Research From The Great West

By Brian Whitlark, agronomist, West Region | October 6, 2017

Cool-season turf, including Kentucky bluegrass and tall fescue, did not perform well at UC Riverside while under deficit irrigation.

The University of California, Riverside, Turfgrass and Landscape Research Field Day took place September 14, 2017, and nearly 200 people attended. Information was presented on eight projects that were either in progress or completed during the past year. This update highlights three of the studies:

1. "Improvement of Bermudagrass, Kikuyugrass, and Zoysiagrass for Winter Color Retention and Drought Tolerance"

Researchers, funded in part by the USGA, are evaluating more than 1,000 accessions of bermudagrass, kikuyugrass and zoysiagrass for winter color retention.

- The plants being tested were provided by the University of Florida, Oklahoma State University, Texas A&M University and UC Riverside.
- Twelve of the most promising bermudagrass accessions are under further evaluation at select sites in California and Arizona. These 12 accessions are being

compared to commercially available cultivars such as Tifway, TifTuf, Bandera and Santa Ana.

- The winter of 2017-2018 will provide the first opportunity to evaluate color retention, spring greenup and drought tolerance.

- Although the research is in an early stage, the plant breeders are optimistic about developing warm-season grasses that will provide year-round color retention in a wider range of environments. This could eliminate the need for winter overseeding at some facilities.

2. USGA/NTEP Cool-Season Water Use Trial

The primary objective of this research is to identify cool-season grasses such as perennial ryegrass, Kentucky bluegrass and tall fescue that are able to produce acceptable playing quality when exposed to drought stress.

- Although drought tolerance among cool-season grasses continues to improve, research in the dry climate at UC Riverside has demonstrated that even the most drought tolerant cool-season species are inferior to warm-season grasses with regard to drought tolerance and water use efficiency.

- Deficit irrigation treatments initiated June 27, 2017, consisted of reference evapotranspiration (ETo) replacement of 40, 60 and 80 percent. These treatments will continue through Oct. 25, 2017.

- Not surprisingly, 40-percent ETo replacement was not sufficient to provide acceptable turf quality or cover among the cool-season grasses.

- None of the cultivars yielded greater than 70-percent cover at the 60-percent ETo replacement level. The two best performers were both Kentucky bluegrass cultivars, which produced about 65-percent cover. One of the best performers was 'Midnight' Kentucky bluegrass, a commercially available cultivar.

- At 80-percent ETo replacement, only six of the 19 tall fescue cultivars had greater than 80-percent turf cover by mid-September, while 10 of the 15 Kentucky bluegrass cultivars had more than 80-percent turf cover.

- By comparison, bermudagrass irrigated at only 40-percent ETo replacement and aided with either a growth regulator or wetting agent yielded 100-percent cover and acceptable quality.

3. “Best Management Practices for Water Conservation on Bermudagrass Turf”

The objective of this research is to evaluate whether wetting agents, fertilizers, plant growth regulators or combinations of these products improves bermudagrass cover and quality under deficit irrigation. Here are the highlights:

- Bermudagrass treated with Revolution wetting agent or trinexapac-ethyl growth regulator had the highest turf quality.
- Mower scalping was evident on plots not receiving trinexapac-ethyl, which was applied to test plots every two weeks at 11 ounces per acre.
- Nitrogen plus several biostimulants enhanced turf quality when deficit irrigation – i.e., 40-percent of ETo – was imposed on the plots.

For additional information, please review the UC Riverside Turfgrass and Landscape Research Field Day summary. Contact your regional USGA Agronomist for more information on warm-season turfgrass management.

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