

Soil Issues for Gardeners

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Get to know the soil in your yard—then learn how to improve it. Drastic solutions for drastic soils.

Key Resource

A good first step in knowing your garden is using H-1325, Evaluating, preparing and amending lawn and garden soil. R. Smith and D. Franzen, 2007, soon to be reissued.

Soil Texture

Soil texture is the relative amount of sand, silt and clay.

Soils in the Fargo, Grand Forks, Hillsboro and Wahpeton areas have clay soils. When moist, you can make a very long 'ribbon' of soil between your thumb and pointer finger.

Soils in the rest of ND can be very sandy to clay.

Medium textured soils when moist and you work them in your hand can feel like bread dough (loams), or they can be a little more stiff to work (silt loams-clay loams) or have a more gritty feel to them (sandy loams, loamy sands).

The soil texture is an indicator of how easy the garden will be to till and how frequent the watering will be. Sandier soils require more frequent watering and may be challenging for tomatoes, which need a constant, uninterrupted flow of water to roots to avoid blossom end rot (calcium deficiency-induced). Soils with more clay wick water towards the surface from deeper depths, hold more water per unit weight and may be prone to ponding and may require better drainage, particularly the clay soils.

Soil Amendments

Better aeration in clay soils, and better water holding capacity in sandier soils may be improved with addition of sphagnum peat moss. Sphagnum peat moss is a renewable resource from natural 'farms' in Canada and some areas in the US with similar cool, high water table characteristics. Sphagnum peat

moss is an organic material, with low nutrient value, but high value as a water retainer and carbon source to encourage favorable soil biological activity.

Better aeration in clay soils may be achieved by also adding sand. Use 80 parts of sand to 1 part of clay. It takes a lot of sand to improve aeration in a clay soil. A better solution would be to include both sand and sphagnum peat moss. I use one part original clay soil to one part sand to one part sphagnum peat moss by volume in my raised beds. The result is a soil that works very nicely, holds water well and is very productive.

Other Tips

- In sandier soils to loams, siting the garden in an area with some natural drainage such as a very slight slope, but certainly not a depression, is a good plan.
- In clay soils, raised beds are the secret to consistent success. The beds do not have to be very high—sometimes 6 inches to a foot above the original surface is enough to have drainage. However, the taller the beds, the larger will be the volume of roots with improved drainage during wet seasons.
- My beds are about 30 inches tall and allow gardening without a lot of bending over and crawling on your knees. They are more expensive to build, but they last about 10 years with little maintenance except replenishing the sphagnum peat moss annually because of decomposition during the past growing season.
- Avoid salty areas.
- Improve soils that crust with organic supplements like compost or sphagnum peat moss.
- Fertilizers, organic or other, have a guaranteed analysis- N-P-K-other. Always in this order.