Managing garden pests with biopesticides

When it comes to controlling pests in the garden, gardeners may find themselves asking themselves if they should use a natural or organic pesticide verses a synthetic pesticide. Biopesticides are derived from natural materials such as animals, plants, bacteria and certain minerals, and are used to help manage pests in the garden. They may contain the actual living organism or toxins produced by these organisms.

Generally, biopesticides are less toxic, more target specific and decompose faster following application when compared to conventional pesticides. All of these features contribute to the idea that application of biopesticides can result in less pollution compared to some of the conventional chemical pesticides.

Certain microbial pesticides target insect pests and are referred to as microbial insecticides. The best-known example is Bt or *Bacillus thuringiensis*. Other microbials are commonly used such as *Beauveria bassiana*, which is a common soil fungus used to control many species of beetle. A newer introduction is spinosad, a product derived from a soil-dwelling bacterium called *Saccharopolyspora spinosa.* It is used to control a variety of insect pests, including caterpillars, thrips, spider mites and beetle larvae. In general, microbial insecticides don't significantly affect beneficial insects like ladybugs, green lacewings, and predatory mites.

Gardeners may find microbial insecticides beneficial to control cabbage worm in broccoli and cabbage. There are three key species of cabbage worm, including the imported cabbage worm, the cabbage looper and the diamondback month, and they can regularly reach damaging populations.

The larvae of these species feed on the foliage and within developing heads of cole crops, causing significant damage and leaving characteristic large holes in the leaves. As gardeners work with their plants, look for clusters of eggs on the leaves. If you find any, squish them right away.

Several products with Bt, or *Bacillus thuringiensis* subspecies *kurstaki*, are registered for home use to treat cabbage worms. These are sprayed on the crop the same way conventional insecticides are applied. Insects must feed on Bt for it to work. After ingesting the insecticide, worms and caterpillars immediately stop feeding, though they may otherwise appear to be unaffected for several days. Apply Bt when worms or caterpillars are first noticed, then repeat every 5-7 days while active. Most formulations can be applied up until the day of harvest.

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