

# A step-by-step guide **Organic Lawn Care**



[www. BoulderColorado.gov/IPM](http://www.BoulderColorado.gov/IPM)

Osborne  Organics

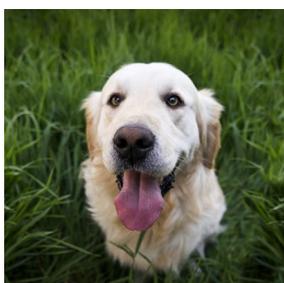


**Create a safe space  
for your family  
and pets**

## Get Results

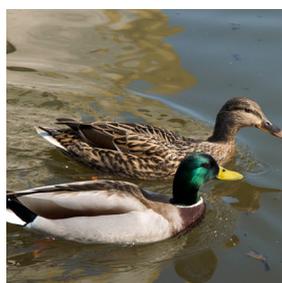
**Choose from three different plans  
to fit your budget**

**SAVE WATER AND  
LOWER YOUR BILL**



**Safer for pets**  
No harmful lawn chemicals

Grow a beautiful  
resilient lawn that  
is sustainable and  
drought tolerant



**Protect our creeks**  
Prevent chemical run-off



**Protect pollinators**  
Provide safe spaces



**Work with nature**  
Build healthy soils

# Why go organic?

## Resilience

Organic lawns use less water than conventionally maintained lawns and are more drought tolerant. This saves you money on your water bill, which can add up to significant savings over time. Conventional lawn care products can harm soil microorganisms, which are crucial for your lawn's long-term health and ability to withstand extreme temperature and weather conditions.

## Keep your family and pets safe and healthy

You can have a beautiful lawn while keeping your family and pets safe from exposure to lawn chemicals. The herbicides commonly used in conventional lawn products are associated with health problems in children and pets.

## Environmental Benefits

Organic lawn management can help mitigate climate change by drawing carbon dioxide down into living soils. Synthetic fertilizers, herbicides and many other pesticides are water soluble and run off into the storm water system and then travel into the creeks where they impact water quality, harm aquatic ecosystems and contribute to toxic algal blooms.

Most synthetic nitrogen is manufactured by the Haber process, which is heavily fossil fuel dependent, and consumes 3–5% of the world's natural-gas production. Most synthetic pesticides are also manufactured from fossil fuels.



## Does it really work?

Yes! You will have a beautiful lawn by learning basic principles and following the recommendations provided in this guide. How quickly you see results will depend on a few factors, including the condition of your lawn when you begin transitioning to organic. This includes the percentage of weeds, the thickness of your turf and the intensity of herbicide and synthetic fertilizer applications that may have impacted soil health.

Regardless of where you start, you can achieve great results to provide a safe and healthy lawn for your family.

**This guide will provide step-by-step directions for organic lawn management. Choose between three plans to fit your budget and meet your expectations.**

## Risk to babies and children from lawn chemicals



**Children are more vulnerable to the effects of exposure to herbicides and other pesticides than adults. Why?**

Children often play on the ground and put toys and their hands in their mouths exposing them to herbicides and other chemicals applied to lawns.

Children have faster metabolic rates than adults and drink more water, eat more food and breathe more air than adults for their body size.

Children's brains, nervous systems and organs are still growing and developing, putting them at greater risk from chemical exposure.

Children's bodies don't detoxify toxic chemicals as well as adults.

"Prenatal and early childhood exposure to pesticides is associated with pediatric cancers, decreased cognitive function and behavioral problems."

[The American Academy of Pediatrics](https://www.aapublicaffairs.org/2015/05/08/pesticides-and-childhood-cancer/)

# What is organic lawn care?

Organic lawn care is a holistic approach that builds healthy soils to support vigorous grass growth, crowd out weeds and create conditions that discourage disease and pests. It works with the natural processes of your yard's "ecosystem," using a combination of carefully chosen organic products and horticultural practices that support grass growth and build healthy and living soil.

This guide will show you how each part of the system works and how to implement a successful program in your yard.

## Steps to a Healthy Lawn

### Step 1 Build Healthy Soil

Healthy soil grows healthy grass.

### Step 2 Water Effectively and Efficiently

Deep and less frequent watering grows deep roots that support thicker and better grass.

### Step 3 Use Only Natural Organic Products

Create a healthy system that solves problems instead of treating symptoms.

### Step 4 Implement Good Horticultural Practices

Work smarter not harder by letting natural processes do the heavy lifting.



# Step 1 Build Healthy Soil

What does the term “healthy soil” mean? Healthy soil is teeming with life. Beneath our feet is a whole world consisting of trillions of organisms, and when in balance, this life creates fertile soil that leads to thick, beautiful grass – a soil “foodweb.” How does it all work?

- Plants release carbohydrates around their roots that feed soil bacteria and other organisms that break down organic matter and nutrients that in turn feeds the plant.
- Soil microorganisms, worms, insects and other invertebrates fill different niches. Some organisms are herbivores and some are predators that feed on other organisms. Layers of complexity among thousands of species produce the chemical nutrients and create the physical soil structure that the plant needs.

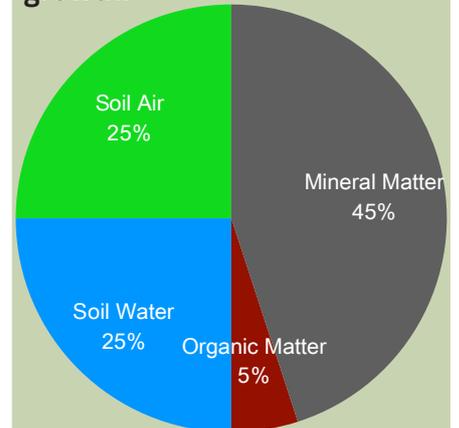
Healthy soil is filled with plant roots. Roots don’t grow in the soil itself, but in the air pockets that form spaces between soil particles. Air pockets provide oxygen for plant roots and soil microorganisms and the air pockets also hold water. As soil becomes more compacted, more and more water runs off your lawn instead of soaking down into the soil where it can be used by the grass roots.

**The most important thing you can do to create a great lawn is decrease soil compaction. Think of compaction as the enemy of a healthy lawn.**

## What does compaction do to your soil?

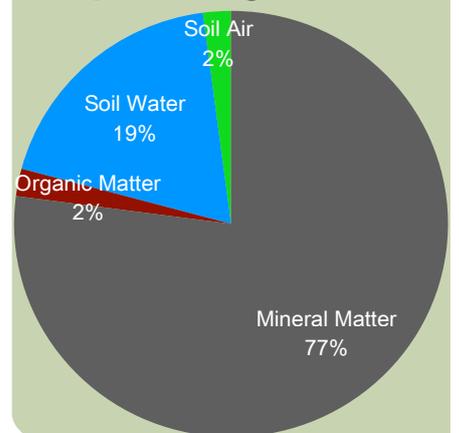
### Healthy Soil

About half the soil volume is air pockets and water providing spaces for plant root growth.



### Compacted Soil

Few air pockets discourage root growth and create thin or bare patches of grass.



## What’s in a handful of soil?

30 miles fungal mycelium	100,000,000 bacteria of 10,000 species	Algae hundreds of species
10,000 nematodes	100,000 protozans from hundreds of species	
5,000 individual invertebrates insects, worms, arachnids and molluscs		

Source: Life and Soil Protection.  
European Commission. 2014

# Aeration

Aeration keeps your lawn from becoming compacted. Aerating helps your grass grow thicker by allowing the roots to grow deeper. The more use and traffic a lawn gets, the more important mechanical aeration is to decrease compaction.

Plug aeration is the most effective aeration method. You can either hire a lawn care company to do the work or rent a machine to do it yourself from a local home improvement store. Please note that the machinery is very heavy and will need to be transported in a truck.



➡ Pulling out plugs creates channels for air. Leave the plugs on your lawn. They will break down quickly.



➡ Plug aeration machines are heavy and require strength to move and operate.

Microbial activity also reduces compaction. If you can't afford to aerate your lawn, you can still decrease compaction in two ways. You can either apply compost to your lawn or you can feed the existing microorganisms in your soil to help them to multiply and flourish.

Like all living things, the microorganisms living in soil need food. The inexpensive and easy recipe below will help build healthy soil. Check your garden supply center or an online retailer to purchase the ingredients. It's also a great idea to share the ingredients with family or neighbors since you'll only need a small amount.

## Liquid Soil Food Recipe

Recipe for a 32 ounce hose-end sprayer



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(C) Lee Valley Tools Ltd.

- 2 ounces humic acid
- 2 ounces liquid kelp
- 1 tablespoon molasses

For a deluxe treatment, add 6 ounces of fish hydrosylate.

Mix all ingredients into the hose-end sprayer and fill up with water. Each 32-ounce batch will cover 1000 square feet of lawn.

# Compost

Good quality compost provides both key nutrients and microorganisms to your lawn. The nutrients in compost also provide a home for beneficial microorganisms.

Composting is one of the best ways to jump-start an organic lawn care program. When a lawn is aerated first, composting becomes even more effective.

**Spread finished compost 1/4" thick over your lawn.**

High quality, certified organic compost provides the best results. You can purchase compost from a number of companies in Boulder in bulk or you can purchase in bags at local garden centers.

You can spread compost with a fertilizer spreader. Or make mounds and spread it over your lawn with a rake.



**Compost tea** - As its name implies, compost tea is a liquid. A bag of high-quality compost is steeped in water and gently agitated with a nutrient source to feed the microorganisms so that they multiply. The liquid is then collected and can be concentrated to apply directly to grass. Compost tea can be purchased locally from EcoCycle, Harlequin's Gardens and other companies in Boulder. If you apply it yourself, follow the directions provided. Since compost tea is filled with living organisms, most preparations need to be applied soon after they are made.

## Step 2 Water Effectively and Efficiently



One of the most common mistakes is watering a lawn too frequently. Frequent shallow watering produces short grass roots that are less able to tolerate heat and drought. Overwatering your yard wastes time and money and leads to unhealthy grass that is more susceptible to disease and insect pests.



Deep grass roots produce thick, healthy grass above ground. Watering less often for longer periods of time allows the water to soak deeper in the soil and encourages deep root growth.

### Tips

Colorado lawns do not typically need to be watered before May.

A good rule of thumb is to water about one inch every third day.

During the heat of July, you may need to water 1.5 inches.

Measure how much water you're applying by placing shallow containers in your yard and measuring the amount of water you collect during the time you irrigate.

Do not water when there has been adequate precipitation. You can use soil moisture sensors or rain gauges to track precipitation.

If your sprinkler system has zones, set different watering protocols based on sunlight and wind exposure. Check with [Resource Central](#) to learn more.

Get a free irrigation audit from Resource Central

### Did you know?

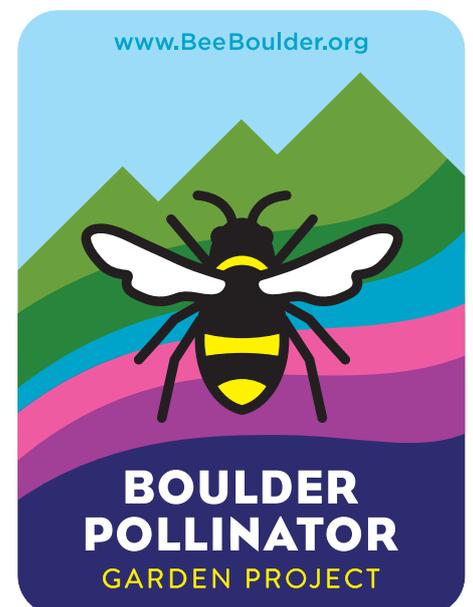
Turf grass is the largest irrigated "crop" in the country, covering an area three times larger than any other irrigated crop. Although all of this turf uses scarce water resources, if managed properly, the amount of water can be reduced. Soil health can be optimized with proper watering to draw down carbon dioxide from the atmosphere.

Another little known fact is that pesticide use in urban areas is up to 10 times greater per acre than pesticide use in agriculture. Organic lawn management helps conserve water, draws down carbon and eliminates pesticides.

### Take the 10% challenge!

Most of us have too much grass. Grass is great for children and pets, but provides almost no benefit to pollinators, birds and other wildlife.

Think about how much less grass and how much more pollinator habitat there would be if each of us removed just 10% of our lawns and installed a pollinator garden! Learn how at [BeeBoulder.org](http://BeeBoulder.org).



# Step 3

## Use Only Natural Organic Products

An organically managed lawn uses ONLY organic products. How can you tell if a product is truly organic?

**Always read the label.**

### Choosing an organic fertilizer

The biggest difference between most synthetic fertilizers and organic fertilizers is how they dissolve in water and how they're used by the plant. Most synthetic fertilizers are soluble mineral salts that dissolve in water. When these fertilizers are applied, they are rapidly taken up by plants and the excess runs off your lawn. This can contaminate creeks and other bodies of water and even contribute to toxic algal blooms. It's also not efficient since you're not getting use of all the product you paid for. Soluble mineral salt fertilizers can also harm some soil microorganisms.



Organic fertilizers do not dissolve in water. Instead, they are broken down by soil microorganisms – organic fertilizer provides food for soil microorganisms. It takes a little longer for organic fertilizer to start working, but it releases slowly over a longer time period and benefits the soil food web to create and support fertile soil. It stays on your lawn instead of running off, since the nitrogen that is released by slow breakdown from microorganisms is taken up and used by the plant roots

### How do you ensure that you're getting organic fertilizer?

Read the label. Anything with urea should be avoided. Look for the word "Organic," but always double check and read the ingredients. "Organic-based" often contains urea.

Organic fertilizers are derived from natural sources such as:

- Grain - i.e. corn, soy, alfalfa, cottonseed meal
- Animal by-products - i.e. feather meal, bone meal, blood meal, meat, manure



## Finding organic products



The Organic Materials Research Institute (OMRI) registers products that meet rigorous standards. Look for the OMRI label on product packaging.

Learn more at [OMRI.org](https://www.omri.org)

### EPA 25(b)

Certain pesticide ingredients that are derived from natural products and have been demonstrated to have very low risk are referred to as EPA 25(b) or minimum risk pesticides. These products are exempted from the EPA pesticide registration process. You can find the entire list [here](#).

Read the label of any product claiming this status to ensure that the ingredients are on this list.

**In most cases, natural pesticides will not be needed if you follow organic management principles and build a stable, healthy ecosystem in your yard.**

# Step 4

## Implement Good Horticultural Practices



### Grass seed varieties

Which variety of grass seed should you choose?

Compact bluegrass or ryegrass varieties save water and reduce the amount of mowing and trimming.

Any fine fescues including sheeps and red creeping fescue work well in shady areas.

Compact bluegrass does well in full sun areas and high traffic.

When overseeding Kentucky bluegrass, Texas-type hybrids or compact varieties compete best with the existing bluegrass in most yards.

### Did you know?

Prior to World War II, clover was a normal part of every lawn due to its ability to fix nitrogen. Clover seed was even added to grass seed. When the herbicide 2,4-D started being used in lawns to control broad-leaved weeds, it killed clover. Clover went from being considered a good thing to being marketed as a weed.

### Mowing

Proper mowing is important for maintaining a healthy, chemical-free lawn.

#### Proper Height

Set your mower blade height to three inches. The leaves of taller grass photosynthesize more energy and grow deeper roots making your grass more drought tolerant, and disease and pest resistant. This height also shades weed seeds and can prevent them from getting enough sunlight to germinate or keep weed seedlings from getting adequate sunlight to grow. The thick grass from deep roots also out-competes weeds.

#### Clippings

Leave grass clippings on your lawn. Grass clippings provide nitrogen and free fertilizer. If you have good aeration and healthy soil that supports microorganisms, you will not have thatch issues.

If your grass becomes very overgrown, do not try to mow it short all at once. Cutting too much of the grass blade at one time stresses it to the point it will damage your lawn. You should never more than 1/3 of the total length of the grass blade at one time.

### The importance of grass seed

Applying grass seed to thin areas or bare patches and spreading it over your entire lawn is one of the best ways to grow a healthy, thick lawn that will naturally crowd out weeds and crabgrass.



In the spring, fill in any bare spots with grass seed.

“Overseeding” is a term used for spreading grass seed over the entire lawn. Fall (late August or early

September) is the best time of year to overseed. This can be done in a number of ways. You can use the same spreader you use for fertilizer or you can rent a grass seed spreader for large areas. It's also fine to sprinkle grass seed by hand, the same way you would feed chickens.



# Putting it all together

## Choose from Three Plans for Organic Lawn Care Success

You are now on your way to creating a safe, beautiful lawn using the tools and information provided in this guide. We've created three annual plans to work within your budget and time constraints. Be sure to follow the mowing and watering recommendations with all three plans.

How do you choose?

The first question to ask yourself is what are your expectations? Is it OK if your lawn looks great from the sidewalk, but if you walk onto your lawn, bend down and look closely, you may see a few weeds? If you have extremely high expectations and want a completely weed-free lawn, you'll need to spend more time and money. This is true whether you're using an organic or conventional program.

The other factors that will affect the transition to organic are the condition of your lawn when you begin and the history of lawn chemical use. If your lawn is very weedy, it will take more time to decrease weed density. If your lawn has been treated for years with weed and feed, synthetic fertilizers and other lawn chemicals, it will take time and effort to rebuild soil health. But keep in mind that in addition to the health and environmental benefits of going organic, the objective is to have a better lawn than when you started that is thicker and more resilient to extreme weather and heavy use. The following plans will help you to achieve these goals.

**Good** - this is the basic plan with lowest costs and time requirements. It doesn't include compost application and aeration, which are the most costly items. Instead, you'll work to increase the microorganisms that are already present in your soil. Results will take longer to see and the quality of your lawn will not be as good as the other plans, but you'll still have a nice lawn. This program can also be used for maintenance after implementing the other plans for a few years.

**Better** - this plan builds on the Good Plan by adding one compost application and one plug aeration. The cost is still reasonable, but you'll see better results more quickly. There are no midsummer tasks other than mowing.

**Best** - this plan will provide the fastest results and the best end product. It's more costly at the beginning, but you can use the other two plans after the first year if you want to reduce costs. This is the best plan to jump-start a successful organic lawn program.

### Mix and Match

You can mix and match these plans over time. If you can afford to start with the Best Plan the first year, you can use the Better Plan the following year and Good Plan the third year. It's flexible and adaptable to your needs. The beauty of organic lawn management is that it works with nature by optimizing the balance of beneficial organisms and basic ecological principles. For example, a compost

application does more than provide just a one-time benefit. If you feed and care for the microorganisms you apply in compost, they not only remain in the soil, but multiply. Although the Best Plan costs more initially, the costs will decrease each year as you move to the Better and Good Plans as your lawn becomes more self-sustaining. Or you can start with the Good Plan and when you have more time and can spend more money, you can try a year of the Better or Best Plans. You can build a program that works for you.

# Seasonal Schedule and Plans

## Good

**Spring**  
Late April/Early May

**Fall**  
Late August/Early September

### Organic Fertilizer

Apply 3/4 pound of nitrogen\* per 1000 square feet of grass  
- See page 7

Apply 3/4 pound of nitrogen\* per 1000 square feet of grass

### Liquid Soil Food

Apply to lawn with hose-end sprayer  
- See recipe on page 5

Apply to lawn with hose-end sprayer

### Grass Seed

Seed bare or thin spots in April

Overseed whole lawn in late August  
- See page 8

\*see package instructions and percentage of nitrogen to calculate the amount of fertilizer needed for 3/4 pound of nitrogen

# Better

**Spring**

Late April/Early May

**Fall**

Late August/Early September

## Organic Fertilizer

Apply 3/4 pound of nitrogen\* per 1000 square feet of grass  
- See page 7

Apply 3/4 pound of nitrogen\* per 1000 square feet of grass

## Liquid Soil Food

Apply to lawn with hose-end sprayer  
- See recipe on page 5

Apply to lawn with hose-end sprayer

## Grass Seed

Seed bare or thin spots in April

Overseed whole lawn in late August  
- See page 8

## Aerataion

Plug aerate lawn  
- See page 5

## Compost

Spread 1/4 inch of compost over entire lawn.  
- See page 5

\*see package instructions and percentage of nitrogen to calculate the amount of fertilizer needed for 3/4 pound of nitrogen

# Best

 <p><b>Spring</b> Late April/Early May</p>	 <p><b>Summer</b> June - July</p>	 <p><b>Fall</b> Late August/Early September</p>
<h2 style="text-align: center;">Organic Fertilizer</h2>		
<p>Apply 3/4 pound of nitrogen* per 1000 square feet of grass - See page 7</p>	<p>Apply 3/4 pound of nitrogen* per 1000 square feet of grass</p>	<p>Late August - Apply 3/4 pound of nitrogen* per 1000 square feet. Late September - Apply either 1/4 pound of nitrogen or substitute compost application</p>
<h2 style="text-align: center;">Liquid Soil Food</h2>		
<p>Apply to lawn with hose-end sprayer - See recipe on page 5</p>	<p>Apply to lawn with hose-end sprayer</p>	<p>Apply to lawn with hose-end sprayer</p>
<h2 style="text-align: center;">Grass Seed</h2>		
<p>Seed bare or thin spots in April</p>		<p>Overseed whole lawn in late August - See page 8</p>
<h2 style="text-align: center;">Aerataion</h2>		
<p>Plug aerate lawn - See page 5</p>		<p>Plug aerate lawn</p>
<h2 style="text-align: center;">Compost</h2>		
	<p>June - Spread 1/4 inch of compost over entire lawn. - See page 5</p>	<p>Early September - Spread 1/4 inch of compost over entire lawn. <b>Note:</b> May be substituted for late September fertilizer application.</p>

\*see package instructions and percentage of nitrogen to calculate the amount of fertilizer needed for 3/4 pound of nitrogen



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“A Step-By-Step Guide: Organic Lawn Care” is the first in a series from the City of Boulder and expert partners to provide practical methods to transform Boulder’s landscaping to support all life and address climate change. Check the city’s website for more information about gardening for pollinators and related topics.

