

The Problems With Pesticides

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As we collectively begin to consider the long-term impacts of [pandemic](#), the possibility of disruptions to the supply chain for [groceries](#) has a lot of people considering a vegetable garden for the first time. Experienced gardeners already have strong opinions about — well, everything actually — but especially about whether to use pesticides.

But newbies may be confused. Why wouldn't you kill pests? If you're wondering about the pros and cons of pesticides, here is your primer.

What Are Pesticides?

Technically, anything that kills pests is a pesticide. Pests are any living thing that interferes with human activity. Pesticides are used to avoid bug bites, eliminate bugs and small animals from our homes, and to protect crops — the use that interests us here.

In general, when people use the term pesticide, they are referring to synthetically manufactured chemicals that were first developed around the middle of the 20th century. Some of them were originally used as [chemical weapons](#) during World War II, then repurposed for agriculture afterward. More recently, researchers have [looked to nature](#), tweaking the chemical structures of naturally occurring chemicals like [nicotinoids](#) to make them more potent.

There are some safer chemical options for dealing with pests. Many home gardeners make their own natural pesticides with white vinegar or essential oils. There are also some commercial pesticides derived from fermented soils that are certified by the [Organic Materials Review Institute](#) (OMRI) for use in organic gardens.

For the purposes of this article, we are focusing on commercial, synthetic chemical pesticides used for gardening.

Advantages of Pesticides

Together with the development of high-yield seed varieties, advancing technologies in irrigation and greenhouses, and the development of synthetic fertilizers, pesticides have contributed to a tremendous increase in crop productivity. Pesticides have improved food security by generally increasing output and nearly eliminating catastrophic crop failures. This, in turn, has saved many farmers from bankruptcy. It's hard to argue with such results.

Problems With Pesticides

The disadvantages of pesticides are not always immediately obvious, which makes these chemicals easier to ignore. But they are not insignificant. Widespread pesticide use is problematic for many reasons.

Toxic

Obviously, chemicals designed to kill things are toxic.

Many common pesticides are chemically related to [nerve gas](#). The [risk of using a pesticide](#) depends on its level of toxicity and the level of exposure. Exposure to a small amount of a highly toxic pesticide can be fatal. But long-term exposure to large amounts of a less toxic pesticide can also have health impacts. In both cases, following application instructions and using personal protective equipment can minimize risk to the user.

Polluting

Careful handling procedures may reduce the gardener's risk, but applying pesticides in the garden releases these chemicals into the environment. And this increases risk for other creatures.

Even supposedly safer pesticides that “target” insects can be dangerous to [mammals](#). Pesticide residues can remain on the treated surfaces where pets can consume them. Outdoor baits for rodents as well as many slug and snail baits are equally attractive, and equally toxic, to pets.

Twenty years ago, the USDA estimated that as many as 50 million Americans could be drinking from [pesticide-contaminated groundwater](#). More recently, it has been estimated that [90 percent of Americans](#)' bodies contain pesticide residues. U.S. farmers still use about [1 billion pounds](#) of chemicals annually, years after a National Cancer Institute [review](#) concluded, “at current exposures pesticides adversely affect human health.”

Ineffective

Pesticides kill bugs very effectively. But they have the same problems as antibiotics — overuse encourages resistance. This creates a need for more use, and more powerful toxins. And, just like antibiotics in the human body that kill healthy bacteria as well as the infection, pesticides can throw entire ecosystems out of whack.

Because pesticides can't tell the difference between “good” and “bad” bugs, they kill butterflies, [pollinators](#), and other beneficial insects. They also harm [migrating birds](#) that naturally feed on pest insects. This collateral damage can leave crops and natural systems vulnerable to further predation by pests.

What Can You Do?

When shopping, you can buy [organic](#).

In your own garden, you can grow organic. Remember that a garden is not supposed to be bug-free; healthy plants can survive a few hungry caterpillars. [Organic gardeners](#) understand that when pests proliferate to damaging levels, there is usually an underlying problem, and there are [many strategies](#) to reduce their impact. Identify the pest and learn its habits before reaching for the spray bottle.

Occasionally, even organic gardeners must face the choice to lose a plant (or crop) or resort to a one-time, directed application of pesticide. This is the approach taken by

[integrated pest management](#) (IPM) gardeners. Even if you decide to rely on pesticides, they should never be your first response to a problem in the garden.

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