

Beneficial Nematodes



What are nematodes?

Nematodes belong to a group of simple animals called roundworms. Many nematodes are pests of plants and animals. However, a few species invade the body of insect pests and release a pathogenic bacterium which kills the pest. These beneficial nematodes are called entomopathogenic nematodes. They are very mobile in moist environments and actually seek out their hosts by following host generated chemical gradients.

The two most common beneficial nematodes are *Steinernema carpocapsae* (sold as Vector and Savior) and *Heterorhabditis bacteriophora* (Cruiser). Other species and strains within these genera have been reported and considerable research is being done to develop new strains and to improve the effectiveness of existing nematode products.

Why use beneficial nematodes?

These nematodes have a broad host range among soil inhabiting pests. However, the entomopathogenic nematodes infect only insects and related arthropods and are harmless to humans, other animal life and plants.

What pests do nematodes control?

Beneficial nematodes live in the soil, and therefore target insects which live in the soil, or dark, moist habitats. Among the pests controlled by nematodes are root weevils, wireworms, cutworms, and fungus gnat larvae. Black vine weevil larvae have been successfully controlled in container production with applications of *Steinernema* nematodes, but control in field situations has been less successful.

Applications of nematodes to trunks of dogwood infested with dogwood borer have been shown to be quite effective. Peach tree borer has been reported to be controlled by nematodes. Beneficial nematodes (*Heterorhabditis bacteriophora*) have also been shown to repress populations of common turf grubs including Japanese beetle grubs, although, results have been erratic.

How should entomophagus nematodes be applied?

1. Products containing beneficial nematodes are formulated to be used as sprays or soil drenches.
2. Warm temperatures and ample soil moisture are critical to the effectiveness of beneficial nematodes in controlling soil inhabiting pests.
3. Nematode products applied to turfgrass for control of white grubs **must** be watered in soon (within 15 to 20 minutes) after application.
4. Shelf life of nematode products is reduced by storage at high temperatures. Most products should not be used after the first year.

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