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Forage Yields from 2006-2007 Annual Ryegrass Variety Trial

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Introduction

In an effort to assist livestock producers in Oklahoma and Texas judge variety performance, the Noble Foundation has held trials to determine forage yields of commercially available varieties and experimental strains of annual ryegrass. The objective of this report is to summarize forage yields from the 2006-2007 trial.

Materials and Methods

The test was conducted on a Wilson silt loam soil at the Noble Foundation Headquarters Farm near Ardmore, Okla. The trial consisted of 37 entries; 28 were commercially available varieties and nine were experimental strains. Twelve sources contributed entries to the trial (Table 1). The entries were seeded in a clean-tilled seedbed on Sept. 26, 2006. Each entry was drilled in 5- by 15-foot plots, in 7-inch rows, at 25 lbs/ac (pure live seed basis) at a ½-inch planting depth with a HEGE 500 drill. Fertilization consisted of preplant incorporation of 120 lbs N/ac and 23 lbs P_2O_5/ac on Sept. 19, 2006, and a topdress application of 80 lbs N/acre on March 1, 2007. Broadleaved weeds were controlled with an application of 2,4-D amine at one pt/ac on Jan. 29, 2007. Plots were harvested with a HEGE sickle bar forage plot harvester at a 3-inch height on Feb. 23, March 26, April 9 and May 14, 2007.

The trial was a randomized complete block with three replications. Data were analyzed with the general linear models procedure in SAS (Statistical Analysis Software, Cary, N.C.), and means were separated by the least significant difference (LSD) method ($P \leq 0.05$).

Results and Discussion

Growing conditions were good for the trial. After a slow start following severe drought in the spring and summer of 2006, precipitation from October 2006 through April 2007 was near the 106-year average for Ardmore (Table 2). Rainfall increased substantially in May, toward the end of the trial, and exceeded the 106-year annual average by 2.7 inches.

Table 1. Contributors to the 2007 annual ryegrass forage variety test at the Noble Foundation Headquarters Farm, Ardmore, Okla.

Code	Contributor
TX AES	Lloyd Nelson, Texas A&M University, Overton, Texas
FL AES	Gordon Prine, Ann Blount, and Kevin Kenworthy, University of Florida, Gainesville, Fla.
DLF	DLF-International, Inc., Halsey, Ore.
Wax	The Wax Company, Amory, Miss.
Smith	Smith Seed Services, Halsey, Ore.
Barenbrug	Barenbrug, USA, Tangent, Ore.
Pennington	Pennington Seed, Madison, Ga., and Lebanon, Ore.
Oregro	OreGro Seeds, Inc., Albany, Ore.
Lewis	Lewis Seed Co., Shedd, Ore.
American	American Grass Seed Producers, Tangent, Ore.
SRO	Seed Research of Oregon, Corvallis, Ore.
Proseeds	Pro-Seeds Marketing, Jefferson, Ore.

Table 2. Average 2006-2007 monthly high and low temperatures (°F) and precipitation (inches) for the Noble Foundation Headquarters Farm, Ardmore, Okla.

		Temperature		Precipitation	
Month	**Year**	**Avg. High**	**Avg. Low**	**Total**	**106-yr Avg.**
Sep	2006	85	60	1.69	3.60
Oct	2006	76	52	3.92	3.70
Nov	2006	65	42	3.17	2.48
Dec	2006	55	35	3.28	2.24
Jan	2007	47	31	2.50	1.82
Feb	2007	55	34	0.50	2.07
Mar	2007	71	49	3.88	2.85
Apr	2007	68	49	3.08	3.98
May	2007	79	62	7.93	5.23
Sep-May	2006-2007			29.95	27.97

Table 3. Dry matter forage yields of varieties and experimental entries of annual ryegrass at Ardmore, Okla., harvested on Feb. 23, March 26, April 9 and May 14, 2007

Name [Source]	Harvest dates				
	2/23	3/26	4/9	5/14	Sum
			lbs/ac		
5.0561 TA [American]	963	1021	952	3424	6359
Angus 1 [DLF]	948	1232	457	3309	5946
Attain [Smith]	1057	1070	819	3795	6741
Barextra [Barenbrug]	771	508	1004	3603	5886
Big Boss [Smith]	877	1112	796	3940	6726
DH-3 [Oregro] *	1347**	1187	635	3530	6699
Diamond T [Oregro]	1115	929	898	3577	6519
Ed [Smith]	1518	1223	851	3461	7052
FL x 2006 (PE) LRCT [FL AES] *	1543	1183	568	3516	6811
FL/NE x 2006 (Misc. 2x) LRCT [FL AES] *	1015	1084	960	3388	6447
FL x 2002 (LA3) LRCT [Lewis]	1174	1175	825	4067	7241
FL x 2003 SM [Lewis]	1104	1130	841	3673	6750
Flying A [Oregro]	1251	1010	489	3647	6396
Graze-N-Gro [SRO]	1357	1051	498	3544	6450
Gulf [DLF]	1500	1146	495	3571	6712
Hercules [Barenbrug]	826	857	1010	3569	6262
Jackson [Wax]	895	1351	862	3643	6750
Jumbo [Barenbrug]	869	1023	855	3814	6562
King [Lewis]	1291	1646	651	3585	7175
M/FL x 2006 (4X) ER [FL AES] *	1101	1133	440	3097	5773
M/FL x 2004 (New4) LRCT [American]	1054	1172	810	3671	6708
Marshall [Wax]	1377	1268	844	4306	7795
Maximus [Barenbrug]	1078	1047	810	3515	6450
ME4 [Wax] *	1136	1280	1062	3629	7107
ME94 [Wax]	1168	1148	1139	3389	6845
Passeral Plus [Pennington]	1259	852	1026	3751	6886
Rio [Proseeds]	1283	813	979	3189	6264
Shiwasuaoba [Pennington]	1307	959	94	3066	5425
Striker [SRO]	1056	1064	923	3896	6939
Surrey II [DLF]	779	1025	868	3626	6298
Tam 90 [TX AES]	1464	1077	717	3536	6794
TXR 2004 – OP [TX AES] *	632	1574	620	4028	6854
TXR 2005 – TBO [TX AES] *	773	943	921	3691	6328
TXR2006-T22 [TX AES] *	854	945	857	3271	5928
Verdure [Smith]	1214	1095	605	3370	6284
WD-40 [Oregro]	1431	1183	503	3428	6544
WMN97 [Wax] *	879	1082	1043	3632	6637
CV	26	22	21	11	9
LSD	458	387	264	620	967

*Experimental entries, seed presently not available.

**Shaded numbers are not statistically different from the highest yielding entry within a column.

Overall, forage yields depended on the ryegrass variety and harvest date. Dry matter forage yields among top varieties ranged from 1115 to 1543 lbs/ac on Feb. 23 (Table 3). Similar yields were produced by the second harvest on March 26 with yields among the top varieties ranging from 1268 to 1646 lbs/ac (Table 3). The third harvest occurred shortly thereafter and, as a whole, yielded less than the previous harvest dates. Late spring rains delayed the last harvest until May 14, and consequently forage yields exceeded or were equivalent to the total yields from the previous three dates. Forage yields among the top commercial varieties on the May 14 harvest ranged from 3691 to 4306 lbs/ac (Table 3).

Entries that stood out for producing more than 3000 lbs/ac by April 9 (first three harvests combined) included 'DH-3', 'Ed', 'FL x 2006 (PE) LRCT', 'FL x 2006 (Misc. 2x) LRCT', 'FL x 2002 (LA3) LRCT', 'FL x 2003 SM', 'Gulf', 'Jackson', 'King', 'M/FL x 2004 (New4) LRCT', 'Marshall', 'ME4', 'ME94', 'Passeral Plus', 'Striker', 'Tam 90', 'WD-40' and 'WMN97' (Table 3).

Entries that stood out for producing a lot of forage late (May 14 harvest) included 'Attain', 'Big Boss', FL x 2002 (LA3) LRCT, 'Jumbo', Marshall, Passeral Plus, Striker, 'TXR 2004 – OP' and 'TXR 2005 – TBO' (Table 3).

Entries that stood out for producing the most forage over the whole season (sum yields) included Ed, FL x 2002 (LA3) LRCT, King, Marshall, Passeral Plus, Striker and TXR 2004 – OP (Table 3).

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