

# Soil Drainage



## What's a Percolation Test?

It helps you measure drainage in your lawn or garden soil to keep your plants properly hydrated.



## Testing Your Soil Drainage

1. **Dig** a hole with straight sides at least 12" in diameter by 12" deep.
2. **Fill** the hole with water and let it sit overnight.
3. **Refill** the hole with water the next day.
4. **Measure** the water level every hour. Lay a straight edge across the top of the hole and then use a yardstick or measuring tape to read the water level until the hole is empty.

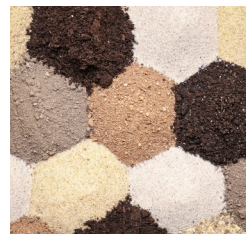
Ideal soil drainage is about 2" per hour.

If your soil drains less than 1" per hour, you'll need to add sand and organic matter to create space between soil particles.

If your soil drains more than 4" per hour, you'll need to add organic matter to help retain moisture.

## Types of Soil

- **Clay** is the finest type of soil and drains the slowest.
- **Silt** is the intermediate size between clay and sand. It holds moisture well but is easily eroded.
- **Sand** is the largest type of soil and drains the fastest. Sand also increases soil aeration.
- **Loam** is a mixture of sand, silt, and clay.
- **Humus** is organic material that forms in soil as plant and animal matter decomposes. Humus helps soil retain moisture, improve aeration, and holds nutrients. This is what builds our topsoil.



## Working with Poor Drainage

If you know your soil's drainage type but can't fix your soil across large areas, pick plants suited to your soil type (wet or dry) or use raised beds and planters to provide proper soil to designated plants.

## Fixing Soil Drainage

Most drainage problems can be addressed by aerating and topdressing with compost. Instructions for both are on the back of this handout.



## What's aeration?

Over time all soil becomes compacted, especially with lots of walking, snow piles, or vehicle traffic.

Aeration loosens the soil so that air, water, and nutrients can reach plant roots. Aeration also reduces thatch, reduces the need for fertilizer, improves root growth, and improves drought resistance.

### How to Aerate

1. **Call DigSafe at 811** to check for any underground utility lines. Also check the depth of any irrigation systems to avoid puncturing.
2. **Rent a core aerator** for a few hours or an entire day. Consider splitting the cost with a neighbor or two. Some landscaping companies will also perform this service.
3. **Check the soil plugs.** If they crumble, you can leave them where they lie. If they hold their shape, rake them up and compost them.

### When to Aerate

- When the soil is moist, but not wet.
- Twice a year (in the spring and fall) in heavy clay soils, high use areas, or where thatch is over one inch thick.
- Every few years as maintenance.



## What's topdressing?

Topdressing is spreading a thin layer of compost to the top of your soil. This adds nutrients and organic matter to your soil to reduce the need for fertilizer, reduces compaction, and helps retain water.

### How to Topdress

1. **Dump wheel barrow loads** of compost 3'-4' apart.
2. **Lightly fan out** the compost with the rake so the grass blades poke through. If aerating, compost will lightly fill in the holes created to help build quality topsoil faster.
3. (Optional) Overseed the bare spots with grass or clover to thicken your lawn and prevent weeds from growing.

### How Much Compost Do I Need

You want a  $\frac{1}{4}$ " to  $\frac{3}{8}$ " **thick layer**, so to cover 1,000 sq. ft., you need 0.75 cubic yards of compost.

### What Type of Compost

Food waste and shellfish-based compost has higher amounts of nitrogen; manure-based composts has higher amounts of phosphorous. Check your soil test results to see which will help your soil more.

### When to Topdress

After aerating in late spring or late summer, when you have several days of dry weather in a row.

Topdressing is **not recommended** if you live next to a waterbody or on a steep slope.