



Nurture Nature to Nourish Presented By Amanda Vanhoozier

Coppell Community Garden
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Metamorphosis: Nature Transforming Lives Transforming Nature

Current Food, Health, and Environmental Concerns

Childhood Obesity
Contaminated food
Soil – loss of topsoil, erosion
Environment- climate change, water shortage, pollution
Social Justice- discrepancies by income and location
Fuel for Transportation Kitchen Gardeners International www.kitchengardeners.org
Energy for processing/ Packaging Waste
Agriculture Policies
Cropland to non-farm use
Grains to BioFuels

Food Movements/Trends

[Slow Food](#)
[School Lunch Policies- Farm to School](#)
Community Gardens, [American Community Gardening Association](#)
[Food Security](#) Coalition
Community Supported Agriculture
Farmers Markets – Local Food
Organic and Natural Foods
Local: School Gardens [Real School Gardens](#)
[Coppell Community Garden/Coppell Farmers Market](#)
[Gardeners in Community Development](#), Dallas
[Sustainable Food Center](#), Austin
[Urban Harvest](#), Houston

Curriculum Ideas

Teachers College Columbia University. Linking Food and the Environment: An Inquiry Based Science and Nutrition Program Series, 4-6 grades, order from www.tc.edu/life/index.html

[Center for Ecoliteracy](#), [Big Ideas: Linking Food, Culture, Health, and the Environment](#), K-12, order from Acorn Naturalists at www.acornnaturalists.com

Patten, Lyons. [Healthy Foods from Healthy Soils- A Hands On Resource for Educators](#), order from Acorn Naturalists at www.acornnaturalists.com

University of California Botanical Gardens. [Botany on Your Plate](#), K-4, order from National Gardening Association, www.kidsgardening.com

Grow Food in the School Garden

[Soil Food Web](#)- Ingham, Dr. Elaine. 2000. *Soil Biology Primer*. US: Soil and Water Conservation Society
Planting Calendar for North Central Texas
Growing specific vegetables, [Organic Gardening](#)
Designing the garden [Grow Vegetables Planner](#)

Seed Sources

[Seeds of Change](#)
[Southern Exposure Seed Savers Exchange](#)
[Baker Creek Heirloom Seeds](#)



Simple Soil and Plant Care Tips from Coppell Community Garden Gardeners

Soil Preparation: Healthy Soil=Healthy Plants 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.

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; ask Amanda. Soil must be protected from hot sun, UV light 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.

Soil Fertility

Coffee Grounds: An excellent natural fertilizer for our soil. Use in the compost pile or apply directly to soil (scratch into the soil, or cover with mulch or compost).

Compost: Top dress soil with two wheelbarrows of compost twice a year. Compost is superior organic matter for building the soil. 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.

Liquid Fertilizer: 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; you can burn plants in the heat of the day. Apply to soil using a watering can. **Maxicrop Seaweed**, is helpful to stimulate new roots when transplanting, and to strengthen plants against frost. **Bioform, or Neptune's Harvest**

Fish Fertilizer: Use 3-4 Tbsp per gallon of water. 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. Fire ant mound drench: 2 Tbsp molasses + 1 tsp Orange Oil in 1 gallon water.

Organic Fertilizer: Amend soil 2-3 times a year by broadcasting one coffee-can-scoop per garden plot. **Medina Growin' Greener** 4-2-3 contains kelp meal, humate, pasteurized poultry manure, molasses, and greensand.

Soft Rock Phosphate: High phosphorus fertilizer best applied in the root zone when planting transplants. Not very soluble in water, so must be close to roots.

Disease Prevention

Sunshine and wind/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.

Potassium Bicarbonate: (Baking soda) 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.

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 and others provide a home for beneficial insects that help to control the bad ones.

- Our birds and lizards eat insects; the little silver snakes eat grubs.

Bacillus thuringiensis (Bt): Only kills caterpillars – very specific. Not harmful to beneficial insects. Dust on leaves when you see caterpillars. Brand name: **Dipel**.

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 dust foliage very lightly. Kills beneficial insects as well as harmful ones. Does not kill caterpillars, only hard-bodied insects.

Garlic/Pepper Tea or Garlic Liquid: Insect repellent and disease control material made from the juice of garlic and hot peppers. Wonder if it would keep rats from dining on our veggies?

Neem Oil: Disrupts insect reproductive cycle, so use before insects are adults. As a foliar spray it is not a systemic insecticide; as a soil drench it is a systemic insecticide. Repels all chewing and sucking insects. Spray ONLY in evening on top and under leaves. Product: **Ahimsa Neem Oil, BioNEEM**.

Orange Oil: Oil from citrus rinds containing d-limonene. VERY STRONG – kills earthworms and other creatures. Use ONLY in solution for fire ant mounds or for herbicide (see Molasses and Vinegar information).

Sluggo Snail/Slug bait: Iron phosphate, which kills slugs & snails but is not harmful to other animals.

Vinegar and Vinegar/Citric Acid: Nonselective organic herbicide. Works best sprayed full strength during the heat of the day and in full sunlight; add 1 tsp orange oil or 1 tsp molasses per spray bottle to help it stick to the leaves. **Caution: do not get on your skin or in your eyes – this should only be used by adults.** If spray hits your crops, it will kill them too.

Gardening Techniques

Cover Crops: can improve soil texture, kill nematodes, and build fertility and organic matter. When it is too late to plant something to produce food before the next season change, a cover crop can be planted for its valuable root and stem contributions. Any time the soil is bare, a cover crop can feed the microbes and keep soil from going hard as it grows, then feeds the soil and provides a mulch when cut at ground level and dug in or used as mulch. Black-eyed peas can act as a cover crop in summer; Austrian winter peas, clover, vetch, fava beans, cereal rye, and buckwheat grow in cooler weather. Attracts Ladybugs.

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. When in doubt, dig down and feel the soil!

Weeds: Annual weeds such as henbit can easily be pulled. 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 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. Work with your neighbors to keep the paths clean.

School Garden Vegetable Planting Calendar

VEGETABLE	Seed Spacing	Thin To	Planting Depth	Seeding Dates	Transplant Dates	Minimum** Soil Temp	Days To Maturity
Cabbage, Chinese	3-4"	8-12"	2.5-5"	8/10-9/1	8/25 - 9/15	50 (T)	90
Parsley	1-2"	8-12"	Scratch in	8/1-10/1	NA	55	90
Spinach	1"	3-5"	0.5-75"	8/15-10/15	NA	50	45-60
Lettuce (Leaf)	5-1"	8-12"	Scratch in	8/15-9/1	NA	50-75	40-90
Lettuce (Head)	5-1"	8-12"	Scratch in	8/15-9/1	NA	50-75	40-90
Cabbage	3-4"	8-24"	2.5-5"	8/15-9/5	8/25 - 9/15	80 (S)	60-120
Beans (Bush)	2-4"	4-6"	0.5-1"	8/1-8/15	NA	60	45-60
Beans (Pole)	2-4"	6"	0.5-1.5"	8/1-8/15	NA	60	50-60
Brussels Sprouts	Transplant	2-18"	2.5-5"	8/1-8/15	8/25 - 9/15	50 (T)	85-110
Cucumbers	6"	12-18"	1-1.5"	8/1-8/15	NA	60	50-70
Sweet Corn	2-4"	8-12"	0.5-1"	8/1-8/15	NA	65	75-90
Carrots	.25-.5"	1-2"	Scratch in	8/1-8/20	NA	50	70-80
Kohlrabi	3-4"	8-12"	2.5-5"	8/1-8/25	2/15 - 3/1	50	50-75
Squash (Summer)	6-12"	24-36"	1-2"	8/1-8/25	70	70	45-120
Peas (Southern)	2"	4-6"	1-2"	8/1-9/1	NA	70	50-80
Swiss Chard	2-3"	6-8"	5"	8/1-9/1	NA	85 (F)	50-60
Mustard Greens	1"	3-4"	2.5-5"	8/1-9/10	NA	65	30-55
Kale	3-4"	8-12"	2.5-5"	8/25-10/11	NA	50	50-75
Turnips	1"	3-4"	2.5-5"	8/25-10/15	NA	60	30-55
Broccoli	4-6"/trans	8"	2.5-5"	8/8-9/1	8/25 - 9/15	80 (S)	55-80
Peas (English)	1-2"	2-3"	1"	9/1-10/1	NA	50	50-70
Beets	1"	3-5"	2.5-5"	9/1-9/15	NA	55	50-65
Peas (Edible Pods)	1-2"	2-3"	1"	9/1-9/20	NA	50	50-70
Parsley	1-2"	8-12"	Scratch in	2/10-2/25	NA	55	90
Potatoes	8-12"	NA"	3-4"	2/10-2/25	NA	50	85-110
Onion (plants)	5"	4-6"	2.5-5"	NA	2/10-3/5	50	95-160
Beets	1"	3-5"	2.5-5"	2/10-3/1	NA	55	50-65
Carrots	.25-.5"	1-2"	Scratch in	2/10-3/1	NA	50	70-80
Kohlrabi	3-4"	8"	2.5-5"	2/10-3/1	2/15 - 3/1	50	50-75

Leeks	5"	4-6"	2.5-5"	2/10-3/1	NA	50	95-160
Peas (English)	1-2"	2-3"	1"	2/10-3/1	NA	50	50-70
Kale	3-4"	8-12"	2.5-5"	2/10-3/10	NA	50	50-75
Swiss Chard	2-3"	6-8"	5"	2/10-3/10	NA	55 (Sp)	50-60
Turnips	1"	3-4"	2.5-5"	2/10-3/10	NA	60	30-55
Lettuce (Leaf)	.5-1"	8-12"	Scratch in	2/10-3/15	NA	50-75	40-90
Lettuce (Head)	.5-1"	8-12"	Scratch in	2/10-3/15	NA	50-75	40-90
Spinach	1"	3-5"	0.5-75"	2/10-3/15	NA	50	45-60
Broccoli	4-6"/trans	8"	2.5-5"	See 8/8	2/15 - 2/25	50 (T)	55-80
Brussels Sprouts	Transplant	2-18"	2.5-5"	See 8/1	2/15 - 2/25	80 (S)	85-110
Cabbage, Chinese	3-4"	8-12"	2.5-5"	2/15-3/1	2/15 - 3/1	55 (S)	90
Cabbage	3-4"	8-24"	2.5-5"	See 8/15	2/15 - 3/1	50 (T)	60-120
Kohlrabi	3-4"	8-12"	2.5-5"	See 8/1	2/15 - 3/1	50	50-75
Radishes	.5"	1-2"	2.5-5"	2/5-4/15	NA	50	25-30
Radishes	.5"	1-2"	2.5-5"	9/1-11/1	NA	50	25-30
Beans (Bush)	2-4"	4-6"	0.5-1"	3/20-4/20	NA	60	45-60
Beans (Pole)	2-4"	6"	0.5-1.5"	3/20-4/20	NA	60	50-60
Cucumbers	6"	12-18"	1-1.5"	3/20-5/1	NA	60	50-70
Mustard Greens	1"	3-4"	2.5-5"	3/20-5/1	NA	65	30-55
Watermelon	6-12"	8-24"	0.5-1"	3/20-5/1	NA	70	65-90
Tomatoes	Transplant	24-36	2.5"	See 6/15	3/20- 4/10	75-85 (S)	65-90
Squash (Summer)	6-12"	24-36	1-2"	3/25-4/15	70	70	45-120
Squash (Winter)	6-12"	24-36	1-2"	3/25-4/15	NA	70	45-120
Pumpkins	6-12"	24-36	1-2"	3/25-4/20	NA	70	45-120
Peppers (Bell)	Transplant	2-24"	2.5"	4/1-5/1	3/25 - 5/1	70-85 (S)	60-100
Peppers (Hot)	Transplant	2-24"	2.5"	4/1-5/1	3/25 - 5/1	70-85 (S)	60-75
Peas (Southern)	2"	4-6"	1-2"	4/1-5/20	NA	70	50-80
Sweet Potatoes	Slips	12-14"	3-4"	4/5-5/15	NA	75	120-140

DFW First Freeze Date: November 13 average
DFW Last Freeze Date: March 23 average

Adapted from Peters, Mike. 1996. *1997 Texas Garden Almanac*. Texas: McMillen

** A correct temperature reading is obtained on three consecutive mornings.

F = Summer, S = Seed, SP = Spring, T = Transplant