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5 Things You Didn't Know About Beneficial Nematodes

Nematodes are the most numerous animal on earth, and they can help your crops.

By **Julie Graesch**
August 2009

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Are nematodes insects? Do they attack people or pets? Actually, beneficial nematodes (also known as entomopathogenic nematodes or insect-parasitic nematodes) are safe for plants and animals. These ubiquitous creatures have a unique mission: to kill insect pests that feed on plants above and below the ground. Application of live nematodes can improve insect control as part of an integrated pest management program.



Nematodes are very tiny worms that are the most numerous multicellular animal on the planet.

Here are five things you may not have known about beneficial nematodes:

1. Nematodes are the most numerous multicellular animals on earth!
These nematodes are simple roundworms that are colorless, unsegmented, lack appendages, and very small. Nematodes in the genera *Steinernema* and *Heterorhabditis* are some of the best-studied examples and have been used commercially for several years. Applications of nematodes vary with each species and each pest but can be put through any number of water sprayers or sprinklers. Because nematodes are live organisms, they require specific conditions to be effective.

2. They do their thing in a totally bizarre way.
They don't kill by eating enemy bugs. They actually enter the insect through natural body openings or through the exoskeleton and then release a bacterium that kills the insect in 24 to 48 hours. After this, the infective juveniles develop into adult males and females (or hermaphrodites) and reproduce within the dead insect. Once the food supply of the dead host is consumed, new infective juveniles are produced and released in search of the next insect victim.

3. No federal registration is required for beneficial nematodes.

They are safe around plants, people, and pets. Because they are classified as macro-organisms instead of micro-organisms (like bacteria or live virus), no regulatory warnings or restrictions are imposed upon their use. According to the Colorado State University Extension, "Insect parasitic nematodes have been exempted from federal and many state registration requirements (Vol. 47, Fed. Reg. 23928, 1982), greatly facilitating their development and distribution for insect control. This means that insect parasitic nematodes, like predatory and parasitic insects, can legally be used on all crops without restriction."

Seek And Destroy

Some nematodes are characterized as "cruisers." They roam around and actively seek out insects that don't move much, like white grubs. Others behave like "ambushers." They stay sedentary and wait for active insects like cutworms or mole crickets to crawl by them. Then, pow! The nematode attaches to the host insect to initiate its mission of destruction.

4. Pests don't develop resistance to nematodes.
Repeated use of beneficial nematodes has not produced resistance among targeted insects. That makes them an enduring and truly integrated solution for pest control. Beneficial nematodes are versatile in that they are effective against many species of insects and can protect many varieties of commercial crops and



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plants.

5. New ways of applying nematodes are in development.

Researchers are experimenting with low-pressure irrigation, "dipping" plant pots in a solution populated with nematodes, and other delivery systems. Commercial growers are actively working to discover new ways to utilize low-pressure drip irrigation systems for effective application of nematodes while maintaining critical water-management objectives.

Sources:

- *Becker Underwood*
- *Integrated Pest Management, University of Connecticut Horticulture Program*
- *Penn State University, Department of Entomology*

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