

Organic Pest Control

Organic pest control products should be used in moderation, in cases where a large infestation occurs. Understand that many organic pest control products will also harm beneficial insects – be mindful. Prevention and patience are two important tools when it comes to pest control.

Bacillus Thuringiensis (Bt)

Bt is an insect-eating bacteria. There are several products on the market that use Bt – Dipel, Thuricide and Bio-Worm.

- **Effective on:** cabbage loopers, hornworm, cabbageworms, squash vine bore
- **Bt can kill butterflies - use sparingly**

Baking Soda

Mix at a rate of 4 teaspoons per gallon to treat black spot, powdery mildew, brown patch and other fungal problems. Should be sprayed on the leaves of the plants and not the soil. Adding 1 tsp of liquid soap or oil to the mix will help the solution to coat and stay.

- **Effective on:** black spot, powdery mildew, brown patch and other fungal problems

Beneficial Nematodes

These parasitic nematodes can be purchased commercially in a dormant state. Once mixed with water and applied to the soil, these beneficial soil-dwellers release bacteria that kill insect hosts within a few days. Nematodes should be applied when the soil is warmer than 60 degrees. Applications are recommended in spring and fall. Be sure to follow the instructions on the packaging more the most effective results.

- **Effective on:** squash vine borers, soil-dwelling grubs, cutworms and other soil-dwelling larvae

Citrus Oil Spray

Orange oil is the most effective type of citrus oil spray. It can be made at home with water and citrus pulp or purchased from a local nursery. Commercial grade orange oil should be used at a rate of less than 2 ounces per gallon and can be mixed with molasses or compost tea.

- **Effective on:** aphids, mites, beetles, leaf miners, caterpillars, thrips, leafhoppers and whiteflies

Diatomaceous Earth (DE)

DE is the skeletal remains of microscopic organisms. The broken skeletons have sharp edges that will scratch the exoskeletons of insect, causing them to die. Only Food Grade DE should be used in the garden – not swimming pool DE. Always wear a mask when working with DE.

DE should be dusted over the treatment area to be effective. However, DE is not selective and may harm beneficials as well.

- **Effective on:** pill bugs, fire ants, slugs & snails, cutworm

Garlic-Pepper Tea

A homemade insect and disease control made from garlic juice and hot peppers. Use selectively, as it will harm small beneficials. To make, add the juice of two garlic bulbs and 2 hot peppers to a gallon of water. Use ¼ cup of this concentrate per gallon of water when applying to the garden.

- **Effective on:** flea beetle

Garrett Juice

A foliar feed spray that contributes to the overall health of the plant which decreases pest and disease problems. This can be made at home or purchases as a commercial concentrate.

Liquid Seaweed

Can be purchased commercially. Use 1-2 ounces per gallon of water to control spider mites and whiteflies. Liquid seaweed is also an effective source of phosphorus that will strengthen root systems.

- **Effective on:** spider mites and white flies

Molasses

Dried molasses provides a food source for soil microorganisms. It is a good source of energy for soil life and microbes. Creating a soil environment full of microorganisms will help control soil-dwelling, harmful insects. Blackstrap molasses has the added benefits of sulfur and iron.

- **Effective on:** repels fire ants

Neem Oil

Extracted from the seed of the neem tree. Neem oil will not harm humans, birds, plants, earthworms or beneficial insects.

- **Effective on:** aphids, whiteflies, hornworms, mealybugs, leaf miners, gypsy moths, weevils, webworms, loopers, harlequin bugs and cucumber beetles (for up to six weeks).

Pyrethrin

Made from Crysanthemums, this compound affects the nervous systems of insects. Many organic advocates no longer recommend this product.

Pyrethroids are a synthetic form that are more persistent in the environment – these are not organic and are not recommended.

- **Effective on:** fleas and ticks
- **Can be toxic to mammals including humans**

Soap

Homemade soap sprays can be used to control small insects like aphids if strong water sprays are not effective. Mix a very small amount of dish soap with water and spray on the infected areas. Spray soap solutions in the evening so the sun

does not cause the soap to damage the leaves. Soap solutions can also harm beneficial organisms and should be used selectively. Several applications may need to be used in order to control the infestation.

- **Effective on:** aphids, flea beetle

Spinosad

Often sold as Bonide or Captain Jack's Dead Bug this product is made from a fermented bacterium.

- **Effective on:** codling moths on apples, caterpillars, asparagus beetles, thrips, leaf miners, Colorado potato beetle, spider mites, thrips, fire ants, leaf miners, loopers, tent caterpillars, bagworms and sawflies
- **Toxic to honey bees; Low toxicity to humans**

Sulfur

Sulfur can be used as a liquid when mixed with water or dusted on dry. Mix with a liquid seaweed to increase the effectiveness.

- **Effective on:** fungal issues like black spot and powdery mildew. It can also help control thrips, chiggers, fleas and mites.

Trichogramma Wasps

Extremely tiny beneficial wasp that parasitizes caterpillars. Put out sticky cards covered in eggs in April or May.

- **Effective on:** cabbage looper, tomato hornworm and other caterpillars

Garlic-Pepper Spray Recipe

Ingredients (for 1 gallon of concentrate):

- 2 bulbs garlic
- 2 hot peppers (jalapeno, cayenne, Thai, habanero, etc.)

Equipment:

- Blender
- Gloves
- Protective eyewear
- 1-gallon jug
- Strainer

Instructions:

- Add the garlic and hot peppers to the blender and fill half way full with water.
- Blend until smooth.
- Pour the liquid into a gallon container through a strainer.
- Fill the rest of the gallon container with water. This mixture is your concentrated solution.
- To use, mix ¼ cup of the concentrate per gallon of water and apply with a spray bottle.

Resources:

- *Texas Organic Vegetable Gardening*. Howard Garrett and C. Malcom Beck
- *Texas Bug Book: The Good, the Bad & the Ugly*. Howard Garrett and C. Malcom Beck
- <https://www.dirtdoctor.com/garden>
- www.rodalorganiclife.com
- <https://www.ncbi.nlm.nih.gov/pubmed/15366583>
- <https://www.ncbi.nlm.nih.gov/pubmed/16180930>