

# TURFGRASS RESEARCH 2014



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## Prolonged Drought and Recovery Characteristics of Kentucky Bluegrass Cultivars<sup>1</sup>

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**Summary.** Twenty-eight Kentucky bluegrass cultivars and two hybrid bluegrasses<sup>3</sup> (Table 1) recovered well from extended drydowns in two years with no irrigation and little precipitation. The recovery was slower in the year with a longer, more severe drydown.

**Rationale.** Kentucky bluegrass (*Poa pratensis* L.) (KBG) is the most widely used cool-season turfgrass for lawns, golf courses, athletic fields, and other areas where a dense grass cover is desired. Increasing water scarcities may result in irrigation restrictions to KBG, perhaps for lengthy periods, without regard for potentially damaging effects on KBG.

**Objectives.** Evaluate the performance of these bluegrasses during extended drydowns and their recuperative abilities after being re-watered.

**Study Description.** A field study was conducted in 2010–11 at the Rocky Ford Turfgrass Research Center in Manhattan, KS, under a fully automated rainout shelter that prevented precipitation from falling on plots. These bluegrasses were subjected to 81 days without irrigation in the first year and 61 days without irrigation in the second year. To measure their performance during the drydown and recovery periods, we took digital photos of the turf periodically

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<sup>3</sup> Hybrid bluegrasses are genetic crosses between Kentucky bluegrass and native Texas bluegrass (*Poa arachnifera* Torr.).

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and analyzed them with software to determine the percentage green cover of each plot.

**Results.** All 30 of the bluegrasses went completely dormant in the first year and mostly dormant in the second year from prolonged drought stress (Figure 1). Remarkably, all 30 bluegrasses recovered in both years, although the recovery was slower (i.e., lasted well into the following spring) after the first drydown because of longer exposure to drought (Figure 2). There were no consistent differences in the performance of the 30 bluegrasses.

**Table 1. Phenotypic types and cultivars of Kentucky bluegrasses and hybrid bluegrasses**

Type <sup>1</sup>	Cultivar	Type	Cultivar	
Compact America	Apollo	Common	Kenblue	
	Bedazzled		Park	
	Kingfisher		Wellington	
	Langara	Compact	Diva	
	Unique		Moonlight	
Mid-Atlantic	Cabernet	BVMG <sup>2</sup>	Skye	
	Eagleton		Abbey	
	Preakness		Baron	
Compact Midnight	Award	Shamrock	Envicta	
	Blue Velvet		Shamrock	
	Midnight		European <sup>3</sup>	Bartitia
	Midnight II			Blue Knight
	Nu Destiny			Longhorn
Aggressive	Limousine	Hybrid bluegrasses	Thermal Blue	
	Touchdown		Blaze	
Julia	Julia			

<sup>1</sup> Kentucky bluegrass classification types.

<sup>2</sup> BVMG, Baron, Victa, Merit, and Gnome.

<sup>3</sup> Blue Knight and Bartitia have since been reclassified as “Other Type.”



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**Figure 1. Conditions of bluegrass plots in Manhattan, KS, at the end of the drydowns in 2010 (left) and 2011 (right). The drydown in 2010 was longer than in 2011.**



**Figure 2. Conditions of bluegrass plots in Manhattan, KS, at the end of the recovery periods after the drydowns in 2010 (left) and 2011 (right). The recovery in 2010 lasted into the spring of 2011 (left, photo taken May 31, 2011), whereas in 2011 the recovery was faster (right, photo taken October 16, 2011). The 81-day drydown in 2010 ended on September 4, and the 61-day drydown in 2011 ended on August 1, 2011.**

