Trade Show Presentation:

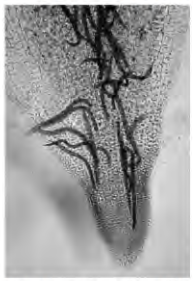
Important Plant-Parasitic Nematodes in California turf grasses

J. Ole Becker and Jennifer Smith Becker
Dept. Nematology
University of California, Riverside, CA 92521

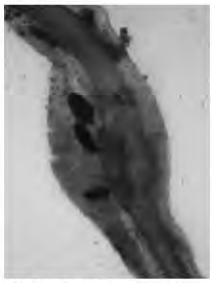
Plant-parasitic nematodes are often severe pathogens in many crops, including turf grasses. In California, only a few species constitute a significant damage threat for golf courses and sports areas. Although many nematode species feed on grassroots, an otherwise healthy lawn can tolerate most ecto- and endoparasitic nematodes. The following illustrates noted exceptions.

Root-knot nematodes (*Meloidogyne* spp.)

Several species of these endoparasitic nematodes can parasitize and reproduce well on turf grasses. In contrast to many other host plants, *Meloidogyne*-induced root galls are very small on grasses. The galls are often invaded by soil microorganisms that accelerate root decomposition.



2nd stage juveniles (J2) invading a root tip



J3 feeding on giant cells surrounded by vascular tissue.

A root with a female root-knot nematode and its eggs

Galled turf grass roots, discolored in response to the invasion of various soilborne microbes.

Sting nematode (*Belonolaimus longicaudatus*)

These invasive ectoparasites are aggressive root feeders on many crops. They require moist, sandy, and warm (> 70˚F) soils. Their long mouth stylet can damage the growing zone in roots. Since their discovery in Coachella Valley golf courses in 1992, regulatory restrictions, as well as research and extension activities by UCR Nematologists, have prevented further spread.

Foliar symptoms caused by root feeding activity of Sting nematodes

Sting nematodes feeding on a root tip

A Sting nematode parasitized by *Catenaria* sp.

Bacterial hyperparasites *Pasteuria usgae* on a Sting nematode.

Pacific shoot gall nematode (*Anguina pacificae*)

These nematodes cause galls at the stem base of annual bluegrass (*Poa annua*). The disease stunts the shoots, leads to branching, with Poa greens becoming sparse and pitted. Cool temperatures with high humidity allow juveniles to reach young shoot tips for infection. These environmental conditions limit the distribution of *A. pacificae* to northern coastal California.

Anguina pacificae with egg

Poa annua shoots with nematode-induced galls.

Juvenile stages of *A. pacificae* exiting a decomposing shoot gall.

A. pacificae-infested *P. annua* green; right, fluopyram treated.

Acknowledgements: The research and extension activities associated with this poster were supported in part by the University of California Agriculture & Natural Resources, UC Riverside's College of Natural and Agricultural Sciences, and UCR's Department of Nematology.