



**Cornell University**  
**Cooperative Extension**  
**Rockland County**

10 Patriot Hills Drive  
Stony Point, NY 10980  
Phone: (845) 429 - 7085  
Fax: (845) 429 - 8667  
[www.cce.cornell.edu/rockland/](http://www.cce.cornell.edu/rockland/)

## IMPROVING DRAINAGE IN SOIL

It's true that "April showers bring May flowers" but they also bring mud and root rot. Because most of our soils are heavy in clay, many gardeners and homeowners are faced with soggy soil which causes rotting roots, grass that won't grow, moss and algae-encrusted soil and shrubs that grow weaker by the season.

If your yard is wet, the first thing to do is to determine "how wet." Dig a hole at least 18 inches deep. Spring is the season in which the rains bring the water table closest to the soil surface so if you don't see water standing in the hole in April, chances are that your yard will not have drainage problems the rest of the year.

To test the soil drainage, fill the hole with water and then wait a few hours. If the water drains quickly, drainage is good. If, however, the water drains less than an inch per hour or remains in the hole for longer than a day, you have a drainage problem.

What can be done? Below are some solutions:

### **Select Water-Tolerant Plants**

The best solution to growing plants in a wet area is to select plants that tolerate wet soils. Some water-tolerant trees include red maple, shadbush, river and paper birches, tamarack, sweet gum, sour gum, sycamore, swamp white oak, bur and pin oaks, bald cypress, willow, white spruce and American arborvitae. Plant willows at least 50 feet from pipes, sewers and septic tanks in the yard; their roots can invade and damage these structures.

Water-tolerant shrubs include sweetshrub, summersweet, Siberian dogwood, gray and red-osier dogwoods, inkberry, winterberry, sweetbay magnolia, highbush blueberry and European cranberry bush. Cooperative Extension has a list of plants that tolerate wet soil.

It can be difficult to grow a lawn in a wet area. Algae and moss often fill in the bare spots. To improve such an area, rake away the moss or algae and improve the drainage by installing drain tiles. You may also increase soil air circulation by aerating with a "coring" or "aeration" machine (available through landscape services or equipment rental stores.) Then seed the area with rough bluegrass, a type of lawn grass that is tolerant of moist soils.

If over time the lawn grass dies out, you may consider more drastic drainage measures or try planting water-tolerant ground covers or shrubs.

### **Build Raised Beds**

Another method is to plant your shrubs in raised beds. The root systems of most shrubs grow sideways in the top 18 inches of soil, so by creating raised beds you may be able to give them the 18-inch zone of well-drained soil above the water-logged layer that they need.

Raised beds are simply built on top of the ground. Some people build large mounds of soil while others use pressure-treated railroad ties to build the sides of the bed. If you choose to mound the soil, make the mound wide. A mound that looks like a miniature volcano will be of little help because it doesn't allow the plant's roots to grow sideways.

Roots have difficulty growing through layers of different textured soil. To avoid an interface where two layers meet, use native soil to build your raised beds. If you must import soil, incorporate the new into the existing soil. DO NOT amend clayey, poorly drained soils with organic materials (peat moss or compost). This may lead to waterlogged soil and plant death.

If you use railroad ties, be sure to brace, stake or spike them so that the sides don't collapse when you fill the bed with soil. Do not cover the ground with plastic or anything that would obstruct water and plant roots from moving from the planter into the ground below.

### **Correct Poor Soil Drainage**

A long-term and expensive solution is to install drain tiles in the yard. This can be done with the advice of landscape contractors or the USDA Soil Conservation Service located in New City. In short, it involves digging deep trenches in the wet areas so that the trenches lead out to the street, a storm drain or a pond. After covering the bottom of the trench with stone, lay the drain tile on the stone and then cover it with more stone and, finally, soil.

Drain tiles are flexible, plastic tubes which have holes in them. Water drains through the ground, into the trench, through the rocks, into the holes and out the end of the drain tile into the street, drain or pond. The tile must be slanted so that the water can drain properly.

If water is running into your yard from a slope or hillside, it can also be diverted by building a swale. A swale is a long, slightly raised mound of soil that diverts the water off to the side of your property or to a place that is better drained. Here again, a landscape contractor or drainage expert can be of help in providing advice.

Prepared by: Paul Trader, Cooperative Extension Agent

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ANN B, HERRIOTT  
Cooperative Extension Agent  
ABH/jm 12/97  
hort 195

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