

Multi-location Evaluation of New St. Augustinegrass Hybrids

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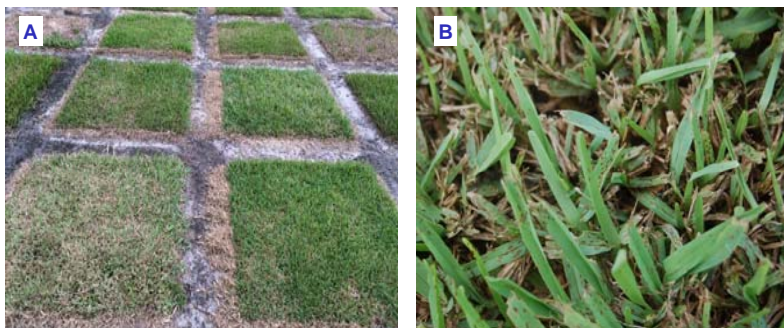
Background/ Rationale

St. Augustinegrass [*Stenotaphrum secundatum* (Walt.) Kuntze] is the dominant turfgrass in Florida, and the predominant cultivar is 'Floritam', jointly releases in 1973 from the University of Florida and Texas A&M University. Turf quality and persistence of St. Augustinegrass can be limited by several pests including the Southern chinch bug (*Blissus insularis* Barber) and grey leaf spot (GLS) caused by the fungus *Pyricularia grisea*. Thus, selection of new genotypes with broad biotic and abiotic stress resistance continues to be a major goal of turfgrass breeding programs throughout the SE USA. Cooperative evaluations of new breeding lines at multiple locations can identify different traits that are important for broad adaptation of new cultivars. Variability in ploidy levels in St. Augustinegrass has been related to pest resistance and winter survival, with resistance to Southern chinch bug identified in both diploid and polyploid germplasm.

Methodology

In July of 2014 a multi-location small plot turfgrass evaluation experiment was established near Gainesville, FL and near Raleigh, NC. The experiment included 40 selections from North Carolina State University (NCSU) and 41 from the University of Florida (UF) plus Floritam, 'Palmetto', and 'Raleigh' as check entries. Entries were planted from rooted 50 cm² plugs and established in 1.2 m² plots, separated by a 30 cm bare soil border. Data collection at the Florida location included rate of cover in 2014; winter survival during the years of 2014-15, 2015-16, and 2017-18; turfgrass quality (TQ) ratings taken 5 to 7 times during the summers of 2015, 2016 and 2017; disease incidence in all three summer seasons; and percentage cover. The experiment in North Carolina suffered severe winter kill during the 2014-15 winter and was discontinued with only percentage cover data available from fall 2014. Data are also presented from similar earlier small plot experiments in Florida at Bethel Farms near Arcadia and the Plant Science Research and Education Center near Citra.

Figure 1. Southern chinch bug (A) and Gray leaf spot (B) damage on St. Augustinegrass at Gainesville,



Results

There were significant differences in turfgrass quality among the lines. Most lines showed good winter survival at Gainesville during the 2014-15 and 2015-16 winters. Hybrids previously selected in North Carolina began to show loss of stand and lower turfgrass quality by the end of 2016. The mean percentage cover averaged over the 40 NCSU lines was 38% compared to a 55% mean cover of the 41 UF entries. Disease incidence scores (primarily GLS) varied among the NCSU and UF lines with some particular UF lines showing high level of GLS resistance. FSA 1602 was identified as a superior new St. Augustinegrass selection.

Table 2. Turf Quality Rankings of Selected Entries at Gainesville, Bethel Farms and Citra, FL.

Entry	TQ16*	TQ17*	TQ15 (Bethel)	TQ16 (Citra)	Mean
FSA 1602	6.80	5.60	6.70	5.75	6.20
Raleigh	6.05	4.40	-	-	5.20
Palmetto	5.80	5.25	3.30	4.25	4.65
Floritam	5.75	5.25	3.30	4.25	4.65
Lsd.	1.06	1.43	1.83	1.33	

Summary

- ✓ The NC State location winter killed after the first winter, but evaluations at Gainesville identified selected lines with superior turfgrass quality.
- ✓ Based on performance in this and other multi-location trials, a UF hybrid, FSA 1602, was approved for cultivar release in January of 2018.
- ✓ Hybrid FSA 1602 shows a distinct bluish-green leaf color unique among currently released polyploid or diploid St. Augustinegrass cultivars.
- ✓ This hybrid is in the aneu-polyploid germplasm pool of St. Augustinegrass similar to Floritam and FX-10 (2n=ca 30).
- ✓ Limited scale commercial installations in spring 2018 have indicated excellent consumer preference and installation success.



Figure 2. FSA1602, Palmetto, and Floritam St. Augustinegrass

