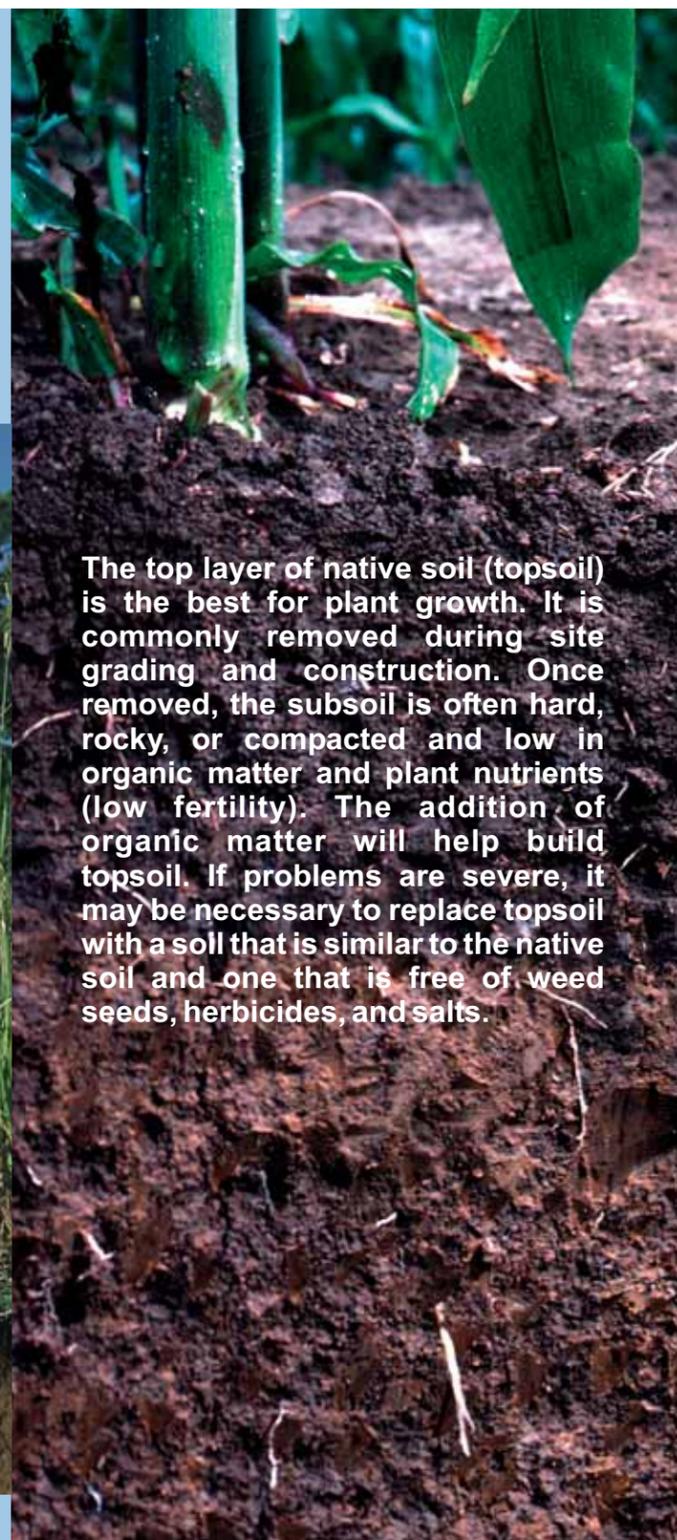




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The top layer of native soil (topsoil) is the best for plant growth. It is commonly removed during site grading and construction. Once removed, the subsoil is often hard, rocky, or compacted and low in organic matter and plant nutrients (low fertility). The addition of organic matter will help build topsoil. If problems are severe, it may be necessary to replace topsoil with a soil that is similar to the native soil and one that is free of weed seeds, herbicides, and salts.

Collecting a Representative Soil Sample

For accurate soil testing, collect a sample that is representative of the entire growing area. Avoid sampling unusual areas such as bare or wet areas, near compost piles or other impacted areas. Collect soil from several locations in the growing area and combine the samples.

Materials:

Chemicals from your skin or dirty containers may alter test results. Use rubber gloves or plastic bags over your hands, and residue-free plastic or glass containers to collect and mix soil. Use a shovel, trowel or probe to collect soil samples.

Sampling Technique

For each area to be tested:

1. Clear 4 to 10 small sampling areas; remove plants, rocks, plant debris.
2. Dig a small hole in each cleared area using a shovel or trowel. Depth of hole: 4" for turf, 12" for trees/large shrubs at or within drip line, 6" for flower beds, shrubs, vegetables.
3. Cut a ½-inch thick vertical slice from the surface to the bottom of the hole. From each shovel slice of soil, cut a 1-inch wide vertical core. When using a cylindrical tool, such as a soil probe or hollow curtain rod, simply take a 1-inch core from the surface down.
4. Place the samples together in a clean plastic pan or bag. Thoroughly mix together the samples from the area, breaking up clods and removing rocks, roots, leaves, sticks and plant debris. Place at least one cup of the mixture into a plastic bag or non-metal container. If the soil is too wet to mix, spread it to air-dry first.
5. Label each combined sample with name, date, and area, such as "vegetable garden", "side lawn", "fruit trees".

Please provide information about special problems of the area, depth of sample, and the plants that grow, or are planned for the area.

What You Can Do

If you suspect that your soil may be causing poor plant growth, first check to make sure the cause is not a physical problem such as:

- over or under watering
- disease or pest infestations
- soil compaction that impedes air, root, and water movement
- a hard layer (hardpan) that prevents water drainage. Poor drainage reduces air between soil particles. Without air, roots suffocate, plants can't absorb water, molds and rots kill plants.

A soil's ability to hold water is affected by a variety of factors, most importantly: organic matter, compaction, and texture.

Fertilizer Selection and Use:

Plants need many chemical elements, but nitrogen (N), phosphorus (P), and potassium (K) are needed in the greatest amounts. Chemical fertilizers are prepared in proportions of N-P-K, and their percentages are labeled on fertilizer bags, for example 16-20-0 is 16% nitrogen, 20% phosphorus, and 0% potassium. To calculate the pounds of actual nitrogen, multiply its percentage by the total weight of the bag of fertilizer.

Chemical fertilizers dissolve in water easily, so they can flow away in runoff.

When using chemical fertilizers, apply the correct amount and at the right time.

Consider weather conditions and timing of applications. Apply fertilizers during the plant's growing season, and not during heavy rains. Additionally, too much fertilizer too fast, leads to excessive plant growth. By applying the correct amount or by using slow release fertilizers, you limit an excess of new plant growth that would invite pests.

Because nitrate-N is highly soluble in water, it may leach (drain below the root zone), especially in coarse-textured sandy soils. Split applications of nitrogen fertilizer help reduce the nitrogen loss to leaching.

To improve the soil and replenish plant nutrients, apply fertilizers, either purchased chemicals or "organic" types such as compost and manure. To improve sandy or clay soils, work organic matter 6-8 inches deeply into the soil.



Compost is the preferred amendment, because it is made of organic matter that has undergone the decomposition process, so nutrients are readily available for plant use. Compost loosens soil and contains micronutrients, nutrients that are needed in small amounts, yet are essential for plant growth. Compost increases soil biological activity, water-holding capacity, and creates a crumbly, tillable medium for air, root, and water movement.

Water

For water samples, take 1 pint of water from your well or canal after the water has run for at least 5 minutes. Use a residue free, plastic container.

*Chemicals from your skin may alter test results. Rubber gloves or plastic bags covering your hands will eliminate this problem.

Low Cost Soil and Irrigation-Water Testing



for Gardeners,
Homeowners,
and Landscapers.



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