

## PLANTING AND A WELL-DRAINED SOIL

Soil is to plants what food and clothing are to humans. The soil holds the plant upright and also provides the nutrients that are needed for the plant to grow. Often, we fail to consider the importance of the soil in which we place a plant, shrub or tree, and don't understand why our garden doesn't thrive.

Soil is composed of mineral matter, organic matter and air, water and micro-organisms. The development of soil is a complicated process. Over eons of time, rocks are weathered into fragments or mineral particles; decaying plants and other organic matter mix with the fragments. Climate, new vegetation, and changes in the land contours contribute to the continuing transformation of soil. The characteristics of good soil are described as texture, structure, soil pH, drainage, permeability and soil depth.

Soil texture refers to the fineness/coarseness of the mineral particles of the soil. Course particles are sand, relatively fine, smooth soil particles are silt; clays are the finest soil particles. Coarse-textured or sandy soils allow water to enter at a faster rate and to move freely. Clay soils absorb water more slowly, but retain it.

The structure of the soil describes how the soil particles are grouped together. It is desirable for the soil to form structural pieces that are rounded and vary in size from a very small shot pellet to that of pea. Air and water movement within the soil is closely related to its structure. Good structure allows rapid movement of air and water through the soil. Since plant roots move through the same channels in the soil as air and water, good structure allows extensive root development.

Soil pH is an indication of relative acidity or alkalinity. It is reported on a scale of 0 to 14 with low numbers representing acid conditions and high pH numbers alkaline conditions. A pH of 7 is neutral. Soil pH is determined by chemical analysis, and is very important to the health and productivity of plants. In the Hampton Roads area, most soil is slightly acid. You should not guess about this, but should have a soil sample tested.

Soil drainage and permeability refers the ability of the soil to transmit water and air. Both depend upon the texture of the soil, the slope of the land, the subsoil and the groundwater table. The depth of the soil also affects the ability of a plant to prosper.

If the condition of the soil is not the best, it can be improved by addition of organic material, construction of raised beds, addition of appropriate chemicals and the choice of appropriate plant material.

The soil provides the chemicals from which the plant material obtains nutrients. If the soil is appropriate and the plant material is not healthy, no amount of added fertilizer will improve the situation. Well-drained soil is an expression that means healthy soil. Be sure you have good soil in which to plant.

For more information gardening practices contact the Chesapeake Master Gardeners located in the Chesapeake Office of Virginia Cooperative Extension, 310 Shea Drive in the Chesapeake Municipal Center off of Cedar Road. Contact us at the Chesapeake Agriculture Office, phone number 382-6348 or by e-mail at [gardener@agri.city.chesapeake.va.us](mailto:gardener@agri.city.chesapeake.va.us). We will gladly provide you with the information you seek.

*If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact the Chesapeake Extension staff at (757) 382-6348/TDD (800) 828-1120 during business hours of 8 a.m. and 5 p.m. to discuss accommodations 5 days prior to the event.*

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