



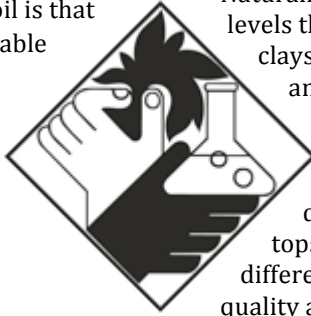
# UConn Soil Nutrient Analysis Laboratory

6 Sherman Place, Union Cottage, Unit 5102 - Storrs, CT 06269 - (860) 486-4274 - [soiltesting.cahn.uconn.edu](mailto:soiltesting.cahn.uconn.edu)

## PURCHASING TOPSOIL

By Dawn Pettinelli, Associate Extension Educator, and Dr. Harvey D. Luce, Professor Emeritus, PSLA

A common misconception when buying topsoil is that the soil we receive should be a dark, fertile, friable loam capable of serving all of our landscaping needs. There are, however, no legal marketing standards for topsoil. To further complicate matters, the terms “topsoil” and “loam” are often used interchangeably when, in fact, not all topsoils are loams and not all loams are topsoils.



Naturally wet soils often maintain higher organic matter levels than well-drained soils. Soils often mistaken for clays actually contain considerable amounts of silt and sand. Characteristics of these soils may resemble those popularly associated with clays. These include blue-gray color, extreme hardness, cracking, slow drainage and difficulty in cultivation. Because most purchased topsoil is local in origin, its texture may not be too different from what one presently has on site, but its quality as topsoil may be.

### DEFINITIONS

**Soil** is the foundation of our landscape. It is comprised of sand, silt and clay, mixed with varying amounts of organic matter, water and air. It is a complex and dynamic medium, able to serve many functions. For the horticulturist, it is a plant growth medium; for the engineer, a construction material and load bearing medium; to the geologist, a stage in the recycling of rock materials. Soil often becomes the scapegoat for a multitude of lawn and garden difficulties. Though sometimes it can contribute to a problem, cultural or other environmental factors are usually more direct causes.

**Topsoil**, as the name infers, is the uppermost layer of soil. The surface soil usually is darker in color than the subsoil below it because of the accumulation of organic matter. Virgin topsoils in Connecticut generally range from 0 to 5 inches in thickness. Most Connecticut soils, however, have been plowed so a more functional definition of topsoil is the depth of soil that has been mixed by normal cultivation practices, in most cases 5 to 12 inches.

**Loam**, on the other hand, is a *textural* classification. Texture refers to the relative amount of sand, silt and clay in a soil. A loam is technically a soil with between 7% and 27% clay, 28% to 50% silt and less than 52% sand. One may modify the term, loam, to sandy loam, sandy clay loam, clay loam, silty clay loam or silt loam as the proportions of these individual soil fractions change.

Connecticut. Eastern Connecticut soils contain slightly more sand than those in central and western Connecticut.

### WHAT TO LOOK FOR

Before one buys any topsoil it is a good idea to visually inspect the stockpiled soil. It should be free of trash and other debris. Screened topsoil should be completely free of rock fragments greater than 3 inches in diameter (cobbles and stones). Rock fragments of less than 3 inches in diameter (gravel) should comprise no more than 5% of the soil volume.

**Texture:** Soil texture greatly affects the suitability of topsoil. Sands should be avoided because they almost always have a low water- and nutrient-holding capacity. Clays, sandy clays, silty clays and silts should be avoided because they tend to be difficult to cultivate (cloddy) and insufficiently permeable to water and air. In other words, they tend to stay wet too long after a rain, which prevents air from reaching plants roots. Soil textures that may be suitable for topsoil include loamy sands, sandy loams (including fine sandy loams), loams, silt loams, silty clay loams, clay loams and sandy clay loams. Loamy sands have the disadvantage of having a relatively low water holding capacity but are generally easier to till. Because they tend to resist compaction, loamy sands may be preferred in areas subject to traffic or other conditions that may result in soil compaction.

Silty clay loams, sandy clay loams and clay loams are suitable but tend to be rather difficult to till, may compact somewhat and may not supply plant roots with enough air. Perhaps the ideal textures for topsoils are sandy loams and fine sandy loams. These texture classes tend to have the optimum trade off between



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water-holding capacity and soil aeration (and soil tilth). Loams and silt loams are equally desirable assuming that no more than 4 inches of topsoil will be applied and that the topsoil will not be artificially compacted or subject to heavy traffic.

**Organic Matter:** Topsoils should contain at least 2% organic matter but no more than about 10%. Organic matter is an important component of topsoils. It contributes to the capacity of soils to hold water and nutrients and tends to improve soil aggregation which makes soils more porous. This results in excess water draining away more readily and facilitates the flow of air to plants roots. Organic matter also tends to make soils easier to till. Too much organic matter, however, may result in a soil that is subject to compaction during the installation phase or afterwards as a result of normal foot traffic. Also, high organic matter soils may stay too wet too long in rainy seasons impeding plant root growth. During periods of drought they may become hydrophobic and difficult to rewet.

When buying topsoil, a preconceived notion is the darker, the better. While an increase in darkness is often associated with an increase in organic matter, soils which are very dark and grayish may have been dredged from wetland areas. These soils often are very acidic and poorly structured. They “evolved” under wet conditions and may not respond well when placed in a well-aerated environment. Avoid them.

## AMENDMENTS

It is usually unrealistic to believe that purchased topsoil will require no amendments. Limestone and fertilizer are frequently necessary. The addition of organic matter can greatly improve the soil’s physical condition. One to three inches of organic matter tilled to a depth of 6 to 8 inches is a typical recommendation for topsoils low in organic matter. Sources of organic matter include screened compost, peat moss, manure, leafmold, rotted sawdust and cover crops. The characteristics of each of these must be considered before use. Use the lower amount for higher nutrient manure-based composts and the higher amount for low nutrient leaf composts or peat moss. After mixing in manures or manure-based composts, soils should be checked for soluble salt levels before planting. Although it is tempting to add sand to a “heavy” soil, adding organic matter will ultimately give the best results.

Topsoil is generally sold by the cubic yard. Prices vary depending on location, but range from \$10 to \$50 per yard. The minimum amount commonly delivered is from 3 to 6 yards. Most soils are screened through a 3/4-inch mesh. Unscreened soil is less expensive than

screened, but the few dollars saved is rarely worth the time and effort spent removing coarse fragments after delivery. Estimate the amount needed by figuring 12 cubic yards will cover about 1000 square feet to the depth of 4 inches. Rural companies may mix compost or manure with the topsoil. “Manufactured” topsoil is a more recent market development. It is commonly a coarse-grained (sandy) mineral base mixed with some composted organic material. This serves a dual function of providing a potentially useful horticultural product and disposing of bulky organic wastes. Not all are worthy of consideration as topsoil.

Few companies selling topsoil have it tested before it is sold. One may want to have a soil test performed to determine its limestone and fertilizer requirements and to assess its texture. If one plans to grow vegetables in the purchased soil, it may be wise to check the levels of heavy metals such as lead. Due to the high cost, testing for contaminants such as gasoline, oil or pesticides is rare.

Further inquiries may be directed to:  
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