



Supporting you to GET GROWING

CROP ROTATION – *Rotate crops to a different area each year to help prevent insects and diseases, and to utilize resources efficiently.*

By Family (like tomatoes (A), beans (B), squash (C) - Year 1: A B C > Year 2: C A B > Year 3: B C A

Nutrient Related Rotation – Legumes > Heavy Feeders > Light Feeders

Heavy feeders: Corn, tomatoes, beets, cole crops, celery, cucumber, endive, lettuce, parsley, pumpkin, cucumber, squashes, rhubarb, spinach, sunflower

Light feeders: Root crops, bulbs, herbs, mustard, pepper, chard

Soil builders: alfalfa, beans, clover, peas

MULCH - helps maintain current soil temperature (warm or cold), and helps maintain current soil moisture (wet or dry). Mulching materials can include – Wheat straw, hay (weedy?), cardboard, leaves, cover crops, compost, old carpet, landscape fabric, plastic (you will need to irrigate if using plastic).

WEEDING – Mulch right away so you don't have weeds! Learn to recognize weed seedlings & catch them while they are small! Tools – pull weeds by hand, hoe, hand mattock, hand cultivator, hori hori knife, weed eater, lawn mower. Tip: Moisten area before weeding if soil is dry.

WATERING – Use a rain gauge. Garden plants need 1" of water per week.

-Water deeply once or twice a week (not every day unless seedlings).

-Water early in morning and at the base of plant for disease prevention (keep leaves dry).

COMPOST TEA RECIPE –

One Compost Tea Recipe for a five gallon brewer: *Time to make 1-5 days*

4-8 cups good, aerobic, nice-smelling, fully finished organic compost

2 Tablespoons unsulfured blackstrap molasses

2 Tablespoons organic liquid kelp fertilizer

1 Tablespoon organic liquid fish fertilizer

Chlorine-free water to fill bucket

Suggested equipment for a 5 Gallon Batch (From Elaine Ingham): An aquarium pump large enough to run three bubblers or air stones; Several feet of tubing; A gang valve; Three bubblers; A stick to stir the mixture; Unsulfured molasses (preferably organic;) Something to strain the tea, like an old pillowcase, tea towel, or a nylon stocking; A five gallon bucket. **Only want to buy one bubbler and less equipment? Reduce recipe to 1 gallon.**

ORGANIC DISEASE CONTROL - *Disease is caused by a pathogen such as fungus, bacterium, virus, or nematode. When conditions are right (host plant + pathogen + environment) disease occurs. Prevention is a good idea.*

Good Disease Management: Site; water in morning at base of plants; provide adequate air movement; choose resistant seeds/plants; soil; remove diseased vegetation or fruit and do not compost, sanitation & cultural; protection/control

Organic Fungicides: Serenade (Bacillus subtilis), Actinovate (Streptomyces Lydicus WYEC 108), Oxidate

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(Hydrogen dioxide-Broad Spectrum Fungicide/ Bactericide), Bicarbonates (Potassium bicarbonate & sodium bicarbonate), Neem Oil (usually 70%), Horticultural Oil (80% petroleum Oil)' Sulfur, Copper

Powdery Mildew Spray Recipe:

- 1 heaping Tablespoon of Baking Soda (Sodium Bicarbonate)
- 1 Tablespoon of Horticultural Oil (like All Seasons Oil) or Vegetable Oil
- ½ Teaspoon of Insecticidal Soap or Dish Soap (some recipes called for 1 T.)
- 1 Gallon Water

Mix ingredients well and keep well mixed when spraying. When spraying, pay attention to the undersides of leaves and coat all surfaces of the plant. Spray every 7 days – possibly more often following a heavy rainfall.

ORGANIC INSECT CONTROL –

- Keep your soil and plants healthy, healthy plants are less susceptible
- Inspect plants often (especially susceptible plants)
- Attract beneficial insects...think UMBRAL flowers like dill and fennel
- Correctly identify the problem and seriousness of infestation (may not be bad enough for concern)
- Squish bugs or drop bugs into jar of soapy water. Squish eggs. Insects mate and reproduce quickly – so be proactive
- Choose the right (and softest) method to target your pest -use the softest method first
- Avoid broad spectrum solutions (remember the pollinators and beneficial insects that are helping you out!)
- Generally the spray must touch the insect, except Bt (where the caterpillar eats the Bt on the leaf)
- Plant a trap crop, but remember that insects are multiplying on the trap crop as it grows
- Dogs, cats, and fences are good deterrents to larger critters.

Organic Insecticides: Bt (*Bacillus thuringiensis*), Safer Soap, Neem Oil, Sluggo, Japanese Beetle Traps, Spinosad, Pyrethrin, Horticultural Oil, Floating Row Cover, Diatomaceous Earth, Surround, Milky Spore

Bug Juice Spray Recipe (makes 2 C. of concentrate)

- ½ C. of insect pest (make sure they are all the same species)
- 2 C water

*Wearing gloves, blend the insects and the water with a blender, mortar and pestle, or an old grinder. Strain through cheesecloth (compost the bug parts) and store the liquid in a mason jar. To use, dilute ¼ C. of concentrate into 1-2 C. water. Spray plant leaves thoroughly. Store remaining concentrate in the freezer up to 1 year. **This works for Japanese beetles, Mexican bean beetles, cabbage loopers, tomato hornworms, Colorado potato beetles.*

Garlic Oil-Soap Spray Recipe (makes 1 pint of concentrate)

- 25 cloves unpeeled garlic or 2 C. minced, tender garlic scapes, or 3 T. garlic powder
- 2 t mineral oil
- 2 t liquid castile soap
- 2 C. warm water

*Press garlic or crush it in a small food processor. Place garlic and it's juices in a glass or jar with the mineral oil, stir it just a little, and let it stand 24 hours (longer is OK). In a bowl, mix together the garlic-oil mixture, the castile soap, and the water. Mix well and strain into a mason jar. Store in the fridge for up to 3 weeks. To use, dilute 1-2 T concentrate into 2 C. water. Spray your plants thoroughly. The garlic odor will not ruin your plants or make them taste garlicky, so spray well! This works for cabbage loopers (adults and caterpillars), aphids, squash bugs, tarnished plant bugs, slugs, hornworms, leafhoppers, whiteflies, squash bugs, and earwigs. Will not work on larger, hard-bodied insects. **Note: If you make your treatment from dried garlic powder instead of fresh garlic or garlic scapes it will be less effective).*

Hot Pepper Spray Recipe

- 1 T. cayenne powder
- ½ t. liquid castile soap
- 4 C. water

Add cayenne to water and steep from 12-24 hours. Strain as well as you can and add the soap. Spray plants thoroughly. It's best to just make this as needed, since it does not store very well. *This works for most bugs that garlic-oil soap spray controls, is especially helpful with leaf hoppers, and has the added benefit of deterring rabbits and small rodent pests.*

POLLINATOR-FRIENDLY GARDENING - Think Whole Yard! Pesticide use and habitat loss/degradation are human-caused factors

- Plan for pollinator protection in your veggie garden, your lawn, and your landscaped areas
- Choose a sunny spot and maintain a **pesticide-free zone**
- Provide nesting habitat for pollinators – snags, bare ground, tube bundles
- Plant a smorgasbord of **season-long flowers** to provide nectar and pollen for pollinators
- Plant host plants for butterflies
- Be willing to accept some damage & plant host plants out of site if a problem
- If you do use pesticides, target the correct insect with the softest organic method possible
- Keep plants healthy and happy so pests are not a problem
- Provide clean, accessible water
- Support local beekeepers by buying their honey

You have power. Bring about the changes you want to see. Lead the way to a safer, healthier, cleaner, and more delicious world with every dollar you spend.

Podcast: www.thepermaculturepodcast.com #1820--The Soil Food Web with Dr. Elaine Ingham
<https://www.sustainableworldradio.com/the-universe-beneath-our-feet-the-soil-food-web/>

Links and more: I recommend searching university sites to access trustworthy information quickly. Check more than one site and compile the commonly-held information - as different areas around the country confront different agricultural issues. Portions of many university sites focus specifically on gardener education.

Additional Resources from ORGANIC GROWERS SCHOOL (a non-profit organization):

<https://organicgrowersschool.org/resources/spring-conference-library/>

<http://organicgrowersschool.org> Sign up for other OGS events under the Events menu and sign up for OGS eNews (scroll to bottom on right)