

**TITLE:** Lateral Spread of Tall Fescue Cultivars and Blends

**OBJECTIVE:** Compare lateral spread of tall fescue cultivars and blends with Kentucky bluegrass

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**SPONSORS:** Kansas Turfgrass Foundation. Hummert International, Barenbrug USA, and Seed Research of Oregon provided seed

**INTRODUCTION:**

Some new tall fescue cultivars and blends have been advertised as being rhizomatous, resulting in faster establishment and recovery time. More research is needed to determine the extent of this rhizomatous nature in tall fescue. Barenbrug USA researchers reported that ‘Labarinth’ tall fescue produced more and longer rhizomes compared to several other tall fescue cultivars when evaluated 20 months after transplanting 2-month-old plants. Ohio State University researchers evaluated six tall fescue cultivars, including some that were purported to be rhizomatous, and found that the average number of plants producing a rhizome was 21 percent, and all were less than 3 cm long. More information is needed to evaluate the rhizomatous potential of tall fescue cultivars and its influence on lateral spread and recuperative potential.

**MATERIALS AND METHODS:**

Six different cultivars or blends were seeded into a silt loam soil in 5 x 5-ft. plots arranged in a randomized complete block design on September 14, 2005, at the Rocky Ford Turfgrass Research Center, Manhattan, KS. Each cultivar was replicated four times. Tall fescues evaluated included ‘Grande’, ‘Regiment II’, ‘Barlexus’, ‘Water Saver RTF’ tall fescue blend (39.84 ‘Labarinth’; 29.93 ‘Barlexus II’; 29.86 ‘Barrington’); and ‘Kentucky-31’. SR2284 Kentucky bluegrass was also included. Tall fescue cultivars evaluated that are purported to be more prolific rhizome producers are Grande II, Regiment II, and Water Saver RTF blend (particularly the Lararinth cultivar in the blend). Tall fescue was seeded at 7 lbs/1,000 sq. ft. and Kentucky bluegrass at 2 lbs/1,000 ft<sup>2</sup>. Seed was mixed with Milorganite to provide 1 lb. N/1,000 ft<sup>2</sup> at the time of seeding. Nitrogen from urea was applied at 1 lb./1,000 ft<sup>2</sup>. in November 2005, and May and September 2006. Turf was irrigated to prevent drought stress and mowed at least once weekly at a 3 inches.

During autumn 2005, percentage of coverage during the establishment period was determined weekly through 9 weeks after seeding using a First Growth camera.

On July 28, 2006, four 4-inch-diameter x 4-inch-deep plugs were removed from the center of each plot. A uniform circle of 1-ft.-diameter x 4-inch-deep was cut in the center of each plot around the area where plugs were removed on August 1, 2006, and voids were filled with the same field soil to return to the original level. Plugs were planted in an adjacent area for another study in which lateral spread will be evaluated (data not presented here). Hand weeding within each circular void was done as needed. On August 31 and October 5, 2006, the number of emerging daughter plants arising from rhizomes within each void was counted. On August 31, the greatest distance from the circle’s edge that a newly emerging daughter plant was observed was also recorded. Data were subjected to analysis of variance and means separated using an F-LSD ( $P < 0.05$ ).

## RESULTS:

*Establishment rate.* Kentucky bluegrass was slowest to establish following seeding in Fall 2005 (Figure 1). Among tall fescues, Kentucky-31 exhibited greater coverage three weeks after seeding than other cultivars, and was greater than at least one other tall fescue cultivar on all rating dates. Regiment II had lower levels of coverage than at least one cultivar other than Kentucky-31 at 2 to 5 weeks after seeding and 7 weeks after seeding. Coverage of other tall fescue cultivars and blends was intermediate between Regiment II and Kentucky-31.

*Lateral Spread into Voids.* Kentucky bluegrass had significantly more emerging daughter plants than any tall fescue cultivar or blend on each evaluation date (Table 1). Kentucky bluegrass had produced more than 11 daughter plants per 1 ft. diam. void on August 31 and more than 18 on October 5. The average number of daughter plants emerging in voids in tall fescue plots was less than 2 on both evaluation dates. The greatest distance from the circle's edge that a Kentucky bluegrass daughter plant emerged was about 8 cm. Tall fescue daughter plants emerged no greater than 1.5 cm from the circle's edge.

In summary, rhizomatous tall fescue cultivars and blends did not increase rate of coverage relative to non-rhizomatous types. By October 2006, plants were more than 24 months old. Research by Barenbrug USA indicated that plants needed to be at least 20 months old before rhizome production was substantial. Data collection will continue on these cultivars and blends.

**Table 1.** Daughter plants emerging in 1-foot-diameter circular voids in the center of tall fescue and Kentucky bluegrass plots, and the farthest distance away from the circle's edge that any one plant emerged. Voids were created on July 28, 2006.

Cultivar or Blend	Reported to have improved recuperative potential?	Daughter plants (no.)		Distance (cm)
		Aug. 31	Oct. 5	Aug. 31
Grande II tall fescue	Yes	0.50 b*	0.50 b	1.25 b
Regiment II tall fescue	Yes	2.00 b	0.00 b	2.25 b
Water saver RTF tall fescue blend	Yes	0.25 b	0.50 b	0.25 b
Barlexus tall fescue	No	1.50 b	1.00 b	1.50 b
Kentucky 31	No	1.25 b	2.00 b	1.00 b
SR2284 Kentucky bluegrass	-	11.50 a	18.75 a	8.25 a

\*Means followed by the same letter on a date are not significantly different ( $P < 0.05$ ).

**Fig. 1.** Rate of coverage of tall fescue cultivars and blends and Kentucky bluegrass after seeding on September 14, 2005. Points represent the mean of four replicates. Points followed by the same letter in a week are not statistically different ( $P < 0.05$ ).

