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Amending Clay or Compacted Soil

Wisconsin, especially the Madison area is known for its clay soil. Here are some tips on amending clay soil before you plant for a healthier garden.

Clay

A clay or heavy clay soil will greatly benefit from the addition of organic material, and it's almost impossible to add too much. Clay, because of its particles size and shape, tends to become compacted, and so will drain slowly or not at all. Also, the heavy compact nature of clay tends to prevent air from reaching the roots, which will slow plant growth.

Tip: As water passes down through the earth it draws air (oxygen) behind it. Soils with little or no air tend to become "sour" as oxygen is a necessary ingredient for biological activity.

One of the benefits of clay in the garden is its natural moisture retention properties.

By combining a generous amount of organic material with clay, you can offset its tendency towards compaction, improve drainage, and allow the nature of clay to help maintain moisture in your garden.

A good ratio of clay soil to organic material is roughly 50/50.

Three Steps to a Healthier Garden

1. *Break up and loosen the soil (using a shovel or spading fork), to a depth of about 12 inches deep.*
2. *Once the ground is broken up add 3 inches of garden soil and 3 inches of compost then work in evenly (mix) to a depth of about 4 to 6 inches. You can buy in bags at your local garden center, or order in by the cubic yard if you have a large area to amend.*
3. *Again, level the bed a little, then sprinkle or add a granulated-slow release fertilizer of your choice (can be bagged manure- see below) on top and "scratch in" or lightly till to about 1 to 2 inches deep.*

This method tends to simplify the process of preparing a planting bed, and allows you to save time and energy for other gardening activities.

Adding Manure to Your Soil

Now to further improve your soil, add some well rotted manure. Not only does it help the composition of the soil but it adds nutrients as well. When you purchase a bag of basic commercial fertilizer like 13-13-13 you get 13% nitrogen, 13% phosphorous and 13% potassium but nothing else. Granted these are staples that plants need, but they also need other trace elements such iron, boron, and magnesium. Manure has all these trace elements plus a heaping dose of nitrogen, phosphorous and potassium. For plants, manure is like a well-balanced meal and a multi-vitamin all in one.

I recommend purchasing manure in bags from your local garden center. Typically bagged manure has gone through a heat process that sterilizes any weed seeds that might be lurking in there and it helps to deodorize it. Also, you do not have to worry about it being too fresh and burning your plants. Check the back of the bag for recommend rates of application.

Once you have the texture just right, have added the manure, and tilled or worked in all material, top the soil with 2 to 3 inches of wood mulch. As the wood decomposes it will supply your garden with plenty of organic matter plus reduce weeds and retain moisture.

Tip: All depths listed above are *Rule of Thumb* measurements. In general all plants respond well to the above system.

If most of the plants you'll be growing tend to be shorter (1 to 2 feet high), you won't have to till as deep (about 6 to 8 inches). Taller plants will have deeper root systems, so tilling deeper in that case will be helpful. In general though, tilling deeper than 12 inches is an unnecessary use of time and energy.

Amending Soil around Existing Plants

Adding organic material around existing or established plants is not difficult. Till in to about 2 inches if close to a plant, and a little deeper if further away. Simply try not to disturb the roots too much and always water when you're done to settle any roots that may have been disturbed.