

CAC's Organic Pest Management Talk

with Entomologist, Phil Pellitteri

-Organic Gardening is an art form that is developed over time. Happy, healthy plants have a natural defense to insects, creating an environment to support that plant life is important. This means building up rich soil and giving plants the support they need (water, good drainage, etc.). This takes seasons to achieve, but will pay off with healthy plants that are less susceptible to insects and disease. Example of a plant's natural system of defense: Plants in the cucurbit family have mustard oils in them that kill all chewing insects. However there are pests that adapt to overcome some of these defenses (the cabbage worm caterpillar can metabolize mustard oils)

-Using science based research to support your gardening efforts is also key. The internet provides many resources, but only research that is science based should be treated as a fact. A great local resource: <http://learningstore.uwex.edu/Default.aspx>

-Phenology is another resource for organic gardeners. Phenology is the scientific study of periodic biological phenomena, such as flowering, breeding, and migration, in relation to climatic conditions. Gardeners can use signals in the life cycle of plants to determine when pests will arrive. Ex: Examples of phenological correlations include: plant peas when forsythia blooms. To learn more visit <http://hort.uwex.edu/articles/phenology>.

Q & A

1) How can I manage the squash vine bore on zucchini plants?

-Row cover results in a 75-80% decrease in vine bore presence. The row cover is needed to protect the adults from laying eggs on the base of plants. This occurs around the time of chickory blooming (another phenology example!). Keep the row cover on for 2-3 weeks after spotting the adults to fully protect plants. If plants are in bloom, the row cover can be left off until around 10am since the adults are most active in the afternoon. This allows access for pollinators to do their important job.

-Spinosad has an excretion that kills caterpillars, beetles, and thrips. Success of close to 100% control is observed when sprayed in correlation with chicory blooming and possibly a second time two weeks later. Spray on to the base of plants where eggs are laid. *Take caution and do your research before using this spray as it can be harmful to pollinators.

2) What can I do about fruit flies on fruit trees?

-Fruit maggots and outdoor fruit flies are larger and different than the "house fruit flies" most of us think of. Apple Maggot is the worst. They come out after a rain. Spinosad works well. MI State University has two good books on fruit.

-Look into planting varieties that aren't so susceptible to insects is the way to go for organic fruit production. Pears and cherries tend to be easier. Apples have many pests.

-The most important window of time to protect the fruit is the two weeks after the blossom falls.

-The more wild fruit that exists near your orchard or trees, the more hosts there are for insects. Fallen fruit also serves as a host, so remove dropped fruit if possible.

3) We have had a large problem with flea beetles this year. What steps can I take to avoid this in the future?

-Flea beetles were worse this year due to the mild winter. You can predict their intensity based on the type of winter we experience.

-Flea beetles are pretty mobile and can travel up to 150 yards. They have many weed hosts, and they overwinter in wild weedy areas surrounding the garden.

-Trap crops can be effective for the potato and crucifer flea Beetle. They love Asian cabbages.

-Spinosad and neem oil are other management options, and the quicker you spray, the better.

-Their damage to mature plants is only cosmetic, but they will kill seedlings. They emerge rather early, and even earlier than usual this year due to the mild winter and warm spring.

4) What can we do to manage Colorado potato beetle?

-Russ Groves in the UW Extension expert on potatoes, although he does focus on large scale, conventional methods.

-Spinosad is the only product that Phil has any faith in.

-CO potato beetles overwinter as adults. If the soil cools to 23 degrees, the adults will die, but with the insulation of leaves, brush, and snow, the ground doesn't often reach this temperature.

-The adults emerge in spring around the first week of June. They will lay eggs in on the underside of the potato leaves, so spray immediately, before this occurs.

-Row cover must be put on before CO potato beetles show up in order to be effective. In studies, beetles would not crawl across white surfaces, so the white row cover may serve a double purpose in deterring this pest.

-On a large scale, trenches can be dug along the potato planting and lined with plastic so the bugs are not able to climb out. Dig the trench in between the potato planting the edges where the beetles overwintered. The beetles in the trenches can be sprayed with concentrated insecticidal soap.

*insecticidal soap is not your average household detergent. Most home detergents contain dyes and perfumes that can be harmful to your plants, so if you are going to try to use household soap, try a small

bit first before applying to all of your plants. Soap only kills on contact. Kills soft skin, but not hard skinned like beetles.

5) What can be done for scales?

-Soap works well, three treatments applied 10-14 days apart are necessary. This method is ideal for every plant indoors, but coverage can be an issue. Dip the plant in the solution if possible or just make sure to spray all plant surfaces.

6) Are earwigs a threat to vegetable crops?

-No, not really. They are omnivorous, and they may feed more on ornamentals. They may be chewing on your lettuce this year due to the drought. They are night feeders, so you won't see them unless they venture into your house to avoid the heat and sun.

7) Is row cover affective on brassicas to protect from flea beetles?

-It is effective if you get it on early.

8) What can be done about large ant colonies in or near the garden?

These ants are most likely field ants (formica) also known as wood ants or mound ants, and they do bite. They are voracious insect predators, a bonus for gardeners, but they will inject formic acid into plants that try to grow near their nest. The queen of the colony lives around three feet under the ground, and it's difficult to get to her. Killing the queen is the only way to get rid of the colony. This ant doesn't bite.

-Boiling water and trenching can work, but is somewhat dangerous to carry out. Sevin is NOT organic, and is harmful to pollinators upon contact. It will also promote aphids and possibly spider mites.

9) Are heirloom varieties better to plant for disease and insect control?

-Heirlooms are not bred for resistance, but some may have great qualities. There is no longer a list of preferred cultivars (for insect resistance) for home gardeners, but there is a list that is compiled every year for commercial growers.

10) My beets all have tiny holes going through the root of them. What is that pest?

-It could be garden symphyla which are tiny centipedes (flat bodies) that are atrocious root pests. They could also be millipedes which are cylindrical in shape. Get a cheap magnifying glass from to better identify them.

11) Will companion planting help cut down on insect problems?

-It is good to check and see if plants share insect susceptibility when creating a planting plan. Some common companion planting recommendations can actually bring in pests. Ex: Tomatoes and Basil are

often thought of as good companions, but the flowers of the basil plant attract tomato hornworm. This problem can be avoided by picking off the flowers of the basil plant.

-Marigolds, which are thought of as one of the best and most common companion planting actually can attract many unwanted garden pests such as green peach aphid, potato leaf hopper, and European corn worm.

12) What can I do to manage Japanese beetle damage?

-These beetles are a problem for basil, raspberries, grapes, roses, and many ornamentals. They are active in the afternoon (lazy bugs!).

-Plants hidden in areas of partial shade will attract less beetles. They love full sun.

-Bush beans may be better than pole beans.

-Hand removal can decrease their numbers by 50%. Walk around and knock them into a jar of water with a couple drops of soap in it. It is easier to catch them earlier in the day when they are drowsy.

11) Can you speak to colony collapse disorder of honey bees?

-There is no one answer for this phenomenon that began six years ago.

-Many bees are rented out to large-scale farms for pollination and are driven across the country for the almond orchards in California. The lack of diversity in their diet (eating only almond pollen) puts stress on them and decreases their immune system.

- Symptoms similar to CCD have been described in the past and have received many different names over the years including autumn collapse, May disease, spring dwindle, disappearing disease, and fall dwindle disease. Whether or not the current die-off is being caused by the same factors that caused heavy losses in the past or if new factors are involved is not yet clear.

**For more information, Please review the other attached document on honey bees and what you can do to encourage their habitat in your garden.

Recommended reading:

Garden Insects of North America- a great guide with many pictures and a host index, so you can look up a plant and see what pests are associated with it.