

1998-99

FORAGE YIELDS

from

Ryegrass
Varieties and Strains

Jerry L. Baker

The Samuel Roberts
NOBLE FOUNDATION, INC.
P.O. Box 2180
Ardmore, Oklahoma 73402

NF-FOR-99-06

DISCUSSION

Ryegrass varieties and experimental strains were evaluated for forage production during the 1998-99 season at the Ardmore Pasture Demonstration Farm (Table 1). The trial included 36 ryegrasses, 'Matua' rescuegrass, 'Stocker' bromegrass, 'Jagger' wheat and 'Oklon' rye.

Fall planting was delayed by dry soils in much of September. The hot, dry summer delayed proper soil tillage and seedbed preparation until late September. The growing season was characterized by above-normal temperatures through the late fall and winter and ample rainfall, except in February; the last three seasons have been very representative of the variable environmental conditions that prevail in Oklahoma from year to year.

Once stands were established, weather conditions favored excellent forage growth throughout most of the season. Inclement weather prevented timely harvests during the spring. All entries in the test had initiated heading by the May 11th harvest and, therefore, totals for that date are probably more indicative of hay yields than grazing forage. An additional earlier clipping certainly would have demonstrated a better distribution of the spring production.

Forage was harvested four times during the growing season (Table 1). Overall, only 21% was harvested by March 2nd; however, note that 'Oklon' rye and 'Jagger' wheat, respectively, produced 47% and 45% of their forage by that date. 'Surrey' produced forage earlier than any other ryegrass variety, while 'Matua' rescue produced the most late-season forage in the trial (combining the two clippings after March 2). A few entries suffered moderate cold damage and stand loss following a late December to early January cold period (Table 1). Most varieties recovered well and produced an excellent quantity of forage in the spring.

Table 2 summarizes the total forage production of common entries that have been evaluated over the last three seasons. The 1998-99 average total yield was much higher than that of the two previous years. The varieties that rank consistently high each year are recommended to producers. Ryegrass often is used in mixtures with rye and other small grains. Use ryegrass cautiously in wheat and other grain-producing enterprises because it can become weedy much like wild oats and cheat; it usually volunteers to a good stand and may compete too much with wheat and other grains.

Table 1. Ryegrass forage performance, 1998-99; Pasture Demonstration Farm, Ardmore, OK

Variety or strain	Clipping dates					1998-99 total	Common annual (%)	Forage produced by 3/2 (%)	Cold injury rating ¹
	12/10	3/2	Total through 3/2	4/1	5/11				
Pounds of oven-dry forage per acre									
Passerel	733	1403	2136	2791	6280	11207	117	19	3.7
Marshall	850	1531	2381	3075	5489	10945	115	22	4.0
Passerel Plus	455	1403	1858	2858	6135	10851	114	17	3.2
FL X97 (G) 4X	827	1396	2223	2523	6031	10777	113	21	4.0
Rio	867	1630	2497	2787	5439	10723	112	23	3.5
FL X98 (S II) LR	995	1784	2779	2676	5265	10720	112	26	3.7
FL X98 (New) 4N late	1096	1453	2549	2462	5178	10189	107	25	3.2
OFI-A94	907	1456	2363	2700	5124	10187	107	23	3.0
FL X98 (New) 2N LR	1155	1380	2535	2636	4928	10099	106	25	4.0
Stampede	549	1522	2071	2769	5246	10086	106	21	3.7
CAS-EM3	810	1362	2172	2494	5407	10073	105	22	3.7
Southern Star	797	1574	2371	2693	4960	10024	105	24	4.5
TXR 97-3	549	1508	2057	2919	5014	9990	105	21	3.5
Sultan	555	769	1324	2056	6512	9892	104	13	3.5
Magnolia	834	1287	2121	2467	5293	9881	103	22	3.5
WVPB-AR-93-101	867	1368	2235	2655	4821	9711	102	23	3.5
Tam 90	1158	650	1808	2158	5740	9706	102	19	2.0
Surrey	1047	1754	2801	2649	4219	9669	101	29	4.5
Big Daddy	953	791	1744	2217	5651	9612	101	18	2.5
Common Annual	1117	834	1951	2092	5517	9560	100	20	2.2
CAS-EM5	768	2014	2782	2217	4533	9532	100	29	3.7
ME 94	868	1462	2330	2652	4523	9505	99	25	3.2
Bestfor	839	1004	1843	2377	5280	9500	99	19	2.7
TXR 96-3	641	1213	1854	2709	4874	9437	99	20	3.5
FL X98 (New) MR	869	1667	2536	2901	3966	9403	98	27	4.2
Matua bromegrass	0	288	288	1760	7347	9395	98	3	5.0
Tetragold	605	1135	1740	2407	5243	9390	98	19	3.2
Hercules	904	1080	1984	2098	5304	9386	98	21	2.7
WVPB-AR-98-L	516	1241	1757	2730	4886	9373	98	19	4.0
Ribeye	631	1315	1946	2695	4704	9345	98	21	3.7
Sirloin	590	1451	2041	2645	4478	9164	96	22	3.5
OFI-PM1	831	962	1793	2143	5221	9157	96	20	3.0
CAS-MM2	492	855	1347	2263	5507	9117	95	15	3.5
Florida 4N	163	570	733	1818	6331	8882	93	8	3.5
Beefbuilder	678	824	1502	2411	4909	8822	92	17	3.0
Jagger wheat	1157	2617	3774	1073	3603	8450	88	45	4.2
CAS-MM6	398	577	975	1735	5683	8393	88	12	3.2

Stocker bromegrass	4	767	771	1830	5781	8382	88	9	4.5
Abundant	660	848	1508	2336	4369	8213	86	18	2.7
Oklon rye	1019	2403	3422	1911	1908	7241	76	47	4.5
Average									
	744	1278	2022	2410	5167	9599	100	21	3.5
L. S. D.² (.05)									
	319	335	440	361	1118	1396			
C. V.³ (%)									
	30.7	18.7	15.5	10.7	15.5	10.4			

¹Cold injury rating (1-5 scale): 1 = 80% or more leaf loss and more than 50% stand loss; 5 = less than 10% leaf loss and no stand loss.

²Least significant difference.

³Coefficient of variation.

Table 2. Ryegrass forage performance summary, 1996-99; Ardmore, OK

Variety or strain	1996-97	1997-98	1998-99	Three-year average (1996-99)	Two-year average (1997-99)
Pounds of oven-dry forage per acre					
Passerel	7453	5407	11207	8022	8307
Marshall	6710	5640	10945	7765	8293
Rio	6628	5767	10723	7706	8245
Ribeye	7249	6194	9345	7596	7770
Big Daddy	-	5916	9612	-	7764
Southern Star	-	5429	10024	-	7727
Tam 90	6266	5656	9706	7209	7681
WVPB-AR-93-101	6693	5470	9711	7291	7591
Surrey	6742	5161	9669	7191	7415
Common Annual	6881	5063	9560	7168	7312
Matua bromegrass	8014	5167	9395	7525	7281
Tetragold	-	5062	9390	-	7226
Hercules	5660	4541	9386	6529	6964
CAS-MM6	-	4126	8393	-	6260
Oklon rye	-	4893	7241	-	6067
Jagger wheat	-	3657	8450	-	6054
Average					
	6830	5196	9547	7400	7372
L. S. D.¹ (.05)					
	1987	990	1478		

¹Least significant difference.

SOME INFLUENCING FACTORS

Planting date: September 30, 1998.

Location: Pasture Demonstration Farm, Ardmore, Oklahoma.

Seeding rate: Ryegrass and bromegrass: 25 lb./acre; small grains: 2,000,000 live seed/acre, which approximates 90-120 lb./acre, depending on variety and species.

Seeding method: Drilled in seven-inch rows; ryegrass and bromegrass planted at a one-half- inch depth and small grains at a one-inch depth.

Replications: Four (4).

Soil type: Chickasha loam.

Management: Disked, roto-tilled and roller-harrowed.

Fertilization: Preplant: 2 tons dolomitic lime per acre on August 19, 1998 and 85 lb. N and 90 lb. K₂O/acre on August 28, 1998.

Topdress: 80 lb. N/acre on February 11, 1999.

Clipping: Clipped with a sickle mower (Hege Forage Plot Harvester) at a height of two and one-half to three inches to simulate rotational grazing.

Winter damage: Leaf loss and some stand loss following a late December to early January cold spell. Ratings were taken in mid-February.

Temperature: The low temperature was 12°F on January 4, 1999. Temperatures were 20°F or lower on eight dates:

Date	Minimum temperature (°F)	Date	Minimum temperature (°F)
Dec. 21	18	Dec. 26	20
Dec. 22	13	Jan. 3	16
Dec. 24	20	Jan. 4	12
Dec. 25	16	Jan. 9	16

Rainfall (inches):

Month	33-year average	1997-98 season	1998-99 season
September	4.21	1.45	1.74
October	4.12	4.12	4.21
November	2.44	2.22	3.07
December	2.14	5.38	2.43
January	1.63	4.83	1.50
February	2.01	1.44	0.35
March	3.35	5.94	3.45
April	3.60	1.84	4.35
May	5.41	0.26	4.44
Total			
	28.91	27.48	25.54

Information in this report is not conclusive, but should be of great assistance when used with similar information from other sources.

All available information pertaining to the subject should be used in making conclusions and decisions. This publication is intended to furnish supplemental information to aid decision-making and idea formation.

I would like to acknowledge the following Research Assistants for their valuable assistance in the collection and analysis of data and the preparation of this report: Julie Barrick, Bret Flatt, Roger Hartwell, and Sean Maher.