

Evaluation of Tall Fescue Cultivars

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Summary

Spring 2015 yield was higher for 'Ky 31 EF' than for nine of the 19 other entries. Summer production of 'PBU-B7' was greater than for five lower-yielding entries. Total 2015 production was greater for 'PBU-B1' and Ky 31 EF than for seven other cultivars.

Introduction

Tall fescue (*Lolium arundinaceum* 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 (i.e. Ky 31 EF and HE, respectively) 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 35 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 30, 2014. Spring N (100 lb/a) was applied on March 9, and fall growth was supplemented with 60 lb/a N on October 1.

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 8, 2015. 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. Summer regrowth was harvested on September 28, 2014, and subsequent growth was harvested on December 10.

Results and Discussion

The spring 2015 yield was harvested later than desired because of wet conditions in May, resulting in severe lodging. Yields ranged from 3.69 tons/a (12% moisture basis) for 'Martin 2 ProTek', to 5.31 for Ky 31 EF. The latter yielded more than nine of the other 19 entries. Both Ky 31 entries, 'PBU-B1', and 'NFTF1044' yielded more in this first harvest than four lower-yielding entries.

Summer forage production was more than usual, averaging 2.13 tons/a, because precipitation during July and August was 46% above the 30-year average. 'PBU-B7' yield was greater than that of five lower-yielding entries, including 'GT213' and BarOptima Plus E34, which yielded less than nine entries.

Late fall production amounted to only 0.31 tons/a, with NFTF1044 yielding more than 14 other entries. Total forage production for 2015 was greater for PBU-B1 and Ky 31 EF than for seven other entries. Martin 2 ProTek produced less than 10 of the higher-yielding entries.

Table 1. 2015 Heading date, and forage yield of three cuttings of tall fescue cultivars seeded in 2014, Mound Valley Unit

| Cultivar | Heading date ¹ (Julian) | Forage yield | | | 2015 total |
|--------------------|---------------------------------------|----------------------------------|------|-------|------------|
| | | 6/8 | 9/28 | 12/10 | |
| | | ----- tons/a, 12% moisture ----- | | | |
| BarOptima PLUS E34 | 130 | 4.50 | 1.66 | 0.34 | 6.49 |
| Bar FAF 131 | 124 | 4.26 | 2.01 | 0.34 | 6.60 |
| Tower ProTek | 127 | 4.39 | 2.35 | 0.29 | 7.02 |
| Martin 2 ProTek | 119 | 3.69 | 1.82 | 0.31 | 5.81 |
| AGRFA 148 | 123 | 4.45 | 1.91 | 0.34 | 6.69 |
| NFTF 1051 | 121 | 4.37 | 2.15 | 0.32 | 6.84 |
| NFTF 1044 | 125 | 5.08 | 2.29 | 0.35 | 7.72 |
| NFTF 1411 | 120 | 3.71 | 2.03 | 0.32 | 6.06 |
| GT 213 | 124 | 4.53 | 1.61 | 0.28 | 6.41 |
| LE 14-84 | 114 | 3.72 | 2.29 | 0.27 | 6.28 |
| LE 14-86 | 124 | 4.61 | 2.11 | 0.28 | 7.00 |
| Teton II | 116 | 3.83 | 2.39 | 0.29 | 6.51 |
| Estancia | 125 | 4.26 | 2.38 | 0.31 | 6.94 |
| PBU-B1 | 118 | 5.29 | 2.29 | 0.30 | 7.88 |
| PBU-B2 | 117 | 4.75 | 2.15 | 0.30 | 7.20 |
| PBU-B5 | 115 | 4.37 | 2.36 | 0.31 | 7.03 |
| PBU-B7 | 114 | 4.48 | 2.53 | 0.29 | 7.30 |
| MV 14 | 124 | 4.44 | 2.32 | 0.32 | 7.07 |
| Ky 31 HE | 126 | 4.74 | 1.77 | 0.33 | 6.84 |
| Ky 31 EF | 124 | 5.31 | 2.14 | 0.33 | 7.78 |
| Average | 121 | 4.44 | 2.13 | 0.31 | 6.87 |
| LSD (0.05) | 3.2 | 0.90 | 0.58 | 0.02 | 1.10 |

¹Average heading date, Julian day 121, was May 1.