

the effect of most nematicides is only temporary; nematode populations are never eliminated completely with a single nematicide application. Since nematode eggs are resistant to nematicide treatments, it is important that nematicides be applied after egg hatch. Application of nematicides to soils where the temperatures exceed 60 F ensures that most nematode species are in the adult or larval stages when they are most susceptible to the nematicide. It should be recognized, however, that nematode species vary considerably in their sensitivity to various nematicides. You should consult with your nearest turfgrass pathologist or nematologist for help in selecting the most appropriate nematicide.

Other critical factors determining the efficacy of nematicides are soil properties such as soil texture and organic matter content. In general, nematicides are most effective in sandy soils low in organic matter and least effective in heavy soils rich in organic matter. Fortunately, nematicides are most effective in those soils where nematodes are generally more damaging.

Because nematicides must reach the root zone to be effective, it is best to apply them immediately after performing cultivation practices, such as core aeration and vertical mowing, that facilitate their movement into the soil. It is also best if the soil is reasonably moist prior to the application of the nematicide. Immediately after application and before it has a chance to dry on turfgrass foliage, the nematicide should be watered-in.

Watering and fertility practices are critical to the recovery of turfgrasses damaged by nematodes. It is important to maintain conditions that allow turfgrass roots to regenerate and to proliferate. This means improving the physical, chemical, and biological conditions in the soil and maintaining proper pest control practices. It is important that these cultural practices be implemented concurrently with the nematicide application to prevent nematode populations from returning to pre-nematicide levels.

Without attention to these management factors, control with nematicides will likely be unsatisfactory.

In Conclusion

It is hopefully quite apparent that plant parasitic nematodes are important turfgrass pests. They can be equally damaging on both cool-season and warm-season grasses, yet the damage inflicted by nematodes is easily confused with damage from other turfgrass pests. Examining root systems provides the best confirmation of nematode damage. When nematode damage is suspected, accurate identification and population counts are important in determining management actions. Although few nematicides are available for the control of turfgrass-damaging nematodes, a variety of cultural practices and varietal selections are available for nematode management. While much remains to be learned about nematodes and nematode control in turfgrass ecosystems, current research efforts are underway to address a number of the important problems associated with nematode detection and control.

Terms to Know

Actinomycetes - any of various aerobic or anaerobic bacteria of the family Actinomycetaceae, some of which are pathogenic for men and animals

Collembola - the scientific name for springtails

Endoparasitic - a parasite which lives inside the body of its host

Exoparasitic - a parasite which lives outside the body of its host

Migratory - moving from place to place
Sedentary - remaining in the same place or region, not migratory

Saprophytic - living on dead or decaying matter