

Awl Nematodes, *Dolichodoros* spp. Cobb, 1914 (Nematoda: Secernentea: Tylenchida: Tylenchina: Dolichodoridae: Dolichodorinae)¹

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Introduction and Distribution

Awl nematodes were first described in 1914 from specimens collected at Silver Springs, Florida, and Douglas Lake, Michigan. Species of *Dolichodoros* are found worldwide, but two species, *D. heterocephalus* and *D. miradvulvus*, are the most common in Florida. Usually, awl nematodes are found in moist to wet soil, low areas of fields, and near irrigation ditches and other bodies of fresh water. Because these nematodes prefer moist to wet soils they rarely occur in agricultural fields and are not as well studied as many other plant-parasitic nematodes.

Importance

Awl nematodes can cause damage as severe as that caused by the sting nematode (*Belonolaimus longicaudatus*), but because they are generally limited to moist habitats this damage is not as widespread. Awl nematodes have been shown to cause root stunting or reduced yields in many crops including carrots, celery, corn, cotton, beans, cabbage, lettuce, pepper, potato, spearmint and tomato. In addition they are known to cause damage

to some ornamental plants such as impatiens, aquarium plants and turfgrasses.

Life Cycle and Biology

Adult awl nematodes range in length from about 1.5 mm to 3 mm, making them one of the largest plant-parasitic nematodes. Both sexes are present throughout the life cycle. Eggs hatch after 14 to 17 days. Adults and all juvenile stages feed on roots, sometimes remaining in one spot for up to a week. Awl nematodes can survive in a fallowed greenhouse pot for up to three months.

An ectoparasite, awl nematode feeds on small or large roots, root tips and the hypocotyl. Twelve hours after inoculation, it feeds near the root tip. The cells there become brownish-yellow after several days, and brown lesions form. The result is tissue disorganization, root curvature and dead or dying root tips.

1. This document is EENY-241, one of a series of Featured Creatures from the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Published: September 2001. Reviewed: March 2011. This document is also available on Featured Creatures website at <http://creatures.ifas.ufl.edu>. Please visit the EDIS website at <http://edis.ifas.ufl.edu>.

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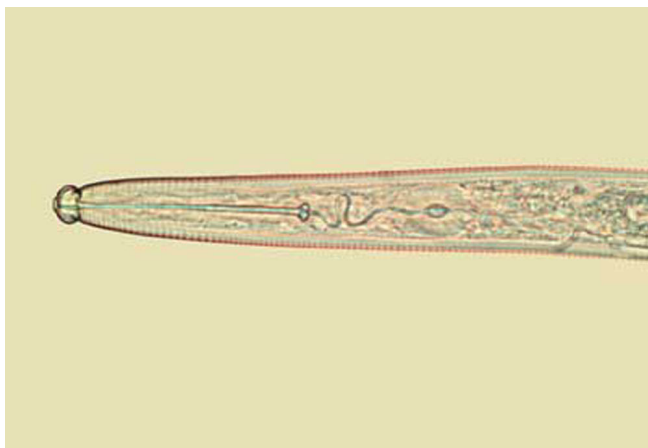


Figure 1. The head of an awl nematode in the genus *Dolichodoros*. Credits: Jon Eisenback, Virginia Polytechnic Institute and State University

Symptoms

The damage caused by awl nematodes leads to severe stunting of the entire plant because of depletion of the root system. The roots are often coarse with stubby tips. The few secondary roots that remain are stubby as well.



Figure 2. Awl nematodes (*Dolichodoros* spp.) cause severe stunting, which can be seen in the celery plant on the right. The plant on the left is unaffected. Credits: Division of Plant Industry

Hosts

Hosts include anubius, balsam, bean, Bermudagrass, cabbage, carnation, celery, centipedegrass, corn, cotton, cranberry, hydrilla, impatiens, St. Augustinegrass, sugarcane, tomato, palms, pepper, potato and water chestnut.

Management

Often awl nematodes are an indicator of excess soil moisture. In some cases improving drainage or reducing irrigation may reduce or eliminate problems with this nematode. Using soil dredged from ditches, ponds or other water sources to top-dress agricultural fields or to make planting beds may be a source of contamination with awl nematodes. When awl nematodes are present in high numbers this practice should be avoided.

For the most current recommendations for nematode management on a particular crop see the Nematode Management Guide.

Selected References

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