

Integrated Pest Management of Plant-Parasitic Sting Nematodes on Bermudagrass



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Objectives:

1. Determine if one or more IPM programs can be used to replace or reduce reliance on conventional nematicides.
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.

Use of bermudagrass cultivars resistant or tolerant to sting nematode is essential for sustainable turf management in sandy coastal soils of the southeastern United States. Identification and development of tolerant bermudagrass cultivars and development of new IPM programs for plant-parasitic nematodes on golf courses in Florida are possible. A multi-year field experiment including five bermudagrass genotypes and four different nematicide regimes in a split-plot design with five replications was initiated in fall, 2011. The five bermudagrass genotypes evaluated were the standard cultivar Tifway, two commercial cultivars ('TifSport' and 'Celebration') that were identified as tolerant to sting nematode, and BA 132 and PI 291590, which are experimental germplasm identified as tolerant to sting nematode.

Turf establishment was measured by digital image analysis to determine the percent of each plot covered by green turf every two weeks during the bermudagrass growing season. Turf establishment data from the first year are presented herein. Analysis of variance and comparison of means using Duncan's multiple range tests indicated differences in establishment rate among genotypes. In July, 2012, turf establishment was greatest for BA 132 and Celebration (81% and 78% establishment, respectively) and lowest for TifSport and Tifway (45% and 59% establishment, respectively). Work is ongoing to follow these trends and to determine long-term performance of these germplasm entries in this site

Figure 1. Bermudagrass cultivars resistant to sting nematode are being evaluated along two commercial cultivars 'TifSport' and 'Celebration'.



under heavy nematode pressure. Nematicide regimes being studied are: 1) No nematicide, 2) Annual application of Curfew Soil Fumigant (standard nematicide practice), 3) Calendar based IPM program including rotations of Nortica, MustGro Invest, and Multiguard Protect, and 4) Monitoring-based IPM where Nortica, MustGro Invest, or Multiguard Protect are applied as-needed based on turf health and nematode population. So far in 2012, turf health was improved slightly by either IPM program compared with the untreated control.

