

January 2015

Influence of Cultivation Practice and Mowing Height on Conversion of Golf Course Rough from Tall Fescue to 'Sharps Improved II' Buffalograss

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Recommended Citation

Reeves, J.; Hoyle, J.; Bremer, D.; Keeley, S.; and Griffin, J. (2015) "Influence of Cultivation Practice and Mowing Height on Conversion of Golf Course Rough from Tall Fescue to 'Sharps Improved II' Buffalograss," *Kansas Agricultural Experiment Station Research Reports: Vol. 1: Iss. 6.* <https://doi.org/10.4148/2378-5977.1098>

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TURFGRASS RESEARCH 2015



JULY 2015



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Summary. Slit-seeding buffalograss provided the quickest (85% cover, 8 weeks after seeding) establishment of all the cultivation practices. Mowing height had no effect on establishment success.

Rationale. Buffalograss [*Buchloe dactyloides* (Nutt) Engelm.] is a native warm season turfgrass utilized for water conservation on golf courses. Establishment techniques for courses where seed presoaking is not a viable option have not been explored. Limited information exists on low-invasive cultivation-based conversion from tall fescue [*Schedonorus arundinaceus* (Schreb.)] to buffalograss.

Objectives. Determine the best cultural practices for conversion from tall fescue to buffalograss.

Study Description. Field studies were conducted in 2014 at the Rocky Ford Research Center in Manhattan, Kansas, and the John C. Pair Horticulture Center in Haysville, Kansas. Glyphosate (2.8 fl oz/1,000 ft²) was applied to established tall fescue 1 and 4 weeks before trial initiation. Plots were seeded with 4 lb/1,000 ft² non-deburred 'Sharp's Improved II' buffalograss. Experimental design was a 3 by 4 factorial randomized complete block design with four replications. Treatments (Table 1) were applied to 5- x 10-ft plots on May 30, 2014. Buffalograss visual cover (0 to 100%), color (1 to 9), quality (1 to 9), digital image analysis (% green cover), and weed cover (0 to 100%) were collected biweekly. All data were analyzed using SAS

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(SAS Institute, Inc., Cary, North Carolina), and means were separated according to Fisher's Protected LSD ($P \leq 0.05$).

Results. Buffalograss establishment was primarily impacted by cultivation practice. Slit-seeding resulted in quickest establishment, followed by aeration, verticutting, and untreated, respectively (Table 2).

Table 1. Treatment regimes for turf type tall fescue (*Schedonorus arundinaceus*) conversion to buffalograss (*Buchloe dactyloides*) establishment

Treatment no.	Mowing height ^a (cm)	Cultivation practice
1	6.35	Non-treated
2	4.45	Non-treated
3	3.175	Non-treated
4	6.35	Verticutting ^b
5	4.45	Verticutting ^b
6	3.175	Verticutting ^b
7	6.35	Aerification ^c
8	4.45	Aerification ^c
9	3.175	Aerification ^c
10	6.35	Slit-seeding ^d
11	4.45	Slit-seeding ^d
12	3.175	Slit-seeding ^d

^a Mowed to height with rotary mower.

^b 0.635 cm verticutting depth.

^c Hollow-tine aerification.

^d Slitted-seeded with walk-behind Ryan Mataway overseeder.



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Table 2. Mean percent visual buffalograss cover at 4, 8, 12 weeks after seeding (WAS) at Rocky Ford Research Center (Manhattan, KS).

Treatment no.	Variables	Mean % visual cover		
		4 WAS	8 WAS	12 WAS
1	6.35 cm + non-treated	0.5 b	7.5 b	41.3 bc
2	4.45 cm + non-treated	0.5 b	6.0 b	47.5 bc
3	3.175 cm + non-treated	0.8 b	5.8 b	30.0 c
4	6.35 cm + verticutting	1.0 b	15.8 b	67.5 abc
5	4.45 cm + verticutting	1.3 b	11.3 b	52.5 bc
6	3.175 cm + verticutting	1.0 b	23.8 b	55.0 bc
7	6.35 cm + aerification	3.8 b	22.5 b	75.0 ab
8	4.45 cm + aerification	2.5 b	17.5 b	61.3 abc
9	3.175 cm + aerification	3.3 b	37.5 b	82.5 ab
10	6.35 cm + slit-seeding	14.5 b	88.3 a	97.3 a
11	4.45 cm + slit-seeding	21.3 ab	92.8 a	98.5 a
12	3.175 cm + slit-seeding	32.8 a	75.3 a	78.8 ab

Note: At 14 WAS, all treatments' means could not be separate statistically as all were >73%.



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