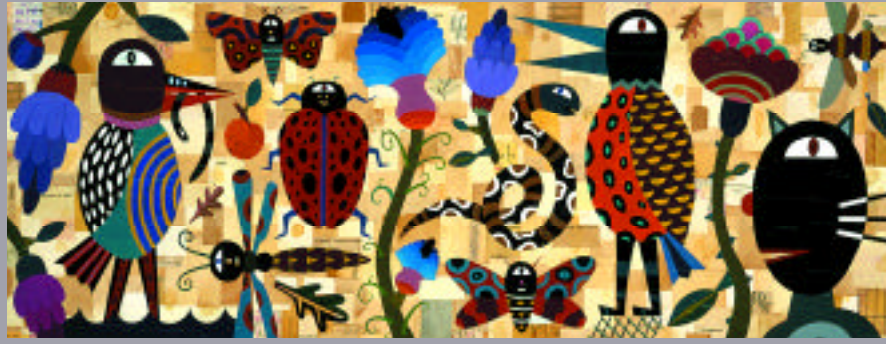


10 COMMANDMENTS FOR A HEALTHY YARD

Starting with vibrant, healthy trees, ornamentals, and vegetables is your best defense against pests and weeds. Whenever possible, choose strong native varieties over high-maintenance exotics. Before planting, test your soil and adjust the nutrients and pH accordingly. After that, follow these 10 commandments.

GO ORGANIC

Organic rock fertilizers and limestone release their nutrients slowly and are less likely to leach into the groundwater than a bag of 8-8-8 garden fertilizer. Rank green growth, often caused by overfertilization or excessive nitrogen, is essentially a dinner bell for many insect pests and diseases. Composting is an excellent way to make your own fertilizer, add needed organic matter to the soil, and dispose of biodegradable wastes in the bargain. Adding cow manure to the mix often eliminates the need for fungicides. Fertilize in the fall to prevent excessive weed growth and your soil will be ready come spring.



GET TOUGH TURF

Some turf varieties have high levels of endophytes, a fungus that poses no harm to the grass but is lethal to common lawn pests such as aphids, billbugs, and sod webworms. Tall fescue, zoysiagrass, and Bermuda grass are generally highly resistant to insects.

PICK YOUR PESTICIDES

Not all chemicals are created equal. Organophosphate insecticides (such as diazinon and chlorpyrifos) are among the worst wildlife killers on the market and often pose the greatest health risk. These "shotgun" chemicals, so-called because they kill a broad range of insects, have been around since the 1940s. They are usually cheaper than newer, less toxic

products, which adds to their popularity, but their ecological price is steep. Synthetic pyrethroids are more selective and normally much less toxic than organophosphates or carbamates, though they can harm beneficial insects. The EPA's Reduced Risk Pesticides program has identified a number of conventional pesticides believed to pose less risk to human health and the environment. The EPA also publishes the Citizen's Guide to Pest Control and Pesticide Safety, a free booklet that should be on every homeowner's shelf. Check out the EPA web site, listed below, or ask your lawn-care service to use only reduced-risk pesticides.

FOLLOW DIRECTIONS

Before you purchase and apply any pesticide, read the label. It's worth repeating: Read the label. Unlike lots of other consumer products, pesticide labels carry critical details about how to use the product safely. Unfortunately, many labels require a magnifying glass and a college degree to understand, but persevere. If you read the label and still have questions, call your local cooperative extension service or the National Pesticide Telecommunications Network, a cooperative program sponsored by the EPA and Oregon State University. This group can also help you identify the signs of pesticide poisoning and connect you with a local poison-control center if needed.

MOW RIGHT

Bad mowing is a common cause of insect and weed problems. In general, mow high, mow often, and make sure the mower blades are sharp. Weeds have trouble taking root in grass 2½ to 3½ inches long. You can go slightly shorter (but not below 1½ inches) in the spring and fall to stimulate root growth. If the clippings are relatively short, they will decompose rapidly and can provide as much as half your lawn's nitrogen needs. If they're too long, however, they can create a thatch layer at the soil surface. If the thatch is thicker than ¾ inch, it's apt to prevent nutrients and water from reaching the roots. This is a common problem on lawns that have been overfed with synthetic fertilizers. Last, water deeply, but only when the lawn begins to wilt or show other signs of drought stress. If you follow this simple preventive program, you should rarely, if ever, need to treat your lawn with chemical pesticides.

USE BIOLOGICAL WARFARE

Try a biological control or a biopesticide, most of which have very little environmental impact. Lacewings and ladybugs, available through garden-supply catalogues, are agile hunters of soft-bodied insects, including aphids, mealybugs, thrips, mites, and soft scales. Biopesticides are also effective. The bacterium *Bacillus thuringiensis*, or Bt, controls many common caterpillar pests. Several varieties of Bt are available to the homeowner, so make sure to use one specific to your pest problem. Some Bt formulas also kill butterflies, so use them with care. Milky spore disease, a combination of two bacteria, is another biopesticide that effectively controls the grubs of the Japanese beetle and its close relatives but is harmless to other organisms. According to experts at the Environmental Protection Agency, yards treated with milky spore disease in the 1950s rarely have grub problems today, unlike yards in newer residential areas.

GO LIGHTLY

Try nontoxic methods first. You can control some insect outbreaks by merely picking the bugs off your plants and drowning them in soapy water. Aphids can often be controlled by vigorously hosing down your plants for three days in a row. You can even suck up infestations of box-elder bugs with a vacuum cleaner. Infestations of bagworms or tent caterpillars in trees may look horrific, but they seldom do serious damage. Simply prune the webs out. You'll have greener foliage next year.

PROTECT YOURSELF

Wear the protective clothing recommended on the label. Even if there is no warning, the EPA recommends protecting yourself by wearing gloves, a long-sleeved shirt, long pants, and closed shoes. Mix the pesticide according to directions. Don't spray near water sources or if the wind is blowing harder than 10 miles an hour. And don't assume that using more pesticide than recommended will do a better job. It won't, and it may leave harmful residues, contaminate water, or kill wildlife. Keep children and pets away.

KNOW YOUR ENEMIES

Get a good field guide to insects. Every insect has an economic threshold—a population level below which spraying does more harm than good. Some species of white grubs, for example, hatch just once every seven years, so if you're treating your lawn every spring with diazinon for those grubs, you're not only wasting money, you're also killing beneficial insects. Here's a test developed by the University of Maryland for people with bluegrass, ryegrass, or fine fescue lawns: Cut back three sides of a square foot of sod an inch deep with a flat-bladed shovel. Peel back the square. If you find fewer than 6 to 10 grubs, 4 to 6 sod webworms, 6 to 8 billbugs, or 15 to 20 chinch bugs, replace the sod, water it thoroughly, and relax. Your lawn will be fine.

TEACH TOLERANCE

Last but not least, be tolerant. A natural yard is not a monoculture but an abundant variety of pests, predators, weeds, and our favorite plant species. Some weeds are even beneficial. White clover fixes nitrogen, which benefits grass, and the much-maligned dandelion provides food for tiny parasitic wasps that attack garden pests. Plus many of the bugs we think of as pests are dinner for birds. Put out a bird feeder and a birdbath. Chickadees spend much of the winter eating aphid eggs, while Baltimore orioles can eat 17 tent caterpillars a minute. These and other natural ways to control pests are part of a growing movement known as integrated pest management, or IPM, nature's solution to pesticides.

Resources

POISONING

If you suspect a poisoning:

- Report human poisonings by calling 911 or your local poison-control center.
- Report wildlife poisonings to your U.S. Fish and Wildlife Service office, listed in the phone book under U.S. Government, Department of Interior, and to the pesticide division of your state's department of agriculture.

- If you find a live bird that you suspect has been poisoned by pesticides, call the International Wildlife Rehabilitation Council at 707-864-1761.

PESTICIDES

To find out more about pesticides:

- The National Pesticide Telecommunications Network, 800-858-7378.
- The Extension Toxicology Network (<http://ace.orst.edu/info/extoxnet>).
- The Citizen's Guide to Pest Control and Pesticide Safety, EPA Office of

Pesticide Programs, 1200 Pennsylvania Avenue NW, Mailbox 7506c, Washington, DC 20460, 703-305-5017 (www.epa.gov/pesticides/).

PREVENTION

For ways you can help reduce the use of pesticides and find alternatives:

- BirdCast (www.BirdSource.org/Birdcast/).
- The Environmental Protection Agency's Biopesticide site (www.epa.gov/pesticides/biopesticides/).

- The IPM Practitioner and Common Sense Pest Control Quarterly, Bio-Integral Resource Center, P.O. Box 7414, Berkeley, CA 94707.

- "Suppliers of Beneficial Organisms," California Department of Pesticide Regulation, Pest Management Branch, at 916-324-4100 (www.cdpr.ca.gov/docs/ipminov/bensuppl.htm).
- Organic Gardening magazine and web site (www.organicgardening.com), for cultural techniques and a guide to soil-testing labs in your area.