Effects of Fungal Endophytes on Drought Response of Cool-Season Turfgrasses. (C05-dacosta144702-Poster)

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Abstract:

Many grass species develop symbiotic associations with fungi that infect the aerial portions of the host grass. This study was designed to examine effects of endophyte infection on drought responses of four cool-season turfgrasses, and subsequently determine the recuperative ability of the plants once drought stress was relieved. Endophyte-infected and endophyte-free plants of Kentucky bluegrass (Poa pratensis L.), tall fescue (Festuca arundinaceae Shreb.), perennial ryegrass (Lolium perenne L.), and chewings fine fescue (Festuca rubra L. ssp. commutata Gaud.) were exposed to well-watered or drought stress conditions for 30 d in a growth chamber. Plants subjected to drought stress were then rewatered to allow recovery for 14 d. Endophyte-infected grasses generally exhibited increased turf quality, membrane stability, relative water content, chlorophyll content, and larger root systems compared to endophyte-free plants. Presence of endophyte also enhanced recuperative ability of the plants, as manifested by increased shoot growth rates. The extent of endophyte effects varied with species.

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