Cornell University
Department of Plant Pathology
and Plant-Microbe Biology

Plant Disease
Diagnostic Clinic

Turfgrass Nematodes

Various

Introduction

Living in the cold, Northeastern U. S., we are fortunate to have less plant parasitic nematode problems than those living further south. There are approximately twelve different species of plant parasitic nematodes that cause problems on various turfgrass species. Plant parasitic nematodes cause major problems on warm season grasses. Cool season grasses can also have substantial decline and damage symptoms. Nematode feeding can open sites for other pathogens which can cause more severe damage.

Symptoms and Signs

Above ground symptoms of nematode damage include chlorosis, wilting, and reduced growth. Symptoms are often found in a random patchy pattern that become more apparent when the turf is stressed by high temperatures, a lack of moisture or poor soil fertility. Below ground, symptoms may include galled roots, the presence of cyst bodies, and/or poor, declining , discolored root systems. Feeding sites are ideal locations for entry of fungal plant pathogens and diseases caused by these organisms are often found in conjunction with high nematode populations. Laboratory soil sample analysis is the only way to detect the kinds of nematodes associated with a problem and may be necessary to identify the most effective control measures.

Disease Cycle

Nematodes are microscopic, worm-like, animals with lifecycles that include one egg stage, four juvenile stages, and one adult stage. Nematodes overwinter in the egg phase, within the dead females body, or in plant material. As the weather warms in the spring, the nematodes become active and begin feeding. Some female species become enlarged when mature and either produce eggs out the hind end of the female or the female body houses the eggs.

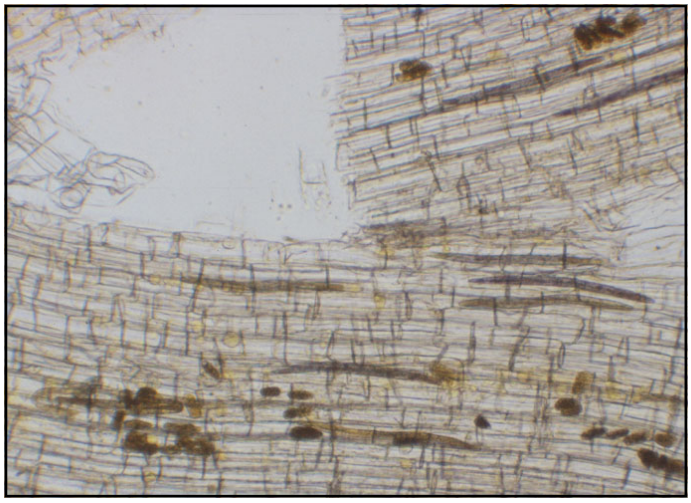

Figure 1: Nematodes within root tissue.

Management Strategies

There are no known resistant varieties of turfgrass. The best control method is keeping the plants as healthy as possible by fertilization and reducing stressful situations. Although fumigants may be available for some sites, these products are typically highly toxic and must be applied by professionals. Careful consideration should be made prior to making a decision to use one of these products as these toxic materials can be harmful to other beneficial organisms of the turf ecosystem.

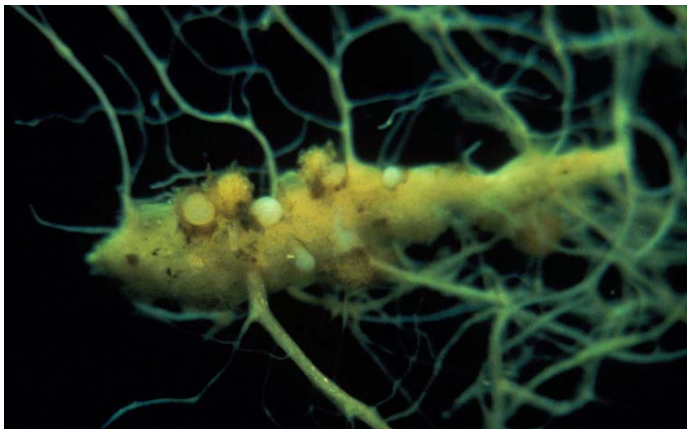

Figure 2: small white globular objects sticking out of this root are female root knot nematodes.

Commercial applicators should refer to the appropriate pest management guidelines, or contact their local Cooperative Extension Office for more information on currently registered products.

Reference:

Compendium of Turfgrass Diseases, Third Edition, 2005. R.W. Smiley, P.H. Dernoeden and B.B. Clarke. APS Press.

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