

SOIL QUALITY RESTORATION

Improving Soil Health



WITH COMPOST

WITHOUT COMPOST

WHAT IS SOIL QUALITY RESTORATION?

Soil quality restoration (SQR) is the process of improving soil health on new or existing lawns. The process uses tillage, aeration, and compost to increase infiltration and organic matter content. Soil quality restoration leads to healthier, more functional soils and to landscapes that can absorb more rain and shed less runoff.



WHY RESTORE SOIL QUALITY?

Grading activities associated with urban development create poor quality soils that are compacted and low in organic matter. Yards with poor soil quality require more time, money, water, and fertilizer to stay green and maintain a lush appearance. Problems such as standing water, inability to mow after rainfall, patchy grass, and poor grass establishment are associated with poor soil quality. These soil conditions also contribute to water quality issues by shedding runoff during rainfall

events; and by transporting pesticides, sediments, and fertilizers to nearby water bodies. Soil quality restoration reduces compaction, increases pore space in the soil, and improves organic matter content. This improves the health and functionality of soils. Organic matter gives the landscape the ability to act like a sponge and absorb rain. Soils rich in organic matter also support entire ecosystems of beneficial organisms (microbes, worms, insects) that contribute to healthy lawns.

HOW TO IMPROVE YOUR LAWN

The soil quality restoration method chosen depends if the ground is bare or if the lawn has already been established.

Establishing New Lawns

Restoring your yard to an 8 inch layer of healthy, de-compacted soils requires a combination of tillage, topsoil, and/or compost. Soil quality restoration is best when performed as part of the final landscaping with new construction.

- » Contact Iowa One Call to have utilities located.
- » Deep tillage (4-8 inches) breaks up compacted soils.
- » Adding compost and topsoil will increase organic matter.
- » Seed with turf grass or lay sod.

Improving Existing Lawns

Create healthier soils by adding organic matter to an existing lawn.

- » Contact Iowa One Call to have utilities located.
- » Locate and mark in-ground sprinklers and invisible fences.
- » Mow lawn to a height of 2 inches.
- » Aerate the lawn with a plug or deep tine aerator.
- » Apply 1/2 to 3/4 inch of compost to increase the organic matter content of the lawn.
- » Apply grass seed over patchy turf, if needed, with a species that matches current yard grass.
- » Do not use pre-emergent if seeding new grass.
- » SQR should be completed in spring or fall when temperatures are mild. Applying compost in high temperatures can kill existing grass.



This new lawn will benefit from restoration to create healthy soils.



Poor soil often results in lawns with this patchy appearance.

USE QUALITY COMPOST

Quality compost for soil quality restoration is made from yard waste such as grass clippings and leaves. It is best to purchase compost that was made at a reputable facility because they maximize important variables including temperature, moisture, oxygen, and microbial activity to yield high quality compost.

The proper temperature is essential to destroy weed seeds and pathogenic organisms. The compost is also tested to ensure it is high quality. Good compost contains many beneficial microorganisms. It should be loose and granular, dark colored, and moist. It should also have an earthy smell and be free from debris, rocks, sticks, and trash.

COMPOST APPLICATION

Compost can be spread on bare ground or over existing lawns in a number of ways, depending on the size of the project.



Walk behind spreader



Pneumatic blower truck



Shovel and rake by hand

SOIL QUALITY RESTORATION: IMPROVING AN EXISTING LAWN



Poor quality residential lawn prior to soil quality restoration.



Aerating lawn before spreading compost.



Compost spread over an existing lawn.



Residential lawn one year after soil quality restoration.

ESTABLISHMENT MAINTENANCE

While soil quality restoration reduces future yard work, some maintenance is required during the first 7-10 days while grass establishes. Below is a list of possible maintenance requirements:

- » Identify areas of thicker compost and pull grass blades through compost layer with a rake.
- » Do not let grass be completely covered for more than three days.
- » Overseed areas without turfgrass and do not disturb those areas.
- » Water as needed if seeded, depending upon rainfall.
- » Loosen areas of crusted or compacted compost with a rake.
- » Temporarily control erosion in steep areas.
- » Clean compost off impervious surfaces (driveways and sidewalks).
- » Avoid walking on or allowing pets on treated area until rainfall incorporates compost into the soil profile.

REASONS TO PERFORM SOIL QUALITY RESTORATION



Lack of water infiltration



Patchy or unhealthy grass growth



Compacted soil or subsoil

DO IT YOURSELF

Below are some helpful tips if you choose to complete a soil quality restoration yourself:

- » Locate sprinklers, invisible fences, and call Iowa One Call to mark utilities before aerating the lawn.
- » Borrow or rent equipment needed (aerator) from your local hardware or rental store.
- » Buy yard waste compost in bulk from local composting facility or a retailer reselling in smaller quantities.
- » Add 1/2 to 3/4 inch of compost to yard. For better results, repeat in a year or two.
- » Spread compost using a wheelbarrow, shovel, and rake; or rent a walk behind spreader.
- » Ensure compost is evenly spread to prevent thick spots that completely cover grass, killing it.
- » Follow establishment maintenance guidelines on previous page.

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 1/2 inch on a 5,000 sf yard = $5,000 \times .50 \text{ in} \times .0031 = 7.75 \text{ CY}$

To determine tons of compost to purchase in bulk, convert compost cubic yards to tons.

_____ CY x 1,200 lbs/CY of compost = _____ lbs compost needed.

Divide _____ lbs of compost by 2,000 = _____ tons needed.

For more resources, including a list of SQR cost-share opportunities and contractors in eastern and central Iowa, visit iowastormwater.org and raincampaign.org.



Compost stockpile delivered to a residential driveway for application. If rain is in the forecast, spread it quickly or protect pile with tarps to keep compost dry and prevent it from washing into the street and down the storm drain.



cleanwateriowa.org



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Natural Resources Conservation Service

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