

Beneficial Species Profile



Image: *Heterorhabditis bacteriophora* (Nematoda: Heterorhabditidae)

Photo credit: [Jonathan D. Eisenback](#), Virginia Institute and State University, Bugwood.org

Common Name: Nematodes

Scientific Name: *Steinernema* spp. and *Heterorhabditis* spp. (Mermithids also prey on insects, but since they are not as commonly used in biological control and are quite different biologically and ecologically from *S.* and *H.* spp., they are not included in this profile.)

Order and Family: Rhabditida: Steinernematidae and Heterorhabditidae (Phylum Nematoda)

Size and Appearance:

	Length (mm)	Appearance
Egg	Microscopic	
Juvenile	Microscopic	Transparent
Infective Juvenile	<1 mm/microscopic	Tapered, roundworm-like, colorless.
Adult	up to 4 mm, but typically <1 mm and microscopic	Tapered, roundworm-like, colorless.

Type of feeder (Chewing, sucking, etc.): Feeds on symbiotic bacteria that feed on the insect.

Hosts: Nematodes control a wide variety of insects, predominately soil-dwelling pests or insects in cryptic habitats, including fungus gnats, leafminers, mole crickets, weevils, cutworms, etc. Different species of nematodes control different pest species.

Description of Benefits (predator, parasitoid, pollinator, etc.): Infective juveniles (IJs) in the families Steinernematidae and Heterorhabditidae harbor symbiotic bacteria (*Xenorhabdus* spp. and *Photorhabdus* spp., respectively), which produce a toxin that kills hosts typically in less than 48 hours, which is less time than a nematode would kill by parasitization alone. The bacteria use the insect cadaver for nutrients, and the nematodes feed on the bacteria. Nematodes either actively search out hosts (cruising), or may ambush their hosts.

References:

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