

EARTH TALK

Questions & Answers About Our Environment

Dear EarthTalk: What effects do fertilizers, pesticides and herbicides used on residential lawns or on farms have on nearby water bodies like rivers, streams—or even the ocean for those of us who live near the shore?

-- Linda Reddington, Manahawkin, NJ

With the advent of the so-called Green Revolution in the second half of the 20th century—when farmers began to use technological advances to boost yields—synthetic fertilizers, pesticides and herbicides became commonplace around the world not only on farms, but in backyard gardens and on front lawns as well.

These chemicals, many of which were developed in the lab and are petroleum-based, have allowed farmers and gardeners of every stripe to exercise greater control over the plants they want to grow by enriching the immediate environment and warding off pests.

But such benefits haven't come without environmental costs—namely the wholesale pollution of most of our streams, rivers, ponds, lakes and even coastal areas, as these synthetic chemicals run-off into the nearby waterways.

When the excess nutrients from all the fertilizer we use runs off into our waterways, they cause algae blooms sometimes big enough to make waterways impassable. When the algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic species can't survive in these so-called "dead zones" and so they die or move on to greener underwater pastures.

A related issue is the poisoning of aquatic life. According to the U.S. Centers for Disease Control (CDC), Americans alone churn through 75 million pounds of pesticides each year to keep the bugs off their peapods and petunias. When those chemicals get into waterways, fish ingest them and become diseased. Humans who eat diseased fish can themselves become ill, completing the circle wrought by pollution.

A 2007 study of pollution in rivers around Portland, Oregon found that wild salmon there are swimming around with dozens of synthetic chemicals in their systems. Another recent study from Indiana found that a variety of corn genetically engineered to pro-



Synthetic agricultural chemicals became commonplace beginning with the so-called "Green Revolution." (Photo by Roger Smith, courtesy Flickr)

duce the insecticide Bt is having toxic effects on non-target aquatic insects, including caddis flies, a major food source for fish and frogs.

The solution, of course, is to go organic, both at home and on the farm. According to the Organic Trade Association, organic farmers and gardeners use composted manure and other natural materials, as well as crop rotation, to help improve soil fertility, rather than synthetic fertilizers that can result in an overabundance of nutrients.

As a result, these practices protect ground water supplies and avoid runoff of chemicals that can cause dead zones and poisoned aquatic life. There is now a large variety of organic fertilizer available commercially, as well as many ways to keep pests at bay without resorting to harsh synthetic chemicals.

A wealth of information on growing greener can be found online: Check out OrganicGardeningGuru.com and the U.S. Department of Agriculture's Alternative Farming System Information Center, for starters. Those interested in face-to-face advice should consult with a master gardener at a local nursery that specializes in organic gardening.


CONTACTS: CDC, www.cdc.gov; Organic Gardening Guru, www.organicgardeningguru.com; USDA's Alternative Farming System Information Center, www.nal.usda.gov/afsic/pubs/ofp/ofp.shtml.

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