



Organic Gardening tips from the Garden at the High Plains Food Bank

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Compost

As with any growing space, a healthy organic garden starts with the soil. Building up nutrient rich hummus in the soil, that is active and living, will serve as a great foundation for plants to become established and minimize future problems. Compost should be the building block of this soil life. The decomposition of organic material, with the assistance of microorganisms, will make nutrients available to the soil and plants. Additionally, compost will add structure to the soil, adding water-holding capacity to porous sandy soil, and helps break up adhesive clay soil. The balance of slow release nutrients found in compost and its water retention qualities will minimize extremes in the garden and ensure healthier plants.

Compost Tea

Compost's abundance in microbial life nutrients can also be utilized beyond its traditional physical form. A liquid fertilizer containing no synthetic ingredients known as compost tea can be "brewed" using finished compost. To make compost tea you need a five-gallon bucket, four gallons of distilled water, an aquarium air pump and air stone, a knee high stocking, unsulfured molasses, and finished compost.

The first step is to fill the stocking with compost. To prevent any larger items from getting caught in the stocking and causing a tear, it is a good idea to sift the compost prior to putting it in the stocking. Once full the stocking should be tied and submerged into distilled water. It is very important to use distilled water because of the addition of chemicals found in water provided by the city that kills the desired microbial life. If distilled water is not available to you, letting water stand for a day will allow enough time for the additives in the water to evaporate. Once the compost has been submerged, the air stone should be activated and placed in the water, along with four tablespoons of molasses. Without the air stone, the solution will begin to smell and not provide an environment for microbial life to multiply. And just like a compost pile, the tea needs a food source, in the form of high sugar molasses, to keep the microorganisms moving.

The tea will begin to brew immediately, and the beneficial organisms will begin to multiply quickly in the solution. Once 48 hours has passed, large baseball sized brown bubbles should be collecting at the top of the bucket. This is an indication that the solution has thickened, is more concentrated and can be used in the garden. A proper application will soak the surrounding root area around the plant without saturating to the point of creating runoff. If using a pump sprayer you can spray the soil as well as the tops and undersides of the leaves, but it is important to not pressurize the sprayer to its maximum level because the added stress could harm the living organisms inside of the tea.

Fertilizing

The native soil in the Panhandle is generally alkaline, clay dominant and does not have proper nutrient balance. A soil test that details the ratio of nitrogen, phosphorus, and potassium will allow you to determine how to amend your growing medium. Once it is determined what is lacking in

your soil, you will be able to determine which type of naturally occurring mineral or substance can be added to organically fertilize your garden. While most organic soil amendments don't have the volume of nutrients found in synthetic, petroleum based, fertilizers, they do provide nutrients more evenly to the plant as they are needed. This will prevent plants from fluctuating between extremes of nutrient availability that make them susceptible to disease. Some of the organic fertilizers are listed below based on their primary nutrient:

Nitrogen: Alfalfa meal (3lb/100ft²), blood meal 1lb/100ft²), cottonseed meal (2 lb/100ft²), fish meal (1lb/100ft²), hoof meal (1lb/100ft²), and soybean meal (1lb/100ft²)

Phosphorus: Rock phosphate (1lb/100ft²), soft phosphate (1lb/100ft²), and bone meal (1lb/100ft²)

Potassium: Greensand (2.5lb/100ft²), granite meal (2.5lb/100ft²), kelp meal (1lb/100ft²), and wood ash (0.25lb/100ft²)

The application rate given for these amendments is a general outline. To best determine the amount of fertilizer to apply it is recommended that you follow the guidelines given on the packaging if available, and based on the amount of nutrient needed in the soil.

Pest Control

Even in a highly maintained garden, pests can be a problem. The best way to stop pests is by staying ahead of them. This means weeding, cleaning up old garden waste, and maintaining even soil moisture to prevent pests from positioning themselves in the garden and then multiplying.

At the Garden at the High Plains Food Bank we like to use as many physical barriers as possible to prevent pests from becoming a problem. This includes using newspaper over planting areas and around plants to keep weed seeds and pests from infiltrating the soil. Additionally we use cardboard in the pathways to keep weeds from creeping into the garden beds. Both newspaper and cardboard should be covered with woodchips or mulch to prevent them from blowing away and also retain moisture.

For an organic garden, these preventative measures should be taken first before resorting to spraying anything. However, if an over whelming pest is becoming a problem there are a variety of natural insecticides that are available.

Bacillus thuringiensis (Bt): Bt is a biological control that kills pests after ingestion of the substance. It is a very effective control for pests that plague cabbage family crops.

Neem: An extract from the seeds of the neem tree, and has been used for centuries for its ability to suppress feeding in garden insects.

Pyrethrin: Made from the crushed flowers of the *Chrysanthemum cinerarifolium*. It has a broad application use for garden pests and is recommended as a last resort organic insecticide.

Spinosad: Derived from the fermentation of the bacteria *Saccharopolyspora spinosa*. This insecticide is stomach poison that has minimal impact on most beneficial organisms.

In addition to pest controls you can purchase, there are substances that you can make at home that follow organic methodologies. A common spray made by diluting 1 tablespoon of dish-washing detergent with a half gallon of water can be used to repel aphids. This spray has been made popular for some time due to its effectiveness at killing these loathed garden insects.

A spray can also be made to deter the pests that chew on the leaves of garden plants and spread disease around the garden. This requires 6 cloves of garlic, 1 tablespoon of hot pepper, one minced onion, one teaspoon of pure soap, and one gallon of hot water. These ingredients should be mixed together and allowed to seep for 48 hours. Once ready it can be applied to the leaves of affected plants. The foul liquid will deter pests from chewing on the plants and send them elsewhere.