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PROJECT TITLE:

On-Site Testing of Grasses for Overseeding of Bermudagrass Fairways

PROJECT LEADER:

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START DATE: 2016

PROJECT DURATION: Three years

TOTAL FUNDING: \$90,000

SUMMARY TEXT:

Even though golf course overseeding usage is declining, resort courses and some private and public facilities will continue the practice into the future. Therefore, this project was developed to address issues related to overseeding of bermudagrass fairways. A focus of this project is the use of saline/low quality water or sites that reduce water use by irrigating with lower evapotranspiration (ET) replacement rates.

The trial consists of not only single cultivars, but also blends and mixtures of various species. Therefore, twenty-two entries were submitted that consist of ten ryegrass blends, nine single perennial ryegrass cultivars, one intermediate ryegrass, one annual ryegrass and one *Poa trivialis*. Three standard entries were also added to the trial (one each of perennial ryegrass, intermediate ryegrass and *Poa trivialis*).

Entries were established in 100 sq. foot plots, replicated three times where fairway traffic is evident, but also outside of landing zones. Trials were planted in fall 2016 and were rated for establishment rate, color and quality. Winter ratings focused on percent cover of overseeding grass, color, quality, texture and growth rate. Spring and summer 2017 ratings consisted of color, quality, texture and growth rate, with additional ratings of density and percent green cover of bermuda and overseeding grass during the transition back to 100% bermuda. In fall 2017, each trial location was reseeded with the same entries at the same physical location, with the same data collection protocols as in 2016.

Year one data has been published on the NTEP web site at http://www.ntep.org/reports/os16/os16_17-9/os16_17-9.htm with year two data being published in late summer or fall 2018. Data is for use by cooperators, extension personnel, seed companies and golf course superintendents in making recommendations or purchasing decisions.

Results from the Fall 2016 - Spring 2017 growing season were analyzed and published separately by location. As in past overseeding trials, entry performance varied significantly from

one location to another. However, when reviewing all nine locations, ‘Landmark Winterseed 5 Blend’ and ‘Stellar 5GL’, both perennial ryegrasses, finished in the top statistical group for overall turfgrass quality at every location. ‘LTP-3-PR-Blend’, ‘Allsport 5’, ‘SPR Spreading Ryegrass Overseeding Mix’, ‘PPG-PR-308’, ‘Natural Knit’ and ‘LCP-186’ also performed well at all locations, finishing in the top statistical grouping (turf quality) at eight of the nine sites.

Considering only the five ET-based locations, ‘SPR Spreading Ryegrass Overseeding Mix’, ‘Stellar 5GL’, ‘Landmark Winterseed Blend 5’, ‘PPG-PR-308’ and ‘Allsport 5’ had mean turf quality ratings in the top statistical group at each site. For the three saline irrigation based locations, the entries in the top statistical grouping at each location include ‘Champion GQ’, ‘Natural Knit’, ‘Landmark Winterseed Blend 5’, ‘LCP-186’, ‘Futura 3000’, ‘LTP-3-PR Blend’, ‘Ringles’ and ‘Stellar 3GL’.

It is notable that all of the top entries listed in this report are either single perennial ryegrass entries or a blend of perennial ryegrasses. None of the two *Poa trivialis* entries delivered good turfgrass quality at any location. Entries containing anywhere from 30-100% intermediate ryegrass or annual ryegrass did not perform well overall, with a few exceptions. ‘Futura 2500’, a mix containing 30% intermediate ryegrass, 70% perennial ryegrass, performed well at the Las Cruces, NM and Lubbock, TX locations. The intermediate ryegrass entry ‘Transist 2600’, was a good performing entry with turf quality in the top statistical group at Stillwater, OK. It is also notable that one of the main selling points for annual or intermediate ryegrass is potentially a better spring transition back to bermudagrass. Therefore, less than top turf quality ratings may not be the only determining factor for choosing one of these entries.

Since performance varied by locations in the first year, it will be interesting to see how the weather patterns of the 2017/2018 growing season affect these entries, and impact their ratings.

SUMMARY POINTS:

- This trial focuses on cultivar, blend and mixture performance of twenty-five entries, primarily under reduced (ET based) water rates or the use of saline (low quality) irrigation water.
- Nine golf course sites, chosen based on geographic location and maintenance characteristics, were established in fall 2016 via large plots on fairways.
- Entries containing perennial ryegrass had the best overall turfgrass quality in the Fall 2016 - Spring 2017 growing season.
- There was some variation in performance of entries at the ET-based reduced irrigation locations vs. the saline irrigation locations.
- Plots were reestablished in fall 2017, in the same physical location and with the same entries, for year two of data collection.



Figure 1. Entries were established in 100 sq. foot plots, replicated three times where fairway traffic is evident, but also outside of landing zones.

Table 1. Trial locations were selected in important use areas and/or locations with challenging environments or unique characteristics.

Golf Course	Location	Cooperator	University
Lonnie Poole @ NC State ¹	Raleigh, NC	Dr. Grady Miller	N.C. State
The Rawls @ Texas Tech ¹	Lubbock, TX	Dr. Joey Young	Texas Tech
Lakeside ¹	Stillwater, OK	Dr. Charles Fontanier	Oklahoma State
New Mexico State Univ. ¹	Las Cruces, NM	Dr. Bernd Leinauer	New Mexico State
Tucson Country Club ²	Tucson, AZ	Dr. David Kopec	Arizona
Lost Key ^{2,3}	Pensacola, FL	Dr. Bryan Unruh	Florida
Texas A&M Univ. Campus ²	College Station, TX	Dr. Casey Reynolds	Texas A&M
Mississippi State Univ.	Starkville, MS	Dr. Wayne Philley	Mississippi State

¹ Uses reduced water rates via ET replacement.

² Utilizes saline irrigation water.

³ Lost Key has seashore paspalum fairways, all other sites have bermudagrass fairways.