



LAWN

Overview

We begin this book with the subject of lawns for one simple reason: in landscapes all across this continent, changing the way we think about and deal with our lawns might be the easiest and most significant step we can take to help the planet.

Let's look at the big picture. The whole idea of *lawn* makes a lot of sense. An expanse of lawn offers a comfortable surface on which to walk, relax, and play. Lawn provides a simple stage where we can showcase our homes and landscaping. Planting grass is affordable and relatively simple, and taking care of it requires little specialized knowledge. In addition, when grass is actively growing, its countless blades give off wonderful oxygenated air all around us. And, at least as originally envisioned, lawn can be a way for us to have a piece of nature up close to where we live.

However. In the 100 years since the first gas-powered mower was invented—which made the lawn an achievable dream for the masses—the North American lawn has developed a big problem. And in the 60 years since the American Garden Club firmly instructed homeowners about the civic responsibility embodied in their well-manicured lawns, the lawn has lost some of the glory its early proponents once imagined.

The problem isn't the idea of lawn. No. Rather, it's what we've *done with it* that causes the trouble. As a society, we have multiplied much that's bad about lawn and in the process lost a lot of the good.

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Vibrant expanses of lawn, once full of violets, clover, and many other little flowers, are now expected to be flawless monocultures, like a green carpet just delivered from the factory. To achieve this condition, many among us water lawns relentlessly: one inch per week no matter the season or weather. Regular dousing with synthetic chemicals makes the grass less safe for children and pets, and for wildlife. (See “A Primer on Landscape Chemicals” on page 19.) The emissions of mowers, blowers, and trimmers dirty the air. Summer weekends are full of din and clatter. And for this we spend millions of dollars on fuel, and emit tons of planet-warming carbon dioxide into the air. As a stage for our homes, and perhaps also as a symbol of social status, lawns are often made extremely large. And now, instead of being an inviting swath of nature, many lawns are expensive, barren green deserts, devoid of the vitality they were supposed to bring to our lives.

We can change this scenario, starting today.

Lawns occupy more than 63,000 square miles of the continental US.² This is 40 million acres, an area about the size of Texas. If just a portion of that expanse were managed differently or converted to something else—vegetable gardens, orchards, meadows, wildlife gardens—we would save billions of gallons of fossil fuels, reduce our CO₂ emissions, save billions of gallons of precious water, and protect countless waterways from being contaminated by polluted runoff. Oh, and while we’re at it, we would support vastly more beneficial insects, birds, butterflies, and pollinators.

Figure I-1: More and more empty green lawns are being allowed or encouraged to grow tall and revert to natural vibrancy.



Credit: SReed

In This Section

On this continent’s enormous acreage of lawn, a lot of us can take a lot of little steps to make a big difference. And we can continue to have, if we want it, some amount of traditional and comfortable (but nontoxic) green grass in our lives. This Section explains how to move toward that goal. We give you the following *Action Topics* and include “A Primer on Landscape Chemicals.”

- I-1: Liberate the Lawn

- I-2: Reduce the Extent of Lawn
- I-3: Minimize Use of Power Tools
- I-4: Revive Damaged Lawns
- I-5: Provide Good Preparation for New Lawns
- I-6: Replace Some Lawn with Meadow
- I-7: Ideas for Large/Public Lawns

ACTION
TOPIC

I-1

Liberate the Lawn



Why This Matters

Liberating lawns from dependence on chemicals is an important first step toward making the whole landscape more climate-wise. *Note:* For definitions and explanations of the substances commonly used in lawn and landscape maintenance, please read “A Primer on Landscape Chemicals,” below.

Lawn-care practices vary widely between regions, neighborhoods, and individual landowners, but typical high-maintenance regimens include some of the following actions—actions that sometimes may be at odds with efforts to reduce our negative impact on the environment and shrink our climate footprint:

- *Regular applications of insecticides.* This will kill insects and other microorganisms in the soil. Unfortunately, the great majority of these living things are not harmful to lawns or grasses but instead play important roles in the soil and wider local ecosystem. For example, most of North America’s 4,000 or so native bee species (our most important pollinators) raise their young underground. Some species build up an immunity to lawn poisons, so lawn care services apply them more often and add different poisons in reaction.
- *Regular applications of fungicides.* Fungi play an important role in a healthy soil ecosystem because they digest

Someday we might look back with a curious nostalgia at the days when profligate homeowners wastefully sprayed their lawns with liquid gold to make the grass grow, just so they could then burn black gold to cut it down on the weekends. Our children and grandchildren will wonder why we were so dumb.

—Michael Webber¹



organic matter and work with plant roots to help them better absorb nutrients, which increases soil carbon. Without enough fungi, the dead matter in soil decays more slowly, which can lead to a buildup of thatch. (See Section V for more details on fungi in soils.)

- *Regular applications of broadleaf herbicides.* In order to maintain a grass-only monoculture, these poisons kill off other types of plants. As with the insects, some weeds build up a resistance to the herbicides, so a lawn service might apply different mixtures to kill the weeds. But this can affect desirable plants, such as clover, which enrich soil and feed pollinators.
- *Regular applications of synthetic fertilizers.* After reducing the natural nutrients in the soil with applications of insecticides and fungicides, lawn services typically apply synthetic fertilizers so the grass will grow and stay green. But the nutrients in fertilizer are not bound to organic matter in the soil, so they tend to leach out during rain or heavy irrigation, polluting the groundwater and/or nearby waterways. Then, because they wash away so

quickly, even more fertilizers are required to feed the starving grass.

- *Seasonal over-seeding with grasses.* These grasses grow actively during the normal dormant period. In southern regions, cool-weather grass species are used to keep the lawn green during the winter. In more northern regions, warm-weather grasses may be used to keep the lawn green over the summer. This then requires more energy and more effort for year-round mowing and year-round irrigation.
- *Over-irrigation.* An estimated 30% of



Credit: Steed

Figure 1-2: Who wouldn't love drifts of dainty "Quaker lady" bluets, splashed across the lawn? These blooms on their tiny stems usually fade in a month or so, leaving plenty of space for lawn grass to grow.



Credit: GS Tibolt

Figure I-3: Automated irrigation systems can be made smarter by adding moisture sensors that shut off the system after a rainfall, and by making sure that the water only irrigates plants—not the street or other hardscape.

household water is used for outside irrigation, and most of that is used for the luxury of keeping lawns perpetually green instead of letting them go temporarily dormant (tan).

In the ultimate irony, these conventional practices stimulate more and more grass growth, which then necessitates more and more frequent mowing, making the lawn a *carbon source* instead of the *carbon sink* it could be if managed more sustainably.

Actions

- **Stop using all pesticides and synthetic fertilizers.** When lawn treatments stop, some initial bug or fungal attacks may occur, creating thin, bare, or brown patches. Eventually, other plants will fill in the spaces, but don't worry about them; just mow everything equally. You might even come to love the diversity!

It may take a full year or more for the poison and synthetic nutrient residues to subside to the point that the lawn and its underlying soil will begin hosting enough alternative plants to be as green as it was before. This process can be speeded up by the addition of clover or other regionally appropriate,

mowable species in the brown spots. In the long run, some of the turfgrass may survive, but because it will be mixed with a good variety of other plants, it will no longer be vulnerable to pests. (See I-4 on page 32 for information on repairing lawns sustainably.)

- **Reduce irrigation frequency, or stop watering altogether.** In many areas, municipalities have (or may soon have) water-use restrictions, so it's a good idea be ready for the possibility of no irrigation at all. If some irrigation is allowed and needed during a drought, apply water infrequently, but deeply. Frequent, light watering encourages roots to come to the surface, which makes the grass less drought tolerant. Remember: if lawn grows more slowly, this saves on mowing. The most climate-wise action is not to irrigate at all. (See III-2 on page 80 for on irrigation options, and I-4 on page 32 for more on taking care of liberated lawns.)

Note: Lawn that goes brown during dry times is not always dead. Instead, it may have entered dormancy, a natural stage of life in many grasses that evolved in regions characterized by occasional or frequent drought. Climate-wise lawns are allowed to go tan in summer or brown in the winter!

Regional Note: The one exception to allowing for dormancy is for properties in fire-prone areas, where it's important to keep lawn area mowed and relatively green near buildings. Dormant or tall grass could become fuel for a wildfire. (See VI-7 on page 180 for more fire-wise strategies.)

Are There Alternatives to Toxic Lawn Care Chemicals?

Yes. Natural landscape maintenance programs can achieve a healthy, pest-free landscape using the latest scientific developments in organic agriculture and horticulture. For example, corn gluten is a natural pre-emergent weed killer and fertilizer. Lawns can be enriched naturally by spreading a thin layer of compost in the spring and fall. Also, natural lawn care practices will lead to a healthy soil that supports plants in the lawn so they that resist pests and disease.³

➤ **Use Integrated Pest Management (IPM)** All pesticides involve some amount of risk. The lowest risk for you, your family, and the general ecosystem results from using no pesticides at all. *IPM techniques* encourage natural processes to help ecosystems stay in balance, and let natural predators do most of the work. When done correctly, integrated pest management involves:

- Encouraging the beneficial organisms, including birds, bats, frogs, toads, lizards, predatory insects, and parasitoid insects. In this way, nature itself, with its large arsenal of bio-weapons, aids in keeping pests under control.
- Discouraging the pests in a timely fashion, i.e., by emptying standing water every three days to discourage mosquitoes or by pulling annual weeds before they set seed, using crop rotation in the veg-

“The IPM approach compels you to consider your landscape as part of the larger community ecosystem to manage responsibly. The impact of your gardening and pest management decisions often extends far beyond your property lines.”⁴



How “Lawn Service” Chemicals Affect Soil Ecosystems

Imagine what happens when we apply a general fungicide to the soil. The intricate dance of fungi and plant roots, which is so important to the health of plants, is slowed down or halted. Plants roots may not die, but their growth and vigor may decline. In addition, any insecticides that are used will poison the grubs, mole crickets, or other pests that feed on turfgrass roots, but they will also kill beneficial insects and macrobes, which means that the toads and other insect-eaters won't have the prey they need to survive. Since macrobes are also important soil aerators, without them plants will have a harder time growing. And, most importantly for climate change, when the soil is poisoned, the population of carbon-based life forms is drastically reduced, so the soil will not sequester nearly as much carbon as it could have. (See Section V on page 129 for more about soil ecosystems.)

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etable beds, cleaning up diseased plant material and removing it from the landscape (do not compost it).

- Planting the right plants for the landscape, and caring for them so they will grow well, which will reduce their susceptibility to infestation by insects and pathogens.

Last Thoughts

Liberating lawns from artificial fertilizers, pesticides, and unsustainable irrigation will save money, but more importantly, it is the easiest and most significant earth-friendly and climate-friendly action that homeowners, communities, schools, businesses, and municipalities can take. Liberated lawns are likely to be more resilient in an era of climate change, and the underlying soil will be able to sequester more carbon than lawns treated with synthetic lawn chemicals.

To some people, the drawback of the natural system is that it does not appear to work as quickly as the synthetic system. A natural fertilizer applied today may not turn your grass green tomorrow. In time, though, the natural system...will function better and get your grass just as green. Think of it as building a living, breathing underground community. The beneficial soil organisms that are neglected and often killed in the synthetic system will protect your grass, purify the groundwater, and keep your property safe for pets, children, and you.

— Paul Tukey, *The Organic Lawn Care Manual*, 2007

