

Insect and Mite Resistance in Zoysiagrass for Urban Landscapes

Background

Turfgrasses are a dominant feature in the Urban Landscapes across the United States. The lawn care industry has relied extensively on pesticides for control of insect and mite pests. This 'quick fix' has suppressed development of alternate control strategies like host-resistant grass cultivars, and has led to the development of resistance to many pesticides as these insects and mites were continually exposed and developed the capacity to tolerate these toxicants.

Development of pest resistant turf cultivars has been widely neglected, compared to the emphasis on aesthetic traits. Host resistant turfgrass cultivars can be used successfully as a primary control for the insect and mite pests. Cavalier Zoysiagrass was released with multiple pest resistance by the Texas Agricultural Experiment Station and is being used in lawns and sports fields throughout the southern U.S.

Cooperative work between Turfgrass Breeders, Entomologists and Plant Pathologists is needed to develop new turf cultivars that are relatively pest free to meet the environmental quality and safety demands of the future.

Objectives

Identify and develop Zoysiagrass cultivars for use in the urban landscapes that are either tolerant or resistant to the key pests of this grass.

Multiple pest resistance has been identified in several cultivars of Zoysiagrass. Cavalier for example has resistance to fall armyworm, tropical sod webworm, tawny mole cricket, hunting billbug and differential grasshopper while Meyer is susceptible to each pest.

Benefits

- Host plant resistance to insect or mite pests is an economical and environmentally sound strategy for pest management in turfgrass culture.
- A resistant turfgrass cultivar will require less frequent monitoring for pests to maintain a good appearance.
- Less frequent applications and far less pesticide for control will be required to maintain a lawn and other aesthetic turf settings.
- The insects that do survive a resistant turfgrass are often smaller and available over a longer period of time making them more vulnerable to parasitoids.
- With less pesticides required to control the insect and mite pests, there will be far less opportunity for pesticide runoff to contaminate our lakes, streams and other impounded water.

Researcher

James Reinert, Ph.D.
Professor of Entomology