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THIS ISSUE:

How to Create Healthy Plants with Health Soil:

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So What is Dirt Anyway

Did you know that in one gram (1/4 of teaspoon) of soil there exist 4 billion bacteria, 20 million actinomycetes (mushrooms) and 300,000 algae? Dirt, soil, the earth is the foundation for all terrestrial plant life. Our very existence depends on the health and fertility of the land for our food supply. So what is dirt? Well your garden soil is:

Minerals + Decaying Plant and Animal Life + Water + Oxygen

Garden Wisdom: If you want really healthy plants, feed the life in the soil with lots of food known as compost.

Soil Science for the Home Garden (please keep reading - its easy)

So we all have dug our hands into really crumbly fertile soil when planting one of our favorite flowers or plants. We know that sweet smell of earth and the ease of the gardening task when the soil is just right. However, many of us have moved into a new home where the topsoil was drastically altered by construction resulting in very hard, rocky and harsh soil conditions. Or perhaps we have inherited a piece of land that has many older trees and shrubs that needs a boost in soil fertility. Here are the key elements of soils:

- 1.** The **physical foundation** may be clay, silt, sand or rock or some combination. This can easily be detected by observation and feeling the texture of moist soil in your hand. Very fine texture is clay, medium texture is silt and coarse texture is sand.
- 2. Minerals** are the basic building blocks for plant nutrition which is very similar to human vitamins and minerals. There are 17 minerals know to support plant health of which there are 3 primary minerals most often sold as fertilizer. These are

NITROGEN, PHOSPHORUS and POTASH also known as N-P-K. You will recognize these minerals on fertilizer bags as 3 numbers for example 5-10-5. Nitrogen promotes growth, Phosphorus for flowering, Potash for healthy roots.

3. **Organic Matter:** the decomposed/decomposing materials (leaves, twigs, grass clippings, manures etc.). This material has a direct impact on releasing minerals to plants, holding moisture and providing space for oxygen within the soil.
4. **Water retention** of the soil is a product of the physical foundation, the tith, amount of compaction and the amount of organic matter. Drainage of the soil is critical to its overall health. Pooling of water after a rain or irrigating is a sure way of damaging soil health and plant vitality.
5. **Oxygen** is a factor of physical structure, organic mater and water retention. The roots of plants breathe so they need very tiny pockets of air in the soil. Water logged soil has no room for oxygen.
6. **pH** also know as acidity or alkalinity of soil usually measured between 1 and 10. You can test your soil with a kit or have it tested. The ideal pH is between 6.5 and 7 for most garden plants or slightly acidic to neutral.

Real Gold = Compost

Good news there is hope for you soil and that is compost. You can either make it your self or buy it. Remember plants need their daily compost food and minerals. Luckily you don't have to feed your plants every day but I recommend [giving your plants a special treat of compost around the root zone in early spring and early fall](#).

There are many ready made compost bins that you can use to save your kitchen wastes (vegetable scraps but not meat or grease), leaves, grass clippings (not Bermuda Grass), non-invasive weeds and cuttings. Shredded brown paper bags, newspaper and even cereal boxes can be composted. If you are really into creating the optimal soil for your garden then consider starting a vermiculture (earthworms). These little critters will eat their total body weight in food each day and create earthworm castings which are the ultimate plant supplement.

Checklist for Healthy Soil

1. Know your physical soil type and pH
2. Know what type of soil and nutrients (N-P-K) your plants require
3. Set your irrigation schedule to appropriate volumes of water and adjust for seasonal changes. Let the soil dry out a bit out between watering cycles.
4. Add compost to the soil around your plants 2 times per year.
5. Till the soil initially when the moisture is crumbly to improve structure.
6. Always keep the soil covered with mulch, ground covers or plants. Never let raw soil be exposed to the sun and wind.
7. Don't over fertilize with commercial fertilizers that can build up salts.

Congratulations: You are now a knowledgeable manager of your garden soil. So go out and make some good dirt, your plants will really dig it.

