

Evaluation of Tall Fescue Cultivars

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Summary

Stand frequency in spring 2014 was higher for 'AU Triumph' than for 'AGRFA-111' and 'BarOptima Plus E34.' Spring 2014 yield was higher for 'Jesup MaxQ' and 'Texoma MaxQ II' than for 10 of the 17 other entries. Fall production was greater for 'AGRFA-111' and 'Bar FA80 DH' than for 13 other entries. Total 2014 production was higher for 'Texoma MaxQ II' than for five other cultivars. Total 4-year forage production was greater for 'Texoma MaxQ II' and 'Martin 2 647' than for the seven below-average entries. 'Bariane' and 'AGRFA-179' were lower than for six of the highest-yielding entries.

Introduction

Tall fescue (*Lolium arundinacium* Schreb.) is the most widely grown forage grass in southeastern Kansas. Its tolerance to extremes in climate and soils of the region is partly attributable to its association with a fungal endophyte, *Neotyphodium coenophialum*; however, most ubiquitous endophytes are also responsible for production of substances toxic to some herbivores, including cattle, sheep, and horses. Endophytes that purportedly lack toxins but augment plant vigor have been identified and inserted into tall fescue cultivars adapted to the United States. These cultivars, and others that are fungus-free or contain a ubiquitous endophyte, are included in this test.

Experimental Procedures

The trial was seeded at the Mound Valley Unit of the Southeast Agricultural Research Center in 10-in. rows on Parsons silt loam soil. Plots were 50 ft × 5 ft and were arranged in four randomized complete blocks. They were fertilized preplant with 20-50-60 lb/a of N-P₂O₅-K₂O and seeded with 20 lb/a of pure, live seed on September 22, 2010. Spring fertilizer (150-60-60 lb/a N-P₂O₅-K₂O) was applied on March 11, 2014. Fall growth was supplemented with 58 lb/a N on September 10.

Stand frequency was determined on March 24, 2014. Each cell of a 100-cell, 30-in. square grid that was occupied by one or more tillers was counted. Two squares within a 25-ft × 5-ft area of each plot were averaged.

Harvest was performed on a 3-ft × 15-ft strip from each plot. A flail-type harvester was used to cut to a 3-in. height on June 3. After harvest, forage was removed from the rest of the plot at the same height. A forage subsample was collected from each plot and

dried at 140°F for moisture determination. Regrowth that occurred in fall was harvested on November 26, 2014.

Results and Discussion

Stand frequency in spring, 2014 was better ($P < 0.05$) for 'AU Triumph' than for 'AGRFA-111' and 'BarOptima Plus E34'. Otherwise, no differences in stand frequency were found among the cultivars.

Spring 2014 yield was greater for 'Jesup MaxQ' and 'Texoma MaxQ II' than for 10 of the other 17 entries. 'AGRFA-111,' 'AU Triumph,' and 'Bar FA80 DH' yielded less in this first harvest than eight higher-yielding entries. First-cut yields were low in 2014, averaging only 27% of 2013 first-cut yields. This was probably largely because of a rainfall deficit at Mound Valley of 8.58 in for March, April, and May, during which only 40% of the 30-year average was received.

Forage production during the rest of the season (June 10 through November 26), primarily late fall production, was greater for AGRFA-111 and Bar FA80 DH than for five other entries. 'Bariane' yielded less in fall than all but six other low-yielding entries. Fall production in 2014 was atypically higher than spring production, amounting to 64% of annual production, which is the reverse of the expected ratio. Fall production in 2014 was 163% of 2013 fall production, partly due to the 19.47 in. of precipitation received in September and October, which was more than twice the average amount received in those months.

Total four-year forage production was greater for 'Texoma MaxQ II' and 'Martin 2 647' than for the seven below-average entries. 'Bariane' and 'AGRFA-179' produced fewer than six of the higher-yielding entries.

Table 1. 2014 stand frequency and forage yields of tall fescue cultivars seeded in 2010, Mound Valley Unit

Cultivar	Stand ¹	June 10, 2014	Dec. 2, 2014	2014 total	2013 total	2012 total	2011 total	4-yr. total
	%	----- Tons/a, 12% moisture -----						
BarOptima PLUS E34	39	1.07	2.01	3.08	5.11	3.80	4.33	16.31
Bar Elite	47	1.02	1.80	2.82	5.18	3.93	4.08	16.00
Bardurum	47	1.15	2.03	3.18	5.70	3.99	4.26	17.12
Drover	52	1.09	2.21	3.30	5.30	4.52	4.12	17.24
BAR FA 70DH	50	1.13	2.04	3.17	5.39	4.20	4.39	17.14
BAR FA 80DH	42	1.00	2.25	3.25	5.72	4.22	4.22	17.42
Bariane	53	1.05	1.56	2.60	5.29	3.70	3.97	15.57
DuraMax GOLD	50	1.20	2.06	3.23	5.21	4.22	4.68	17.37
Martin 2 647	47	1.20	2.05	3.25	5.65	4.64	4.86	18.40
AGRFA-111	38	0.88	2.26	3.14	5.44	3.95	3.91	16.45
AGRFA-177	51	1.19	1.90	3.09	5.66	4.29	4.43	17.45
AGRFA-178	40	1.03	1.83	2.86	5.21	4.12	4.32	16.50
AGRFA-179	41	1.12	1.86	2.98	4.99	3.83	4.18	15.97
Jesup MaxQ	46	1.33	1.85	3.18	5.47	4.53	4.56	17.73
Texoma MaxQ II	49	1.30	2.10	3.40	5.85	4.66	4.79	18.69
AU Triumph	55	0.99	1.91	2.90	5.44	4.54	4.27	17.15
Ky 31 HE	51	1.22	2.11	3.33	5.35	4.01	4.74	17.43
Ky 31 LE	44	1.16	1.97	3.13	5.25	4.07	4.37	16.83
Average	47	1.12	1.99	3.11	5.40	4.18	4.36	17.04
LSD (0.05)	13	0.15	0.41	0.37	0.75	0.54	0.43	1.38

¹Frequency counts taken on March 24.