

Control of Pesky Insects Using Earth-Friendly Methods *By Crystal Stinson*

Insects often cause problems in gardens that sometimes require us to use chemicals to control them.....or do they? Synthetic pesticides have only recently come into use. Strong chemical pesticides were developed during World War II beginning with DDT in 1939, and during the 1940's their use increased substantially. Since 1950, the use of pesticides has increased 50-fold. It has become normal for people to use pesticides on their crops, gardens and lawns. What did people do before pesticides were invented?

One significant difference between now and then is the quality of the soil. Soil was much more healthy back then (over the last 60 years, the repeated use of chemicals has degraded much of our once-rich garden soil), and plants grown in healthy soil are naturally able to withstand the pressure of insects better. Insects tend to attack weak plants which are grown in nutrient poor soil. The first step in improving the odds against insects is to improve the soil. Adding compost or well-rotted manure is the most earth-friendly, and the most effective, way to improve soil. Adding natural fertilizers can help too, such as dried seaweed or bone/ blood meal. Check out the book "*Gardening when it counts*" by Steve Solomon (available at the Craik library-CSLP collection) for a recipe on a home-made complete organic fertilizer. Healthy soil has a crumbly texture, and contains a great amount of live earthworms, insects, microorganisms, and bacteria.

Well watered plants will be healthier than those that are allowed to get too dry. The best water is rain water. Quite often the water from a well or town supply is too hard for plants. If your water leaves a whitish residue on the ground after it dries, it is too hard. Once a plant is suffering from either not enough water or from water that is too salty, it will be more susceptible to insect attacks.

Other things that should be considered to make sure plants are as healthy as they can be include: having a large variety of plants in your garden, properly spacing them, pruning/ staking when necessary, and rotating crops. Also remove plants (and compost them) at the end of fall so you are not leaving habitat for insects to over-winter in.

Having a good supply of beneficial insects hanging around your garden is great too, to act as predators for unwanted insects, and for pollinating your crops as well.

Okay, so now you have grown plants in healthy soil and watered them well (but not over-watered), and you still have trouble with bugs....what now? Well, that depends on what type of bugs you have. It is important to identify your insect pest so they can be dealt with in the most effective way. Quite often knowing a little about the life cycle of the pest will be the key to controlling it.

Aphids are very small bugs that can suck out the juices of plant leaves, which leaves them rolled up and dry. Aphids can be sprayed off of mature plants with plain water (use a hose, full-strength) and for more delicate plants, a solution of one gallon of water to a tablespoon of dish-soap sprayed on will desiccate these soft-bodied insects. You will

have to repeat the process for a few days until the population is under control. The natural predator of aphids is the ladybug, so should you see any ladybugs near by, move them over to your aphids for a delicious buffet.

Flea beetles are tiny, hard shelled black bugs that hop from plant to plant chew tiny holes in the leaves of mainly cabbage, broccoli and cauliflower. They are a problem mostly in the spring, when young plants are just starting and are at their most vulnerable. Planting trap-crops, a crop that will lure the offending bug away from your main crop has been shown to work. Chinese southern giant mustard is apparently a good crop for this. If at the end of the season, the flea beetles move into your garden after the local canola crops have been harvested, I would suggest putting row-covers on your crops before they move in.

Wasps are pollinators and caterpillar-predators so should be encouraged to visit your garden. However, a nest right in the backyard isn't what anyone wants, and a good way to deter wasps is to hang a fake nest somewhere. Wasps are territorial, and won't build a nest near one that is already established. You can hang a paper bag of air in an appropriate spot, or you can purchase fake wasp nests at leevalley.com, or ask at the local hardware store.

Tent caterpillars can be destructive to fruit trees and other ornamental bushes. These caterpillars build nests in the branches and leaves out of silk, which look kind of like tiny tents where hundreds of caterpillars hatch. The best way to take care of these is to get some neighbourhood children to come and squash them. This somewhat disgusting job gets even more disgusting as the caterpillars get older, so it is best to try to eliminate them early in the season as you notice them. A good alternative to squashing them on the bush is to clip off affected branches, and burn them.

Cabbage moths are an issue with certain types of produce, namely cabbages and broccoli. Moths lay eggs which hatch into caterpillars that eat your food. The best way to deal with cabbage moths is to prevent them from getting to your produce in the first place. Cabbage moths fly in and land on your produce from the air, so covering the produce with a row-cover is a very effective way to prevent an infestation. Other methods of reducing cabbage moths include: encouraging insect-eating birds on your property, handpicking off the caterpillars, or net-catching the adult moths. Another thing to try is *Bacillus thuringiensis*, or Bt, which is a biological control that is a stomach poison that is specific to caterpillars (it won't harm beneficial insects or mammals) that can be sprayed onto leaves.

Potato beetles are large, colourful beetles that eat the leaves of potato plants. Potato beetles need to find the potato patch, lay eggs in the soil, and then the following season the eggs will hatch and attack the potato plant. When the potato patch is moved from year to year, row covers can be very effective in keeping these beetles off. Moving the potatoes is a good method for reducing the disease "scab" as well. Also wheat or rye straw mulch on top of where you plant potatoes will create habitat for beneficial insects

that snack on the emerging potato beetles. Taking the time to hand-pick the beetles in the spring to try and eradicate them before they get out of control will pay off in the long run.