

Integrated Pest Management of Plant-Parasitic Sting Nematodes on Bermudagrass

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Objectives:

1. Determine if one or more biopesticide programs can be used to replace or reduce reliance on 1,3-dichloropropene.
2. To verify if sting-nematode resistant/tolerant bermudagrass genotypes identified in greenhouse screening are more resistant/tolerant in the field than 'Tifway'.
3. To determine if the above genotypes require less frequent nematicide use than 'Tifway'.
4. To determine if a biopesticide program combined with use of resistant/tolerant bermudagrass genotype is sufficient to manage sting nematodes without the use of a conventional nematicide.

Start Date: 2011

Project Duration: 3 years

Total Funding: \$60,000

The majority of golf courses in Florida experience damage from plant-parasitic nematodes. With limited nematicides available and 87% of golf courses in Florida at risk for nematode related damage, the superintendents need enhanced options for effective management. Options to be investigated by this research as components of an IPM plan for sting nematode management include the use of several biopesticides and tolerant or resistant bermudagrass genotypes.

Comparisons will be made with the conventional nematicide (Curfew; 1,3-dichloropropene) and to a conventional bermudagrass cultivar ('Tifway'). Earlier USGA- and Florida Turfgrass Association-funded experiments identified two types of tolerance to sting nematode in bermudagrass: 1) Cultivars that do not suffer as much root loss from sting nematode as standard cultivars, and 2) cultivars that, due to having exceptionally vigorous root growth, can have an adequate root system despite suffering significant root loss.

Also, University of Florida research has identified three new nemati-



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cide/bionematicide products available in 2012 (Nortica, Multiguard Protect, and MustGro Invest) that have shown some degree of efficacy against sting nematode. This research will combine use of tolerant cultivars with new nematode management tactics to develop IPM strategies for management of sting nematode.

The experimental design is split-plot with 5 replications. Whole plots are grass cultivars and the sub-plots are nematode treatments. Five different bermudagrasses will be planted in the field, including a standard susceptible cultivar ('Tifway') and a commercial cultivar and experimental accession each exhibiting one of the two types of tolerance. The first

type of tolerance is exhibited by 'TifSport' and PI 291590, the second by 'Celebration' and BA 132.

The nematode treatments will be 1) untreated control; 2) Curfew applied annually in May or June; 3) maximum calendar-based alternative nematicide program including Nortica in February, MustGro Invest in April, and three sequential Multiguard Protect treatments starting in May; and 4) monitoring-based program where the three new nematicides will be used as needed based on nematode populations.

In August 2011 we assigned this project to a new Ph.D. student, Sudarshan Aryal. He grew nematode-free sprigs of each of the five grasses for planting in the field. While the sprigs were rooting, a sting nematode infested field at the University of Florida Agronomy Breeding facility in Hague, FL was identified and prepped for planting. All the grasses were planted in the field in fall 2011. The nematode treatments will begin in spring of 2012.

Summary Points

- To date there are no results to report other than 'Tifway' having the least vigorous growth among the different grasses planted.



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