

Nematodes

Nematodes are roundworms of the Phylum Nematoda order. Most nematodes live in the soil in very large numbers and are best known as plant parasites that live in or on plant roots. However, studies are now revealing lesser-known, beneficial types of nematodes that help in pest control and the breakdown of organic matter. These are often referred to as free-living nematodes and can be found in moist soil around plants, especially around the roots of plants.

For gardening purposes, nematodes can be classified into two different types: destructive nematodes which destroy plants and beneficial nematodes which break down organic matter and feed on harmful insects.

Destructive nematodes are herbivores and were the first ones studied by colleges and agricultural experts because of their destructive nature. They push their needle-like mouthpart into the root system of plants where they feed at the root surface. Another species of plant-destroying nematodes actually enter into the root where they can live and feed.

Beneficial Nematodes

These are the nematodes that are most talked about in the organic realm. Even though most nematodes help with the break down of organic matter, the beneficial nematodes actually feed on insects that have at least one life cycle in the soil. Beneficial nematodes are not as common as the others but can be economically introduced into most soils as a form of biological control of soil-dwelling pest insects.

Beneficial nematodes are microscopic, non-segmented worms that attack soil-dwelling insects without harming plants. They enter the bodies of their host mainly through cavities and sometimes through the body wall where they reproduce, leaving their offspring to destroy the host. They can sense temperature changes caused by soil-living insects and move toward them. Gases emitted from these insects also attract beneficial nematodes in their direction. Beneficial nematodes are very effective against fleas, ants, termites, roaches, flies and grubs, some of the most damaging or pesky critters in the residential garden.

When I was reading up for this article I found that the EPA considers beneficial nematodes to be so safe that they waived the application requirements. We have had customers ask if beneficial nematodes are harmful to humans, pets and earthworms and the answer to that is: **“NO!”**

Insects Attacked by Beneficial Nematodes

Algae gnats	Apple leaf roller	Army worms	Banded cucumber beetle
Bark beetle	Bean leaf roller	Bess beetle	Billbugs
Black fly	Boll weevil	Borers	Cabbage looper
Cabbage worm	Cane weevil	Carpenter moth	Cockroach
Click beetle	Codling moth	Colorado potato beetle	Corn earworms
Corn root weevil	Cutworms	Earwig	European corn borer
Fall army worm	Field cricket	Flea beetle	Fleas
Fruit fly	Grasshoppers	Gypsy moth	Horn worm
House fly maggots	Imported fire ant	Iris borer	Japanese beetle
June beetle	Leaf beetle	Leaf miner	Leather jackets
Leather skeletonizer	Meal worm	Meal moth	Measuring worm
Melon worm	Mexican bean beetle	Mormon cricket	Onion borer
Oriental fruit moth	Pear aphids	Pear weevil	Pine beetle
Red bugs	Rice weevil	Round headed borers	Sawflies
Scarab beetle	Seed corn maggot	Sod webworm	Southern pine beetle
Southern root worm	Sow bugs	Spruce budworm	Squash bugs
Sting bugs	Strawberry root weevil	Termites	Thrip
Tobacco budworm	Tobacco hornworm	Webworms	White fringed beetle
White grubs	Winter moth	Wireworm	Wood borers
Yellow fever mosquito			

Application Instructions

The main thing that you need to know about applying beneficial nematodes is that they want moisture. That is why I am making such a big deal now, with this article. The soil is cooler and we should be getting more rain, so a lot of insects are going to go into the soil now to hibernate and become easy prey.

Here in Dallas I recommend releasing beneficial nematodes at dusk. I apply them with a watering can. By doing so, I do not mess around with separating the vermiculite from the actual nematodes. Since you need to let the beneficial nematodes soak in water for thirty minutes, I use distilled or dechlorinated water to assure their survival. Periodically swirl the water so that the nematodes do not settle on the bottom of the watering can.

If you want to use a pump sprayer, pour the entire contents of the package into water and break up the carrier so that the particles are evenly separated. Sift out the carrier and try to distribute this matter around the soil. Then start to spray the remaining solution over the area to be treated. Again, periodically mix the solution to keep the nematodes from settling on the bottom. Because these are live creatures and will disperse in search of food, I do not think that you have to cover every square foot, so do not worry about even distribution. BUT, you must keep the soil moist to keep the nematodes alive, especially during the first two to three weeks.