

2009 Fertility Products Used at the Coppell Community Garden

Coffee Grounds: An excellent addition to our soil; earthworms love them and they don't attract pests. Use in the compost pile or apply directly to soil (scratch into the soil, or cover with mulch or compost).

Compost: Apply 1 inch of compost twice a year. Compost builds the soil structure, nourishes your plants, and provides a home for beneficial soil organisms. Use half-finished compost as mulch; there is no need to work it into the soil to have it decompose. Earthworms will move it into the soil. Our Composting class is held twice a year, and will teach you how to make compost that is better than anything you can buy. Want the best compost tea? Spread homemade compost on your soil and water it in!

Fish and Seaweed Liquid Fertilizers: Apply as diluted foliar spray or to soil. Spray is most effective on new growth and underneath leaves. Spray foliage ONLY in late afternoon or daybreak and/or overcast days; you can burn plants in the full sun. Apply to soil using a watering can. Liquid seaweed is helpful to stimulate new roots when transplanting, and to strengthen plants against frost and heat stress. Fish fertilizer provides quickly-absorbed nutrients when plants need a boost.

Directions: Shake concentrate well before using. Prepare for one application only. Do not store diluted fertilizer. Apply until soil is saturated or as a foliar feed until leaves are wet, top & bottom. Feed as needed every 2-3 weeks.

Molasses: 2 Tbsp/gal water to stimulate bacteria in the soil and to repel fire ants.

Granular Organic Fertilizer: Apply 2-3 times a year. CCG uses Medina Growin' Green 4-2-3 which contains kelp meal, humate, pasteurized poultry manure, molasses, and greensand. It is readily available at Lowe's. There are other good products; look for a blend of ingredients that provide an N-P-K ratio that is higher in N and K, since our soils have plenty of P. And don't add lime to our north TX soils!

2009 Pest/Disease Products

Bacillus thuringiensis (Bt): Only *kills caterpillars* – very specific. Not harmful to beneficial insects. Dust on leaves when you see caterpillars. Also available as a liquid spray. Don't use Bt in your butterfly garden!

Diatomaceous Earth (DE): Fossil shells of diatom organisms *kill adult insects* by scratching their exoskeleton. Does not harm earthworms or beneficial soil microorganisms. Apply with water, ¼ cup of DE in a gallon of water, and spray all surfaces, or else dust foliage very lightly with dry DE. Kills beneficial insects as well as harmful ones. Does not kill caterpillars, only hard-bodied insects. Do not use DE sold for swimming pools – it won't work. And please be careful NOT to inhale it!

Fire ant mound drench: 2-4 Tbsp molasses + 2 Tbsp Orange Oil in 1 gallon water.

Garlic/Pepper Tea: Broad *insect repellent and disease control* spray made from the juice of garlic and hot peppers in a gallon of water, with a few drops of liquid soap to help it stick. Dry garlic granules can also be sprinkled around the base of your plants.

Orange Oil: Oil extracted from citrus rinds contains d-limonene. It can kill earthworms and other soil creatures at full strength, so it must be diluted. Use ONLY in solution for fire ant mounds or for herbicide.

Potassium Bicarbonate: *cures powdery mildew*. Mix 1 heaping tablespoon with ½ teaspoon of insecticidal or dish soap in one gallon of water and spray on upper and lower leaf surfaces in the evening.

Snail/Slug bait: only use brands (like Sluggo) containing iron phosphate, which kills slugs & snails but is not harmful to other animals. Other baits are very poisonous.

10% Vinegar Weed Killer: Nonselective herbicide works by burning back foliage. Works best sprayed full strength during the heat of the day and in full sunlight; add 1 Tbsp orange oil or 1 Tbsp molasses per spray bottle to help it stick to the leaves. Caution: do not get on your skin or in your eyes. If spray hits your crops, it will kill them too. Digging up the weeds works even better, and can help relieve stress.

Coppell Community Garden Simple Soil & Plant Care

Disease Prevention: Sunshine and fresh moving air prevent most diseases. This is why we very rarely have disease problems in our garden. Potassium bicarbonate or garlic spray help cure leaf diseases. Mulch under tomatoes helps to prevent disease spores from splashing up from the soil to infect the leaves.

Insect Prevention: We also avoid many insect problems because we have the following advantages:

- Healthy plants grown with compost and natural fertilizer are more resistant to pests.
- Diversity of plants from plot to plot confuses the bad insects and slows down their spread.
- Plants like tansy, cilantro, dill, fava beans, vetch and others provide a home for beneficial insects that help to control the bad ones.
- Our birds and lizards eat insects; the ladybugs eat aphids.

When You Have a Problem: ask experienced gardeners what to try. We have many organic remedies that are specific for different pests or problem.

Suggestions for Squash Bug Control: (1) When you plant, cover young plants with floating row cover, making sure all edges are sealed so bugs cannot crawl under. Uncover for pollination *only* after you see female flowers being produced on the plants. (2) Check under leaves for eggs; remove and destroy egg-bearing leaves by sealing in a plastic bag. (3) Squash adults under your shoe, or knock them into a bowl of soapy water. (4) If plants are heavily infested, pull up and destroy – do not compost. Squash, zucchini, melons and cucumbers are all vulnerable to squash bugs and will require persistent maintenance.

Soil Preparation: Soil is not dead; it is alive with bacteria, fungi, insects, spiders, earthworms and other critters. Plant roots work with bacteria and fungi and worms and organic matter to create a crumbly soil structure that allows air and water to penetrate into the soil. We disturb this each time we dig or till the soil, or allow the soil to bake in direct sunlight or dry out.

When you prepare your plot, try not to beat up the soil into a powder, but just gently break up the soil to work in compost and to plant. It is possible to have a no-till garden. Soil must be protected from sunlight and water drops, which can make it hard and can kill beneficial organisms. Protect it with a canopy of living plants (crops or cover crops), or a layer of compost, or a layer of mulch.

Cover Crops: can improve soil texture, kill nematodes, and build fertility and organic matter. If you're not ready to plant a food crop, you can plant a cover crop to protect the soil and feed the soil microbes. When you cut the plants off at ground level and either dig them in or lay them on the surface of the soil, they decompose in place, releasing nutrients to your next crop. Black-eyed peas can be both a cover crop and a food crop in summer; Austrian winter peas, clover, vetch, fava beans and cereal rye grow in cold weather.

Watering: Plants want moisture but also need air in their root zone to prevent root rot. Overwatering kills as many plants as underwatering. Use mulch to keep soil cooler and to slow evaporation. Many plants wilt on a hot summer afternoon; this is their protection against water loss and does not necessarily mean they need to be watered. If in the morning they are wilted or the soil is dry, then they need water. When in doubt, dig down and feel the soil!

Weeds: annual weeds such as henbit can easily be pulled or sprayed with vinegar. Our problem weeds are the perennials -- bindweed, nutsedge/nutgrass and Bermuda grass. For these weeds, the most effective treatment is digging out the whole plant, repeatedly. Pathway treatments can also include (1) spraying foliage with vinegar/orange oil, repeatedly, to burn off leaves and wear out the plants, or (2) cover weeds completely with cardboard or heavy landscape fabric, then with a 2-inch layer of mulch to keep out sunlight. Try to keep the pathways as dry as possible to discourage weed growth.