

Bermudagrass and Seashore Paspalum Cultivar Response to the Sting Nematode

Wenjing Pang, William T. (Billy) Crow, and Kevin E. Kenworthy
University of Florida

Objectives:

1. Determine the range of response (resistance or tolerance) of bermudagrass and seashore paspalum cultivars to the sting nematode and identify the best performing cultivars.
2. Investigate if a proposed alternative method for assessing sting nematode response is as effective, or more efficient, than traditional methods.

Start Date: 2008

Project Duration: three years

Total Funding: \$31,407

Recent cancellation of fenamiphos (Nemacur, Bayer CropScience) has resulted in the need of better nematode management tactics. Currently, Curfew Soil Fumigant (Dow Agrosciences) is the most effective management for sting nematodes. However, Curfew provides only short-term control, is expensive, and environmental restrictions highlight the need for alternative options. Utilization of resistant or tolerant cultivars is the most efficient, least costly practice for nematode management on turf.

Separate glasshouse and field experiments for bermudagrass and seashore paspalum are being conducted to assess the range of these species for response to sting nematode. Seventeen cultivars of bermudagrass and seven cultivars of seashore paspalum were tested in separate greenhouse experiments. Six weeks after turfgrass establishment, grasses were inoculated with *B. longicaudatus* at 50 nematodes per container. Experiments were harvested 90 days after inoculation. Percent reduction in the root length of inoculated plants compared with the uninoculated control was calculated.

For all cultivars, the inoculated treatments led to reductions in total root length compared with the uninoculated controls, which ranged from 5 to 36%. Maximum reduction of 36% was found for 'Floradwarf' while the minimum reduction of 5% was observed on 'TifSport'. 'TifSport' and 'Patriot' suffered little root damage with the root length percent reduction less than 10% and exhibited resistance. 'Patriot' exhibits tolerance (little root damage with an increase in nematodes). On the other hand, maximum root damage (more than 30% root length reduction) occurred for 'Floradwarf', 'Champion',



In 2009, 13 cultivars of bermudagrass and seven cultivars of seashore paspalum were planted. There was no difference in sting nematode population among these plots either in April or July.

'TifEagle', 'MiniVerde', and 'Tifton 10', identifying them as susceptible cultivars.

Sting nematodes reduced the root length of all seashore paspalum cultivars from 12 to 27% compared with the uninoculated treatments. Root length reduction was less than 15% on 'SeaDwarf' and 'SeaIsle Supreme'. However, sting nematode population was increased four-fold on these two cultivars. 'SeaSpray' and 'Aloha' were the most susceptible out of the seven cultivars tested.

In 2008, two field plot experiments were conducted. Nematode population in each plot was assayed before planting of grasses on the same day. Soil samples were collected every 90 days after planting. Data in March and June both indicated that cultivars 'Champion', 'Floradwarf', 'Tifgreen', 'MiniVerde', and 'TifEagle' were the most susceptible cultivars, and 'TifSport' was the most resistant cultivar.

For seashore paspalum, no difference in the sting nematode population was observed among the three cultivars 'SeaIsle 1', 'Aloha', and 'SeaDwarf' in March; however, population on 'SeaIsle 1' was higher than that on 'SeaDwarf' in June.

Both field and greenhouse studies indicated that 'TifSport' was the most resistant bermudagrass cultivar while 'Champion', 'Floradwarf', 'MiniVerde', and 'TifEagle' were susceptible cultivars. Also it showed a trend that greens-type bermudagrass cultivars support higher population of *B. longicaudatus* than those cultivars used on fairways.

In 2009, 13 cultivars of bermudagrass and seven cultivars of seashore paspalum were planted. Nematode populations in each plot were assayed before planting of grasses on the same day. Soil samples were collected every 90 days after planting. There was no difference in sting nematode population among these plots either in April or July.

Summary Points

- In the greenhouse, sting nematodes reduced the root length of all bermudagrass cultivars, and the reduction ranged from 5 to 36%. The most tolerant bermudagrass cultivars were 'TifSport' and 'Patriot'.
- 'TifSport' was the most resistant bermudagrass cultivar while 'Champion', 'Floradwarf', 'MiniVerde', and 'TifEagle' were susceptible bermudagrass cultivars to sting nematodes both under greenhouse and field conditions.
- Both greenhouse and field studies indicated that greens-type bermudagrass cultivars supported higher populations of *B. longicaudatus* than those cultivars used on fairways.
- Sting nematodes reduced the root length of seashore paspalum cultivars from 12 to 27% in the greenhouse; however, the reduction was not different among cultivars.
- Sting nematode populations at harvest increased on all seashore paspalum cultivars under greenhouse conditions. However, 'SeaDwarf' and 'SeaIsle Supreme' exhibited best levels of tolerance among cultivars tested.