



Gardening Organically: What's New in Pest Control?

Organic gardeners strive to avoid pesticides and use the most environmentally friendly, low-risk controls when it comes to fighting pests. That's why the first line of defense is using physical pest barriers, or planting flowers that attract natural predators. But sometimes, that's not enough. New reduced-risk biopesticides or "bio rational" products are being introduced that help home gardeners using organic techniques, so they can grow their gardens successfully and safely.

Before you reach for a product, no matter how low the risk, try these risk-free techniques:



Use physical barriers.

Row covers or netting can go a long way towards preventing crop damage, not just from insects but from birds and mammals as well. They can keep troublesome spinach leafminers from damaging spring crops, and screen out cabbageworms, cucumber beetles, bean beetles, and other insect pests. They generally prevent browsing by rabbits and other herbivores too.



Improve your soil with cover crops.

Cover crops provide habitat for important soil organisms, and increase their diversity. They also improve soil tilth, and enhance storage of water and soil nutrients. Whether you sow a quick summer cover of buckwheat on bare ground, or plant a bed full of oats, mustard, rye, or a nitrogen-fixing legume cover crop after the fall harvest, your improved soil will promote plant health. This, in turn will make your plants less susceptible to disease.



Plant flowers.

Beneficial insects will help you create a good predator-prey balance. So attract them!

- Sweet Alyssum attracts syrphid flies, which prey on aphids in their larval stage.
- Carrot family flowers such as dill and fennel bring in predaceous wasps, which eat caterpillars (including cabbageworms). These same flowers also attract tiny wasps that parasitize aphids.
- Pollinator plants, which include ornamental flowers like sunflowers, cosmos and coreopsis as well as herbs and brassicas gone to flower, attract all kinds of garden helpers.

And pay attention! That blue-winged wasp on your herb flowers is a beetle grub parasitoid in its larva stage. The spider lurking on the underside of a kale leaf is ready to pounce on a juicy cabbageworm. And aphid colonies nearly always harbor lacewing, lady beetle, and syrphid fly larvae—a good reason to watch and wait before reaching for the insecticidal soap spray. Even organic products can sometimes adversely affect populations of beneficial insects.



Plant a permanent border.

Habitat manipulation can be as simple as putting down straw mulch, which provides sheltered hiding places for nocturnal predators like spiders and ground beetles. Planting a habitat garden of perennial flowers near your vegetable bed will allow predaceous insects to winter over, and get an early start on burgeoning pest populations in spring. According to entomologists at the University of Wisconsin, “Research has shown that the presence of such non-crop habitat within or immediately adjacent to the cropped area can increase the abundance and diversity of natural enemies present.”



Mix up your plantings.

Attractive vegetable varieties, such as dwarf kale, curly parsley, and colorful peppers, can be planted in the ornamental garden. Long straight rows of vegetables may appeal to your sense of tidiness, but they don't often result in a good predator-prey balance. Mix it up!



Time your plantings to avoid pest cycles.

Avoid pests' prime feeding stages.

Delay bean seeding, for example, if bean beetle has been a problem in the past. For eggplants, plant your seedlings in the garden only when they are big and robust enough to power through the inevitable flea beetle onslaught. Until then, transplant them into larger containers and keep them safe from attack on your patio.

Biopesticides (a.k.a. Bio-Rational Pest Controls)

Home gardeners can now take advantage of biopesticides, environmentally friendly alternatives to chemical pesticides, which are derived from natural materials found in certain animals, plants, microbial organisms, and minerals. These newer products are very helpful to gardeners who use least toxic and organic gardening techniques. They generally affect only the target pest (and organisms closely related to the target), and decompose quickly. These substances are OMRI listed, that is, approved for use in commercial Certified Organic crop production. Remember that even with these products, it is important to read the product label.

Organic garden products—safe to use around pets, people, and the environment:



Actinovate Organic Fungicide is a relatively new product containing beneficial bacteria that suppresses a wide range of foliar diseases including powdery mildew, Botrytis, and Alternaria. It also works as a soil drench to suppress root decay

diseases such as *Pythium*, *Phytophthora*, *Fusarium*, *Rhizoctonia*, and *Verticillium*. The active ingredient, *Streptomyces lydicus*, colonizes and grows around the structure of the plant, forming a defensive barrier around it. It has also been shown to prey on certain pathogens.



Serenade Garden Disease Control is an organic product that controls fungal and bacterial diseases like powdery mildew, rust, bacterial leaf spot, and black spot, to name a few. The active ingredient, a strain of *Bacillus subtilis*, penetrates and destroys the disease pathogen.



Sluggo Plus, which contains Iron Phosphate plus Spinosad derived from a naturally occurring soil bacterium, kills slugs and snails, as well as other soil-dwellers like crickets, sowbugs, earwigs, and cutworms. It should not be applied more than 3 times in a 30-day period.



Bacillus thuringiensis (a.k.a. BT) is an effective organic treatment for all caterpillar pests, particularly those that enjoy eating Brassica family members like broccoli, cauliflower, and kale. Its active ingredient is a crystal protein that paralyzes the digestive system of the insect, causing it to stop feeding and starve after a few days.