Soil Quality

Better Lawns Made Easy

Got Soil Quality?

Prior to land development and agricultural cultivation, the native ecosystem of tallgrass prairie built and maintained soils with high organic matter and porosity. The high organic matter and porosity gave the landscape the ability to absorb rain and not shed runoff. Hardy native plants and grasses had deep root systems, which created pore spaces that allowed rainfall to percolate into the soil profile. Soils rich in organic matter support an entire ecosystem of microorganisms that contribute to soil health.

Iowa soils have been significantly altered by tillage for farming and grading practices associated with urban development. Years of tillage and soil erosion has caused the loss of more than half of Iowa's topsoil. The organic matter content was reduced from a healthy, sponge-like 10% to less than 2%. Often remaining topsoil is completely removed during development for urban growth. Little to no organic matter remains and the graded soils are compacted.

Clean Water Is Everyone's Business

Compacted soils with no organic matter cause nearly all the water to runoff during rainfall. Stormwater runoff flows untreated to storm sewers, and washes associated pollutants directly into nearby streams, rivers, lakes and wetlands.

Yards with poor soil quality contribute to water quality issues because of their inability to infiltrate water or make it available for the turfgrass. Rainfall runs off the lawn instead of providing water for the grass. Any applications of pesticide and fertilizer may also travel in runoff to nearby water bodies, negatively impacting water quality in your neighborhood and beyond.

Upgrade Your soil for a Better Lawn

A compacted, nutrient poor soil with low organic matter content also requires more time and money to stay green! This guide provides information that will help you create a beautiful, healthy lawn that requires less water and reduced fertilizer and pesticide applications.

Rainscaping Iowa
Landscapes for clean water

How to Upgrade Your Lawn

A New Lawn

- Soil quality restoration is easiest when performed as part of final landscaping with new construction.
- Deep tillage (8-12 inches deep) breaks up compacted soils.
- An addition of compost will increase organic matter levels.
- Recommended levels of 5% or more soil organic matter content can usually be achieved by incorporating 1-3 inches of quality compost into the soil before sodding or seeding.

Compost being spread over the soil prior to seeding or sodding.

An Existing Lawn

- If you wish to improve a landscape with existing turf, you can aerate the soil and apply a surface blanket of compost in the spring or fall.

This homeowner was unhappy with his lawn. The compacted soil with low organic matter didn't allow water to soak in and it ran off. This caused dried-out conditions and resulted in dry, stressed grass.

Aerate it!

- Aerate your lawn with a plug or deep-tine aerator.
- A common misperception is that aeration itself helps relieve compaction and allows oxygen to permeate down to plant roots.
- An application of ¼ to ¾ inch of compost is recommended after aeration. This will help fill the aeration holes with organic matter to amend the soil.
- Eventually the void created by the soil plug will fill in.
- To have a lasting impact on the health of your lawn, fill the plugs with good quality compost and reseed to get the greatest benefit from core aeration.

Aeration helps to improve soil quality by facilitating the movement of organic matter into the soil profile.

Spread That Compost

- Compost may be spread onto bare ground or existing lawns in a number of ways, depending on size of project and *do-it-yourself* ability.
- It can be blown onto the lawn, applied with a skid loader, wheel barrrow and shovel, manure spreader, or lawn fertilizer spreader.
- A fertilizer spreader works well to apply a thin layer of high quality fine-graded compost to an exiting lawn.
- Grass seed is normally added with the compost to help fill in patchy turf or seed an area.

A thin layer of compost being blown onto a lawn to increase organic matter content.

Going Green! How Does it Look?

Making the effort to upgrade a lawn means less maintenance later. For a short time the compost in this yard made the lawn look like it had been burned in a fire.

A ¾ inch compost application jump-started the lawn. The grass turned a beautiful healthy green color. The soil was tested before and after compost application. The organic matter content in the soil was raised from <2% to a healthier 5%.

The lawn required much less water to stay lush and green and to keep the grass unstressed. The cost savings can be significant during summer months.

Soil tests showed an increase in available nutrients for the lawn after compost application. Therefore, the lawn required less feritilzer to maintain the lush green look desired by homeowners. Doing your part now to *go green* saves time, money and water later.

To DIY or Not?

- If you'd like to do it yourself (DIY), check the yellow pages for equipment rentals and rent by the hour, ½ day or more.
- You could rent an aerator, have bulk compost delivered and spread it yourself to upgrade your soil for a beautiful, healthy lawn.
- Bulk compost is likely to be available for pick-up or delivery through a landscape nursery, landscape contractor or direct from a local compost operation.
- Check with your local compost producer for cost and availability of compost or its delivery.
- If you'd like to hire a commercial applicator, check the yellow pages under Landscape Contractors or Lawn & Ground Maintenance.

Spreading compost over the turf for a healthy lawn.

Calculate It!

How much compost do you need?

Square Feet (sf) x Depth (in) x .0031 = Cubic Yards (CY) of compost needed

For example:
To apply a ¼ inch of a 5,000 SF yard = 5,000 x .25in x .0031 = 3.9 CY

Landscapes for Clean Water

Compost improves lawn and landscape health by increasing porosity and organic matter content, breaking down nutrients and making them available to plants, improving plant hardiness and vigor, and retaining more water in the landscape.

When runoff is prevented from moving off the landscape, eroded soil, nutrients, and other pollutants do not enter surface waters.

Lawn Care Tips:

- Begin mowing after the first of May and end near Labor Day.
- Set the mower at three inches high. The higher the grass shoot, the deeper the grass roots, making it better able to survive dry periods.
- Use the mulch setting on your mower to leave the grass clippings on the yard. Don't lower organic matter content by removing clippings. Grass clippings don't contribute to thatch in yards with active soil microbes and healthy soils.
- Consider using native plants for accent in planting beds or in rain gardens to minimize the amount of turfgrass.
- Seed your lawn to a native turf mixture that has deep roots and thrives in Iowa's weather conditions without extra care.

Resources

Iowa Compost Producers-
www.iowadnr.com/waste/recycling/mulch/index.html
http://soils.usda.gov/sqi
www.compostingcouncil.org

Rainscaping Iowa
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Rainscaping Iowa is a statewide partnership effort promoting methods and practices to create functional landscapes that protect and improve Iowa's water quality.

Polk Soil & Water
CONSERVATION DISTRICT
www.polk-swcd.org

Iowa Storm Water Education Program
www.iowastormwater.org

Iowa Department of Agriculture and Land Stewardship
www.iowaagriculture.gov

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