup> Alternatives to Using Pesticides, <http://articles.mercola.com/sites/articles/archive/2000/07/30/pesticides-part-one.aspx>, (Accessed February 19, 2009)
- <sup>37</sup> Cinnamon Oil Better for Killing Mosquitoes than DEET, <http://articles.mercola.com/sites/articles/archive/2004/08/07/cinnamon-oil-deet.aspx>, (Accessed February 19, 2009)
- <sup>38</sup> Latest Medical Insanity: Insecticide for Your Head, <http://articles.mercola.com/sites/articles/archive/2008/02/21/latest-medical-insanity-insecticide-for-your-head.aspx>, (Accessed February 19, 2009)