

SOUTHERN CHINCH BUG PROGRAM

SCIENTIFIC JOURNAL FOR TURFGRASS DISEASES

The Southern Chinch bug, *Blissus insularis* Barber, was brought under excellent control when 'Floritam' St. Augustinegrass was released in 1973 and deployed throughout the southern United States. This grass exhibited a high level of antibiosis (the grass actually killed the insects, instead of the norm where the insects kill the grass). Unfortunately, this resistance was lost as early as 1985 in Florida and now in Texas as early as 2005 with the discovery of the new virulent strain of Texas VTUSCB-2005 biotype. The turf maintenance industry has also gone through insecticide after insecticide to control this pest, and the Southern Chinch Bug has continued to evolve and develop resistance as new chemistry is developed and labeled to control it.

The Southern Chinch Bug is the most destructive pest of St. Augustinegrass throughout its area of adaptation from the East Coast to West Coast across the southern United States and it is a pest wherever the grass is grown from Bermuda to Hawaii and throughout the Caribbean Islands and South America. In many residential and commercial landscapes and sod production fields, it is the single most important limiting stress to St. Augustinegrass turf and has been responsible for a loss-of-stand and a need to re-establish with new sod.

St Augustine grass is the preferred host, although this chinch bug will also feed on several other grasses including bermuda-grass and zoysiagrass. As chinch bugs feed, they suck the plant juices and inject a toxin into the plant which causes the grass to turn yellowish, then brown and the plant dies. If left uncontrolled, an entire lawn or very large patches in a sod field will be destroyed. During the summer and early fall, when populations peak, the bugs will march from lawn to lawn, killing the St Augustinegrass from one end of the city block to the next.

In 1973, Floritam St. Augustinegrass was developed jointly by the Florida Agricultural Experiment Station and the Texas Agricultural Experiment Station (Horn et al., 1973). As a result, Floritam was widely planted throughout the Southeast and across to Texas. Floritam is also resistant to the St. Augustinegrass virus (SAD) (Reinert, et al., 1980) and it exhibits a high level of drought tolerance,

but its weakness was its sensitivity to cold temperatures in the northern parts of the St. Augustinegrass range of adaptability.

The chinch bug resistance lasted until 1985 when populations of Southern Chinch Bug in central and southern Florida were reported killing strands of Floritam in both sod productions and in landscapes.

Since the breakdown of the Floritam resistance, researchers in Florida and more recently the St Augustine grass Breeding program at Texas A & M-Dallas have been searching for a good replacement grass with resistance to the Southern Chinch Bugs. 'FX-10' was developed and released in Florida by Busy (1993). This grass is highly resistant to chinch bugs in Florida and kills >90% of the bugs within two weeks. Also NUF-76, a diploid breeding line of St Augustinegrass was identified with good resistance to the Floritam, FX-10 and the other resistant lines that have been identified were all polyploid.

Recent studies in Texas show that several populations of Southern Chinch Bugs from the Bay City-Wharton area (the heart of the St. Augustinegrass production in Texas) are not affected by the resistance factors in either Floritam or FX-10 since these grasses kill only 15% and 16% respectively, of the confined adult chinch bugs within 7 days of confined feeding. After sampling and evaluating additional populations collected from several different locations, this new biotype of virulent chinch bugs in Texas (VTSCB-2005) does not respond to the resistance in either Floritam or in FX-10. In these laboratory experiments, only 20% or less of the confined adults was killed within a 7-day feeding period. Most of the commercial cultivars have been evaluated with this Texas VTSCB-2005 biotype and none of them provide more than 20% mortality of the confined insects.

To make the situation even worse, the new NUF-76 St Augustinegrass that is being developed in Florida also has very little potential against the Texas VTSCB-2005 biotype of 'Super Bugs', even though this grass exhibits a high level of antibiosis against the Florida strains of the Southern Chinch Bug in Florida Tests (Nagara and Cherry, 2003).

In evaluations with adult chinch bugs from Texas, NUF-76 killed only an average of 16% (range from 5-32%) of the Texas VTSCB-2005 biotype.

RECOMMENDATION

For treatment of Chinch Bug: Apply 16 ounces of Cedar Gard to 5,000 square feet of turf and let rain or sprinkler irrigation carry the product to a depth of one inch.

Acknowledgements:

This research is partially supported by grants from the International Turf Producers Foundation, the Texas Turfgrass Research, Education and Extension Endowment and by the Texas Agricultural Experiment Station.

References Cited:

- Busey, P. 1993. Registration of FX-10 St. Augustinegrass. *Crop Sci.* 33: 214-215.
- Busey, P. and Center, B.J. 1987. Southern chinch bug (Hemiptera: Heteroptera: Lygaeidae) overcomes resistance in St. Augustinegrass. *J. Econ. Entomol.* 80: 608-611.
- Cherry, R. H. and R. T. Magara. 1997. Ovipositional preference and survival of southern chinch bugs (*Blissus insularis* Barber) on different grasses. *Int. Turfgrass Soc. Res. J.* 8: 981-986.
- Horn, G.C., Dudeck, A. E. and Tolar, R. W. 1973. 'Floritam' St. Augustinegrass: A fast growing new variety for ornamental turf resistant to St. Augustine decline and chinch bug, Florida Agric. Exp. Stn. Circ. S-224. 13p.
- Nagara, R. and Cherry, R. 2003. New source of southern chinch bug (Hemiptera: Lygaeidae) resistance in a diploid selection of St. Augustinegrass. *J. Entomol. Sci.* 38: 654-659.
- Reinert, J. A. 1978. Antibiosis to the southern chinch bug by St. Augustinegrass accessions. *J. Econ. Entomol.* 71:21-24.
- Reinert, J. A., Bruton, B. D. and Toler, R. W. 1980. Resistance of St. Augustinegrass to southern chinch bug and St Augustine decline strain of Panicum mosaic virus. *J. Econ. Entomol.* 73:602-604



Natural

Resources

Group, Inc.
34284-B Road 196
Woodlake, CA 93286
559.564.1236
559.564.1238 Fax
natresgrp@aol.com
www.callnrg.com