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Yield of Tall Fescue Varieties

Research Report 84-04

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Yield of Tall Fescue Varieties

John H. Reynolds*

Several tall fescue varieties have been evaluated in Tennessee for yield and stand longevity during recent years. Some varieties have been available for a long time while other varieties have recently entered the market. The varieties were usually seeded during late August or early September at the rate of 15 lb per acre. Results are reported from three experiments at Knoxville, two at Springfield, and one at Crossville.

Fertilization at Knoxville and Springfield usually included 60 lb N per acre in March, and 60 lb N per acre in late August or early September for fall stockpiling. A maintenance application of 60 lb P_2O_5 and 60 lb K_2O per acre was usually applied at the same time as one of the N applications. At Crossville, the two applications of N were made in the early and late spring. From 50 to 150 lb of P_2O_5 per acre and from 50 to 75 lb of K_2O per acre were applied in the early spring. Forage was harvested 4 times per year at Knoxville, 3 or 4 times per year at Springfield, and there were two schedules at Crossville: frequent (5 to 7 cuts per year) and infrequent (2 or 3 cuts per year). In two experiments at Knoxville, yields are reported only for the fall season. These two experiments were established for plant breeding observations and yields of other harvests were not recorded. Production of stockpiled forage was emphasized in all experiments except at Crossville. Yields are reported as oven dry weights.

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At Knoxville in 1980, establishment was slow because of fall drought and weed competition the following winter (Table 1). Early fall rainfall was above normal in 1981, near normal in 1982, and below normal in 1983. Stockpiled yields in these three years reflected the rainfall received. Late freezes probably reduced spring 1983 yields. Very few differences among varieties were noted.

At Springfield in 1982, September rainfall exceeded normal and temperatures were below normal, so conditions were favorable for large fall-stockpiled yields (Table 2). Early fall 1983 was dry so yields were lower. No variety differences were found. In an earlier trial (Table 3) rainfall for August through November 1979 was 16.5 inches above normal and stockpiled yields were large. Kentucky 31 produced more than the next largest-yielding varieties, Missouri 96 and Fawn. In 1980 the rainfall from August through November was 4.2 inches below normal; stands were poor and the limited fall growth was not harvested. There were no differences in total production in 1979, but Kentucky 31 and Fawn produced more in 1980 than Kenhy and Missouri 96.

At Crossville, Kentucky 31 and Kenhy were grown under two cutting frequencies, 5 to 7 times, and 2 or 3 times per year (Tables 4 and 5). No significant differences were found between the varieties during any of the four years. In 1973 rainfall was very high in May and June so large yields were harvested in June and July.

Results of observation trials at Knoxville in 1975 and 1976 were somewhat contradictory. In a 4-year old stand, Kenhy yielded more stockpiled forage than Kentucky 31, but in a 2-year old stand these two varieties did not differ in stockpiled yield (Table 6).

Usually, yields of tall fescue varieties developed in different states (Table 7) have not differed greatly among varieties grown at Knoxville, Springfield, and Crossville. Fall stockpiled yields have usually been between 1000 and 2000 lb per acre.

Table 1. Yields of tall fescue varieties at Knoxville during 1981 to 1983[1]

1981

Variety	June 9	July 7	Aug 14	Nov 19	Total[2]
			lb/acre		
Ky 31 (Ky source)	2279	326	338	1043	3986
Kenhy	2708	437	407	1160	4712
Missouri 96	2528	357	416	1231	4532
Ky 31 (Mo. source)	2391	464	405	1134	4394
LSD (.05)	NS	124	NS	NS	NS

1982

Variety	April 29	May 31	July 7	Dec 8	Total
			lb/acre		
Ky 31 (Ky source)	3345	583	320	934	5182
Kenhy	3111	531	334	998	4974
Missouri 96	3174	652	370	873	5069
Ky 31 (Mo. source)	3499	785	371	838	5493
LSD (.05)	NS	151	NS	NS	NS

1983

Variety	April 29	May 25	June 27	Nov 16	Total
			lb/acre		
Ky 31 (Ky source)	1197	792	296	607	2892
Kenhy	1061	697	285	736	2779
Missouri 96	1026	805	278	600	2709
Ky 31 (Mo. source)	1124	756	288	612	2780
LSD (.05)	136	84	NS	NS	NS

[1] Seeded September 5, 1980 on Etowah silt loam.

[2] Also harvested April 21, 1981 but discarded because of weed content.

Table 2. Yields of tall fescue varieties at Springfield during 1982 and 1983[1]

1982

Variety	May 5	July 1	Dec 14	Total
		lb/acre		
Forager	3547	1150	1645	6342
Kenhy	3745	1322	2148	7215
Missouri 96	3741	1262	2403	7406
Kentucky 31	3819	1290	1952	7061
Triumph	4028	1190	1952	7170
LSD (.05)	NS	NS	NS	NS

1983

Variety	May 4	June 30	Dec 8	Total
		lb/acre		
Forager	1927	1701	1554	5182
Kenhy	2103	1567	1213	4883
Missouri 96	2250	1826	1355	5431
Kentucky 31	2319	1759	1238	5316
Triumph	2021	1654	1602	5277
LSD (.05)	NS	NS	NS	NS

[1] Seeded September 10, 1981 on Dickson silt loam.

Table 3. Yields of tall fescue varieties during 1979 and 1980 at Springfield[1]

1979

Variety	May 24	July 13	Aug. 13	Dec. 18	Total
			lb/acre		
Kentucky 31	2628	1403	947	2070	7048
Kenhy	2711	1378	810	1674	6573
Missouri 96	2809	1411	702	1828	6750
Fawn	2526	1385	891	1805	6607
LSD (.05)	NS	NS	NS	176	NS

1980

Variety	May 12	June 16	Aug. 11	Total
		lb/acre		
Kentucky 31	2796	608	487	3891
Kenhy	1980	747	467	3194
Missouri 96	1918	589	479	2986
Fawn	2682	639	464	3785
LSD (.05)	459	NS	NS	599

[1] Seeded August 24, 1978 on Dickson silt loam.

Table 5. Yields of tall fescue varieties at Crossville during 1971 to 1974 when cut 2 or 3 times per year[1]

1971

Variety	May 25	Aug 5	Total
	lb/acre		
Kentucky 31	2256	1049	3305[2]
Kenhy	2816	1273	4089

1972

Variety	May 25	July 19	Sept 13	Total
	lb/acre			
Kentucky 31	2740	548	912	4200[2]
Kenhy	2557	834	1027	4418

1973

Variety	May 30	July 24	Nov 19	Total
	lb/acre			
Kentucky 31	6302	3528	917	10747[2]
Kenhy	5122	4287	1141	10550

1974

Variety	May 17	July 2	Sept 26	Total
	lb/acre			
Kentucky 31	2824	2158	1445	6427[2]
Kenhy	2733	2243	1523	6499

[1] Seeded September 14, 1970 on Hartsells loam.

[2] No significant difference between varieties across all cuts within the year ($\alpha = .05$)

Table 6. Yields of tall fescue varieties at Knoxville in the fall during 1975 and 1976.

	1975 [1]
Variety	Dec 17
	lb/acre
Alta	1012
Goar	953
Kenhy	1490
Kentucky 31	1122
Kenwell	774
LSD (.05)	330

	1976[2]
Variety	Dec 14
	lb/acre
Fawn	874
Kenhy	986
Kentucky 31	1148
Ky G1-307 } Components of	1282
Ky G1-316 } Johnstone variety	1238
LSD (.05)	NS

[1] Seeded in fall of 1971 on Etowah silt loam.

[2] Seeded in fall of 1974 on Etowah silt loam.

Table 7. States where tall fescue varieties were developed.

Variety	State
Kentucky 31	Kentucky
Kenhy	Kentucky
Missouri 96	Missouri
Forager	Indiana
Triumph	Alabama
Fawn	Oregon
Alta	Oregon
Goar	California
Kenwell	Kentucky
Johnstone	Kentucky