VISTA's Garden Insect Pest Guide

CONTROLLING INSECT PESTS

Here's a guide to inspire us all to adhere to natural pest control. Natural pest control is not harmful to you, your neighbors, your pets and the other creatures we live with. You can control insect pests start by using good **cultural or gardening techniques** described next**.** We will then learn about the preferred **physical method,** and then **safe chemical and biological** methods. Combining a number of methods may be the best way to control insects in your garden. (Much of this comes to us from Garden Mosaics, funded by the National Science Foundation Informal Science Education program, and by the College of Agriculture and Life Sciences at Cornell University- a wonderful resource!)

In related activities VISTA volunteers maintain a bee hive to support plant pollination. You also have opportunities to support and grow our native plant areas and many flowering plants and herbs in the community areas which attract pollinators, beneficial insects and birds. Future projects will include building bat houses and planting night blooming flowers- Stink bugs we are putting you on notice!!

CULTURAL CONTROL or good Gardening Practices

Pest control starts with creating and maintaining a healthy garden. This includes preparing a healthy bed of composted soil that is not compacted.

Carefully choose what, how, when, and where you plant in order to avoid insect attack. Florida is rated as a short season zone (and climate zone 9a and b). Short season meaning it's best to select plants that can be harvested in 8 weeks. This will reduce the opportunity for disease and insect infestation.

Also important is harvesting your produce before the bugs. Don't let your produce rot and remove plants that are at the end of the life cycle when they are most susceptible to bugs and disease. (Bugs and disease that will hang out in the area waiting for next seasons or next year's crop.) There are many guides available to create a healthy garden, including the planting wheel located on the shed, the companion planting guide (will also pin up on the shed), your fellow VISTA experienced gardeners and the wonderful, Florida Vegetable Gardening Guide found on the UF-IFAS website http://m.ifas.ufl.edu.

Last year insect pests destroyed my squash plants. This year insects have not been a problem because of the control methods I've used. What did you do? I prepared my soil well, so my plants stayed healthier and were better able to resist insect attack. Which squash did you plant? Summer and winter squash. I planted butternut as a winter squash because it's resistant to squash vine borer. I waited until July to plant summer squashes so they matured after the adult borers finished laying their egg. Where did you plant the crops? Far from where squash grew last year. That way I avoided the insect pests that over-wintered in the soil.

INTERPLANTING FOR PEST CONTROL. Interplanting is growing one kind of plant alongside a different kind of plant. Some plants attract helpful insects. Other plants confuse or repel insect pests. When these plants are interplanted, they can help protect your crops from insect pests.

INTERPLANT TO ATTRACT AND SHELTER HELPFUL INSECTS Most insects that eat insect pests also eat nectar and pollen from flowers. They have short mouth parts for chewing, rather than long tubes for sipping, so they need flowers with easy-to-reach nectar and pollen. Flowers in the Aster family, such as marigolds and sunflowers, have wide, open flowers, so they are an excellent choice for attracting helpful insects. Herbs like parsley, dill, and coriander have flat-topped clusters of small flowers. They also have strong fragrances that attract beneficial insects.

HOW TO CONFUSE OR REPEL INSECT PESTS Many insect pests attack only certain kinds of crops. They spread more quickly if a large area is planted with only the kind of crop they eat. If you interplant crops, it's not as easy for insect pests to spread and cause damage. A large cabbage patch presents a big target for cabbage white butterflies flying by and make it easier to move from one cabbage to the next. The same number of cabbages scattered among other crops over a larger area is a much less obvious target.

Many gardeners interplant with herbs and flowers that have strong scents, which may confuse or repel insect pests looking for crops to feed on. Here are some combinations that many gardeners use. Basil among tomatoes, marigolds among eggplants, nasturtiums among squash, garlic among cabbage.

Now that we have learned and implemented our good gardening practices we are done right? Not quite! But you have a wide arsenal of safe methods to eliminate and discourage insect pests in your garden.

PHYSICAL CONTROL

For our small plots this is the number one preferred and most selective method! Only 3% of insects are harmful to your garden. Physical control enables you to remove only the harmful insects without harming the beneficial insects and pollinators.

This includes methods such as removing insect pests by hand and using physical barriers or traps to keep insect pests away from plants.

Carefully inspect your plants, look for the telltale signs of the small black specs or excrement. The larva love to feast on the new growth and like to hide out under leaves and often cause the leaves to curl as they web the underside. The hardest are to find are those hiding out in the dirt.

It's quite fun hunting them down, especially for kids who have great eyesight and nimble small fingers. If you can't squish them, pick them out and throw them in a pail of soapy water.

Also- you want to make sure you do not pick out beneficial insects. It's easy to think that black hairy crawling thing must be bad, but in fact it's a lady bug larva going about its business of eating aphids on your behalf. (Sorry but could not find a photo I could cut and paste.) Here's a list of top ten beneficial insects with photos courtesy of Rodale's wonderful website

10 Insects You Should Actually Want Around Your Plants

Defend your garden against harmful creepy crawlies by attracting these helpful critters to your plot.

Aphid Midge

Pollen plants will bring aphid midges to your garden. To combat the midges, **Identify + Encourage These Beneficial Insects**, including the larvae of this tiny, long-legged fly that feed on more than 60 species of aphids by paralyzing their prey with toxic saliva.

Braconid Wasps

The adult female of this species injects its eggs into host insects, including caterpillars, moths, beetle larvae, and aphids. The larvae then feed inside their hosts and the host dies once the larvae have completed development. Grow nectar plants with small flowers, such as dill, parsley, wild carrot, and yarrow, to bring them to your garden.

Damsel Bugs

Damsel bugs feed on aphids, small caterpillars, leafhoppers, thrips, and other pesky pests. Collect damsel bugs from alfalfa fields using a sweep net, and then release them in and around your **vegetable garden**.

Ground Beetles

The nocturnal ground beetle is a voracious predator of slugs, snails, cutworms, cabbage maggots, and other pests that live in your garden's soil—one beetle larva can eat more than 50 caterpillars. Plant **perennials** among garden plants for stable habitats, or white clover as a groundcover in orchards.

Lacewings

Both adult lacewings and their larvae eat aphids, caterpillars, mealybugs, scales, thrips, and whiteflies. Angelica, coreopsis, cosmos, and sweet alyssum will bring lacewings to your garden.

Lady Beetles

Adult lady beetles eat aphids, mites, and mealybugs, and their hungry larvae do even more damage to garden pests. Plant angelica, coreopsis, dill, fennel, and yarrow to attract them.

Minute Pirate Bugs

The quick-moving, black-and-white minute pirate bugs will attack almost any insect. Goldenrods, daisies, alfalfa, and yarrow will attract these helpful bugs.

Soldier Beetles

The soldier beetle feeds on aphids and caterpillars, as well as other insects—including harmless and beneficial species. Attract this flying insect by planting catnip, goldenrod, and hydrangea.

Spined Soldier Bug

The spined soldier bug's pointed "shoulders" distinguish it from the peskier **stink bug**. Plant permanent beds of perennials to provide shelter for this predator of hairless caterpillars and beetle larvae.

Tachinid Flies

Showcased as one of the **Amazing Pictures Of Bugs That Benefit The Whole Ecosystem**, the tachinid fly larvae burrow their way into many caterpillars, destroying these garden pests from the inside. Plant dill, parsley, sweet clover, and other herbs to attract adult flies.

Ok surely I'm done now. Maybe, but I have all these tiny aphids and other caterpillars that are so small and numerous that's it's beyond hand control. And those stink bugs are too quick. Now what?

What Follows next is a list of safe pest CHEMICAL AND BIOLOGICAL controls for common pests you will see in the garden. Many are inexpensive home recipes. Keep in mind that while non-toxic to you and the environment, they can irritate your eyes or cause stomach upset, so handle with care. If you purchase products from the store, look for the OMRI stamp indicating the product is organic approved!

TOP Choice: Homemade Insecticidal Soap Recipe:

https://www.todayshomeowner.com/how-to-make-homemade-insecticidal-soap-for-plants/

To control:

- Aphids
- Immature leafhoppers
- Mealy bugs
- Scales

- Spider mites
- Thrips
- Immature white flies
- Eggs and pupae of other insects

NEEM Oil – https://www.gardeningknowhow.com/plant-problems/pests/pesticides/neem-oil-uses.htm

It is a useful repellent for mites and used to manage over 200 other species of chewing or sucking insects according to product information, including: Aphids Mealybugs Scale Whiteflies Neem oil fungicide Neem oil fungicide is useful against fungi, mildews and rusts when applied in a 1 percent solution. It is also deemed helpful for other kinds of issues such as: Root rot Black spot Sooty mold

White Oil- Insecticide https://www.gardeningknowhow.com/plant-problems/pests/pesticides/white-oil-insecticide.htm

Effective for controlling Aphids and Mites

Pyrethrum (make sure you buy the natural product- not the harmful synesthetic)
https://www.todayshomeowner.com/is-pyrethrum-a-safe-organic-pesticide/

MICROBIAL PRODUCTS, BT AND SPINOSAD.

BT and Spinosad are excellent safe microbial products.

BT must be ingested to work and is excellent to eliminate caterpillars. BT information: http://miami-dade.ifas.ufl.edu/pdfs/fyn/bt.pdf

Spinosad is a contact microbial effective against It is used to control thrips, leafminers, spider mites, mosquitos, fruit flies, flees, lice, ants, and others. Definitely going to try this on ants!

Spinosad - Http://npic.orst.edu/factsheets/spinosadgen.html

FIRE ANTS- Here's a link to with a tongue in cheek description of many organic remedies. http://www.rodalesorganiclife.com/garden/best-fire-ant-removal-methods So far the only solution working is to use AMDRO. Use it outside of your plot and if possible apply in a way that the unused Amdro can be removed.