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Garden Soil Analysis Available at the Conservation District

The soil in a virgin forest or grassland, never tilled by humans, is full of nutrients: minerals released from native rocks, decomposed plant and animal matter, and nutrients from flood deposits. These nutrients have been used for millennia by the native flora and fauna, and then recycled back into the soil. Human agriculture, however, breaks this nutrient cycle, as crops (containing the nutrients) are removed and consumed. If the proper steps are not taken, the soil will become nutrient poor and harvests will become smaller. Early settlers in this country learned this the hard way as they "used up" the soil on their farms and were forced to move to new unfarmed land.

Today's farmers have learned how to replenish the nutrients in the soil: spreading manure from their animals back on the fields, applying fertilizer, and planting cover crops, including nitrogen-fixing legumes, which can be plowed back into the ground.

Backyard gardeners can benefit from a vast amount of knowledge now available about soil and soil health. A soil analysis will provide the gardener a nutrient profile of the soil and will help immensely with decisions about fertilizer application.

NPK fertilizer applies to any soil amendment that supplies Nitrogen, Phosphorous, and Potassium (K). These fertilizers can be purchased with varying ratios of these three major plant nutrients. For example, a 6-10-4 fertilizer will contain 6 % nitrogen, 10 % phosphorus, and 10 % potash (potassium). The soil analysis will help determine the ratios of these three nutrients to apply.

Both chemical and organic mixes also exist for improving the levels of these nutrients. The most effective NPK organic fertilizers available for purchase are worm castings and alfalfa meal.

Deficiency in any one of the major nutrients can be treated with a "straight" fertilizer. Chemical fertilizers can be purchased and applied for each of the nutrients.

Organic solutions are available, as well. Planting nitrogen-fixing legumes (e.g., beans, peas and lentils) will '" fix" atmospheric nitrogen, converting it into a form of nitrogen used be the plant and left in the soil for other plants. Applications of well-seasoned

manure or compost with manure, tea, coffee grounds, feathers and kitchen scraps in it will increase levels of nitrogen. Nitrogen-rich fish emulsion, blood meal, cottonseed meal or bat guano can be purchased commercially and applied, as well.

Is your garden deficient in phosphorous? Chicken manure is high in this nutrient. Commercially available organic products rich in phosphorous include bat guano, soft rock phosphate, steamed bone meal, and fish bone meal.

Applications of well-composted sheep manure and wood ash (not recommended for pH higher than 6.5) will improve the potassium levels in your garden. Commercial organic products containing potassium include green sand (a marine sediment), kelp meal and alfalfa meal.

Although nitrogen, potassium and phosphorus are the three most important nutrients, plants also need the macronutrients calcium, magnesium, sulfur, as well as numerous micronutrients and trace nutrients for proper development. Supplements are available for all of these in both chemical and organic form.

Another important factor for garden success is having the proper pH level. pH, a measurement of acidity level, determines the availability of mineral nutrients for each crop. A number of common garden plants, among them potatoes, raspberry, carrots and cauliflower prefer a slightly acidic soil (pH 5.0-6.0). Other plants such as corn onion, peas, and cabbage will thrive in slightly acid or neutral soil (pH 6.0-8.0). One of the best ways to lower pH (make soil more acidic) is to add elemental sulfur. If the soil is too acidic, a treatment of dolomite lime (because it contains magnesium, it is not recommended when magnesium levels are adequate or high), or crushed oyster shells will raise the pH.

If you would like to have your garden soil analyzed to determine what you can add to improve the soil, please contact the Ferry Conservation District at 775-3473 (ext. 5). We will explain how best to sample your soil and we will test your soil for pH, nitrogen and potassium for free.

Visit these websites for some excellent information about soil nutrients and pH.
http://www.grow-it-organically.com/
http://soilminerals.com/
http://www.rodalesorganiclife.com/garden/how-lower-your-soil-ph
http://www.ncagr.gov/cyber/kidswrld/plant/nutrient.htm