

Basics of Vegetable Garden Pests

Basics of Critter Control:

- **Over-winter housekeeping.** Insects that feed on, for example, Brassicas tend to also hunker down on them for the winter. Cleaning out plants as soon as they've stopped producing food deprives the pests of a place to spend the winter and to start their families in the next season. Even one "dirty" bed in a garden can create problems for a whole lot of other gardeners.
- **Crop rotation.** Planting the same crop in the same area of a bed will ensure that a pest (or disease) will have its favorite food readily available. The best practice is to avoid planting the same — or even a similar — crop in the same area for two years. For example, if a root crop (radishes, carrots, beets..) are planted in one end of a bed, the root crop should be moved to the other end of the bed the following year, and then to the middle of the bed the 3rd years.
- **Sanitation.** Badly infested plant parts should be removed, keeps weeds cleaned up in and next to your bed, get rid of "volunteer" plants that came up from last year's crop.
- **Screening.** Floating row covers do an amazing job of keeping a variety of insects away from plants. Bird netting protects plants from the larger pests: birds and bunnies in particular.
- **Trapping.** Malt and/or well-hopped beer (something other than Bud Lite) will send every slug in your garden bed cavorting happily off to the next world. It's a win-win situation.
- **Hand Picking.** This can be tedious since you have to look closely to see such well-camouflaged larva as cabbage worms and cabbage loopers. On the other hand, it's the only way to deal with established leaf miners. A variation on hand picking would be blasting aphids off your plants with a stream of water.
- **Bring in "Hit Men."** There are a number of "beneficial insects" that feed on pests. Lady Bugs are the most well-known because of their appetite for aphids. Lacewings are also very effective. Both of these are sold in garden centers. Praying mantis and several species of wasp are also predatory on garden insects.
- **Beneficial nematodes.** Nematodes are microscopic, translucent worms that occur naturally in soil throughout the world. While there are over 40,000 species of nematodes, only about 30 are entomopathogenic ("enabling you to show off in front of other gardeners"). In fact, you have to buy a specific species of nematode to control a specific type of garden pest. In addition, introducing nematodes into your garden plot needs to be done according to directions in order to have them survive and thrive. Sill in all, they can be wonderfully effective. It just takes some homework. I'd suggest the website: <https://www.arbico-organics.com/category/nematode-selection-chart>
- **Bacillus thuringiensis.** This bacteria has been used on various larva and grubs for almost 100 years and, despite recent controversies, is considered an organic pesticide. You'll have to do your own research if you want to consider using it.
- **Diatomaceous earth.** A fine, abrasive powder this apparently scratches up larva in the soil and dehydrates them. Since it works as well on beneficial insects, it's considered a last resort for garden problems.
- **Insecticidal soap.** Since this kills insects and mites by penetrating the exoskeleton and causing the cell walls to collapse, it needs to be sprayed directly on the pests. If you spray it on the leaves while the insects are away it won't have any effect on them.
- **Neem oil.** An organic oil, produced from the seeds of the neem tree, is supposed to act against a wide variety of insects as well as powdery mildew and other fungi. Like any other

broad-ranged pesticide, it doesn't discriminate between harmful and beneficial insects. To me, that would qualify it as a last-resort measure.

- **Sticky tape/panels.** Another broad-spectrum, indiscriminate method of killing anything that gets into your garden this option has the benefit of showing you specifically what is skulking around there when you're not looking.
- **Marigolds.** Since marigolds are a source of the natural insecticide pyrethrins it's felt that they have a certain insect repellent effect. I don't know if that's true or not, but they are pretty and the flowers can attract pollinators, so what's to loose?

What Eats Vegetable Plants in the PacNW?

- **Slugs:** Damage is localized. Relatively large areas eaten out of a few plants; leaves, stems and all. Slugs hide during the day, but leave shiny trails of slime behind. There are slug baits listed as organic, but beer traps are very effective and let you count the dead ones. When your traps stop catching slugs you can declare victory and save the beer for yourself.
- **Cabbage loopers** (larval form of Cabbage moths; also known as "inch worms"): Generally feed on the lower leaves of plants, eating about three times their weight in plant leaves per day they leave irregular chunks out of the edges or sometimes the middle of the leaves. Though slightly larger than cabbage worms, they're very difficult to see (and therefore pick off) because they blend in so well. Adults are a brownish moth. Floating row covers are very effective while the plants are still small enough to be covered by them, and by the time the broccoli and Brussels sprouts have grown larger they're well ahead of any pests that might have hung around. One source recommends planting parsley, dill, fennel, coriander or sweet alyssum to attract the kinds of insects and other creatures that prey on loopers.
- **Cabbage worms** (larval form of the Cabbage Butterfly): Leave large, irregular holes on the edges and middle of leaves; also tunnel in the heads of Brassicas such as broccoli, cabbage, cauliflower, Brussels sprouts. Larva are just over 1" long and a green color that blends well with leaves. Adult butterflies are yellowish-white with two big black spots on their wings. Again, row covers are very effective at keeping the butterflies from laying their eggs on the crop's leaves. In addition, sources recommend planting garlic, thyme, tomatoes, onions, sage, nasturtiums or rosemary nearby as they're known to deter cabbage worms. In addition, braconid wasps are very effective predators on them.
- **Cutworms:** Nasty little creatures; they hide in the soil during the day, then come out at night and eat the first part of the plant they come to — usually the base of the stem. Therefore a good sign of them is a plant (most often beans, cabbage or lettuce) cut off at the base. The larva is a caterpillar, but they look like a regular grub; the adults are a mottled brown moth. One of the most effective deterrents seems to be a plant collar (cutting a cardboard toilet paper tube in half and planting the seedling in it is effective and cheap). A circle of diatomaceous earth around each plant also seems to be effective.
- **Flea beetles:** The adults eat lots of tiny holes in vegetable leaves, making them look as if they were peppered with very fine shot. Heavily damaged plants may be wilted or stunted. Meanwhile, the larva will be cheerfully munching away on the plant roots. Flea beetles are tiny little things (1/16" or less), and hop away quickly when disturbed so you probably won't see them. There are a number of recommended ways to control flea beetles: floating row covers (while plants are still small), sticky traps, beneficial nematodes (specifically the Hb type: *Heterohabditis bacteriophora*) and diatomaceous earth.
- **Leaf miners:** Momma injects the eggs inside the leaves of plants. The larva then hatch and eat the plant tissue between the upper and lower leaf surfaces, leaving tan blotches on the leaves. Adult leaf miners look like a slightly smaller version of the common house fly. Since

they have three generations in a season, it's important to check your plants frequently for leaves that are being "mined." If you catch them early enough, you can still see the larva inside the leaf. All affected leaves should be removed and thoroughly crushed immediately. Row covers are proving to be very successful in preventing leaf miner infestations from getting started.

- **Aphids:** Light green or brown soft-bodied insects, aphids reproduce very rapidly — usually on new growth and the underside of leaves. If you're not specifically looking for them, you may discover them by the sticky sap that you feel. While the most talked-about method of control seems to be the introduction of Ladybugs and/or Lacewings, keeping those predators around isn't always easy. Most of the time, we just have to keep a close eye on our plants and either remove the aphids by hand or with a blast from a garden hose. Soap and water, insecticidal soaps, and Neem oil will all kill aphids, but they also get rid of the beneficial insects.
- **Carrot Rust Fly and Cabbage Root Maggot:** Two different insects, but the effects are the same: tunnels through root crops or the roots of Brassicas. These pests create a more difficult challenge than most others since their damage usually isn't evident until the crop is harvested or, in the case of Cabbage Root Maggots, the plants begin to die off in mid-Summer. (The adults are small, innocent-looking flies, but they drop their eggs onto the soil and the hatched larva tunnel down and start feeding on plant roots.) Garden-wide sanitation is essential to control of these pests; any infested roots left overwintering in the soil will provide next summer's population of pests for the entire garden. It's also important to understand the flies' life cycle.
 - Carrot rust flies lay eggs on the soil in May and June, so having row covers over crops at that time — while the crops are still relatively small — can be effective. The early generation of larva emerge as adults in August and lay eggs which hatch into the overwintering larva. Knowing this, you can time your planting or covering of late season crops accordingly.
 - Cabbage root fly eggs can only hatch in cool weather — early Spring or during the Fall. Planting and covering crops can be done accordingly to prevent infestations.
- **Birds:** Holes pecked in tomatoes and strawberries are usually birds looking for moisture. Bird netting is by far the most effective preventative, but some success can be achieved by putting fluttery, highly reflective objects just above the bed — mylar tapes, old CDs...
- **LFAs (Little Furry Animals):** Plants being munched down from the top, or from younger and more tender shoots in toward the center are generally the work of rabbits or other LFAs. Live traps won't work because there's nothing you can put in a trap that's more attractive than your fresh veggies. Bird netting works best. Other products include such things as coyote urine scent which, to me, makes bird netting even more attractive.