

Topsoil for Turf and Landscape Use



Determining whether a given soil is acceptable for use in the landscape requires information gathering and decision making. A

few comments here may be helpful in selecting what will work best for any given site.

When evaluating a soil for use in a landscape, there are several things to consider: texture, structure, percent organic matter, presence of weeds and other pests, soil tests, cost and availability, as well as how the soil was managed or used prior to your purchase.

Be cautious when purchasing topsoil scraped from farmland that was, but is no longer, going to be used for agricultural production. Certain agricultural chemicals (atrazine in particular) have long residuals and may persist in the soil profile up to two and three years depending on soil type and the rate at which the product was applied. There is concern that the level of residual chemicals in the soil may be sufficient enough to cause severe

developmental problems for landscape plants and turf establishment.

It is helpful to determine the physical characteristics of the topsoil including soil texture, (the percentage of sand, silt, and clay). This is frequently controlled by the soils that predominate in the area. Generally speaking, loams and sandy loams provide the best combination of water-holding capacity, drainage, aeration and cation exchange capacity (a measurement of nutrient holding ability). But in some areas, one may find only soils higher in clay content are available. If at all possible, try to match the texture of the topsoil with the existing soil on the site. Exceptions would be if the underlying soil is sand or very high in clay content.

HOW MUCH TOPSOIL?

Depth of topsoil for use on a turf site often becomes a function of cost. We recommend a minimum of four inches of uniform soil material for turf establishment on home lawns and general turfsites. Six inches would be better. For high traffic sites, such as

athletic fields, deeper topsoil mixes should be considered.

If the budget for lawns and general grounds does not permit the desired depth of topsoil, purchase as much soil as budget permits. Spread it evenly over the site and till into a depth of at least four inches so a uniform soil condition exists. If the underlying soil is highly compacted, it should be tilled first to loosen the compacted condition. Then place the topsoil on top of the subsoil and blend as previously described.

SOIL STRUCTURE

The structure of the soil being purchased should be evaluated. All too often, topsoil is moved when wet soil conditions exist. Traffic on wet soils can result in serious compaction. Even good topsoils with other acceptable qualities can be too compacted for effective use. If the soil pile has many highly compacted chunks, this is a clue that the soil may not have good structure.

While sandier soils are less susceptible to compaction and poor structure than finer textured soils, they tend to have poor water and nutrient holding capacities. Organic matter can improve the characteristics of sandy soils.

IMPORTANCE OF ORGANIC MATTER

A very important factor to consider is percent organic matter. In most cases, topsoil is being added to the site because the existing soil is subsoil with essentially no organic matter. Organic matter is important in providing some

cation exchange capacity, encouraging natural soil biological activity and helping to stabilize soil structure. A true topsoil will have some organic matter. The percentage of organic matter should be a minimum of about 1.0 to 1.5 percent. Native topsoils in Michigan will vary from a low of 1.0 percent to quite high levels. Most topsoils will not exceed 5 percent organic matter.

QUALITY PROBLEMS

If much subsoil is mixed with the topsoil, this will obviously drop the organic matter content. Companies collecting topsoil often find it difficult to separate topsoil from subsoil due to natural variability in soils. It must also be acknowledged that a few companies may purposely mix some subsoil in order to have more "topsoil" to sell.

Far too often, the soil material available for purchase is muck, a highly degraded organic soil. As a general rule, muck should not be used on lawn sites for a number of reasons. Muck may have appreciable levels of silt and clay, which will tend to plug up pores in the soil, restricting weed seeds, providing a natural supply of weeds for the future. Muck can be used if no other acceptable topsoil is available, but should be considered the last resort.

While it is difficult to determine the presence of weed seeds, diseases, nematodes and other pests in a topsoil, ask as many questions as possible to prevent bringing serious pest problems on site. The greatest problem with pests in topsoils is probably the presence of

quackgrass rhizomes. Look for the white rhizomes in the soil. If present, this soil should be rejected. These rhizomes may have already turned brown and look dead, but in most cases, they will propagate (start a new quackgrass plant) when conditions become more favorable. Once quackgrass is established in a lawn, there is no selective control so the homeowner must live with this weedy grass in the lawn.

Inquire as to whether soil test information is available for the soil being considered. In most cases, soil pH and available nutrient levels will not be limiting in the use of a given topsoil. However, it is wise to have soil test information so the proper fertilizer can be applied at establishment and thereafter. Obviously, if the soil pH is very acid, some limestone will be recommended. If the pH is 8.0 or above, this should not be a problem on lawns. High pH levels will create some nutritional problems for most woody plant materials, however.

Is a sufficient quantity of quality topsoil available? This will require some homework.

To investigate soil sources, call the company, farm, construction group or seller, asking the appropriate questions. A visit to the site where the topsoil is stored is highly recommended to make a visual observation and secure a good quality source. Place a sample of the soil in a sack or other container. Save that sample to compare with the topsoil delivered. If they are different, that soil can be rejected before it is dumped on our site.

For smaller areas, the quantity of topsoil available will not likely be limiting. However, for larger areas, be sure enough uniform topsoil is available to complete the job.

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Would you like additional information?

Additional information is available on-line. Please see [MSU Extension-Oakland County's publications](#) as well as [MSU Extension's Bulletin Office](#) on campus.

Contact our [Plant & Pest Hotline \(248/858-0902\)](#) for assistance with plant identification, pests and diseases, weeds, trees and shrubs, lawn, flowers, fruits, vegetables, grasses and groundcovers, native plants, plant propagation, and many other gardening topics.