

Mowing and Drought Effects on a Hybrid Bluegrass compared with a Kentucky Bluegrass

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ABSTRACT

Hybrid bluegrasses (HBG) resemble Kentucky bluegrass (*Poa pratensis* L.)(KBG) but HBG may have greater heat and drought tolerance. Little is known about the performance of HBG under low mowing heights and during drought. A two-year field study was conducted near Manhattan, Kansas, USA to investigate effects of mowing and drought on visual quality and gross canopy photosynthesis (P_g) in a KBG ('Apollo') and HBG ('Thermal Blue'). Treatments included three main factors at two levels each: 1) species (Apollo, Thermal Blue); 2) mowing height (7.6 cm or 3.8 cm); and 3) irrigation (100% [well watered] and 60% [drought] evapotranspiration [ET] replacement). Visual quality in Thermal Blue was similar to or lower than Apollo during both years. Visual quality and P_g declined at the lower mowing height in both species in 2004 and in Thermal Blue in 2005, but visual quality in Apollo improved slightly in 2005 including under drought. At the lower mowing height, visual quality in Thermal Blue was nine to 15% lower than Apollo in 2005, perhaps because KBG had greater leaf area and extracted more soil moisture than Thermal Blue. When well watered, P_g was lower in Thermal Blue than in Apollo but differences converged as drought progressed. Drought reduced visual quality of both grasses during both years. Data suggest that Apollo may be better suited than Thermal Blue as a turfgrass selection for the transition zone. Further research is needed to identify new cultivars of HBG that may perform better than KBG at low mowing and during drought.

Keywords: Texas bluegrass hybrid, *Poa arachnifera* Torr., *Poa pratensis* L., photosynthesis, turfgrass, mowing height, irrigation deficit.