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Drought response and minimal water requirements of St. Augustinegrass

February 26, 2020

Embryo-rescue-derived interploid (polyploid × diploid) plantlet with radicle on a half strength M

Embryo-rescue-derived interploid (polyploid × diploid) plantlet with radicle on a half strength Murashige and Skoog basal medium. Photo by Dr. Dennis Genovesi, Research Scientist, Texas A&M AgriLife Research.

Drought resistance in St. Augustinegrass, a popular turfgrass in the southern U.S., is partitioned between ploidy levels. Polyploids generally have better drought resistance but lower turfgrass quality compared with diploids. Using embryo rescue technology to overcome the sterility barriers between ploidy levels, researchers have developed interploid (polypoid × diploid) hybrids with an intent to combine drought resistance with turfgrass quality in St. Augustinegrass.

In an article recently published in *Crop Science*, the researchers evaluated the diploid and interploid St. Augustinegrass during approximately 90 days of drydown under a rainout shelter for two years. On a weekly basis, entries reaching a threshold of 50%

green cover were supplied with 2.54 cm of water.

The researchers found that interploid hybrids demonstrated better drought response than diploids overall by exhibiting longer days to reach 50% green cover, which consequently resulted in approximately 80% reduction in water use compared with diploids. They also found that minimum turfgrass quality was not maintained at the 50% green cover threshold. Green cover of 75 to 80% more accurately represents the minimum quality for future drought evaluation in the study's geographic region.

This research shows the potential for water conservation from the use of interploid hybrids of St. Augustinegrass in residential and commercial landscapes resulting in environmental and economic sustainability of urban turfgrass systems.

Dig Deeper

Meeks, M., & Chandra, A. (2020). Drought response and minimal water requirements of diploid and interploid St. Augustinegrass under progressive drought stress. *Crop Science, 60*. **https://doi.org/10.1002/csc2.20012**

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