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Small Grain and Rye Grass Forage Variety Tests in Oklahoma

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The small grains (wheat, rye, oats, and barley) are the highest quality forages which can be produced over all of Oklahoma. Steer gains from small grain pasture have consistently been superior when compared to other Oklahoma forages.

Steers on wheat pasture gained 1.7 pounds/day, then subsequent feedlot performance of these was equal to that of steers which gained only 0.9 pounds/day on bermudagrass hay (Horn, et al. 1974). Thus, its value for preconditioning steers prior to going into the feedlot was apparent. However, the forage appears to be inadequate in available calcium and magnesium, and may be higher in phosphorus than necessary for the diet of cattle. Mineral supplementation should be based on these needs. The *in vitro* dry matter digestibility ranged from 76 to 48 percent, but it has a very fast rate of digestion compared to bermudagrass hay. This rapid rate of digestion plus very high crude protein and non protein nitrogen content may be responsible for amino acid imbalances in the animal as well as potentially toxic levels of ammonia production in the rumen.

In two years of testing at Muskogee where wheat and rye forage was harvested four times a year, approximately 6-8 pounds of forage were sufficient for one pound of beef gain (McMurphy and Tucker, 1971 and 1972). Forage was harvested four times during the season about like most variety tests. However, with less frequent clipping, an unrealistic greater forage production

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occurs. The conditions for these studies were ideal, and 400-pound steers gaining 2 pounds/day should consume 11 pounds of forage (oven dry) daily (National Academy of Sciences, 1970).

One problem faced by producers is the production of an adequate quantity of forage. Previous variety test results were reported by Denman and Arnold (1970).

The purpose of this publication is to summarize several years of small grain variety testing and some cultural methods to facilitate greater quantity of forage production.

Methods

All forage data reported herein are oven dry weights from four replications in each study. The standard dryland plot size measured 5 feet by 20 feet with rows 12 inches apart. The yield sample was mowed from the three center rows. Seeding rates were approximately 100-120 pounds/acre for the small grains. Precipitation at each location for the growing season is presented in Tables 31-35.

Test locations are shown in Figure 1 and the only irrigated test was at Goodwell. Information on soil test, soil series, seeding date, and fertilizer applied are presented with each table of the results. The experimental design was randomized complete block.

Results

There are many good varieties available, but no one variety has been consistently superior at all locations. Since fall and winter forage supplies are often limiting, it is important to select varieties capable of providing early production. Rye is noted for this characteristic, but if seeded early enough, many wheat varieties can compare favorably with rye for early growth. If adequate spring moisture is available, wheat will provide about 2 weeks longer grazing than rye. If moisture is still abundant at the time, ryegrass will continue to produce after wheat has ceased growth. A word of caution is necessary about ryegrass because its growth habit and weedy nature would be quite comparable to introducing cheat into a wheat field used for grain production.

There are too many varieties available to test continually, thus many good varieties are no longer included in current tests. A method described by Patterson (1950) to adjust for the year effects was used to compute a comparative summary of forage production at each location. Bonel rye has been tested every year at every location and serves as the standard for our comparisons. This comparative value is based on the yield of each variety expressed as

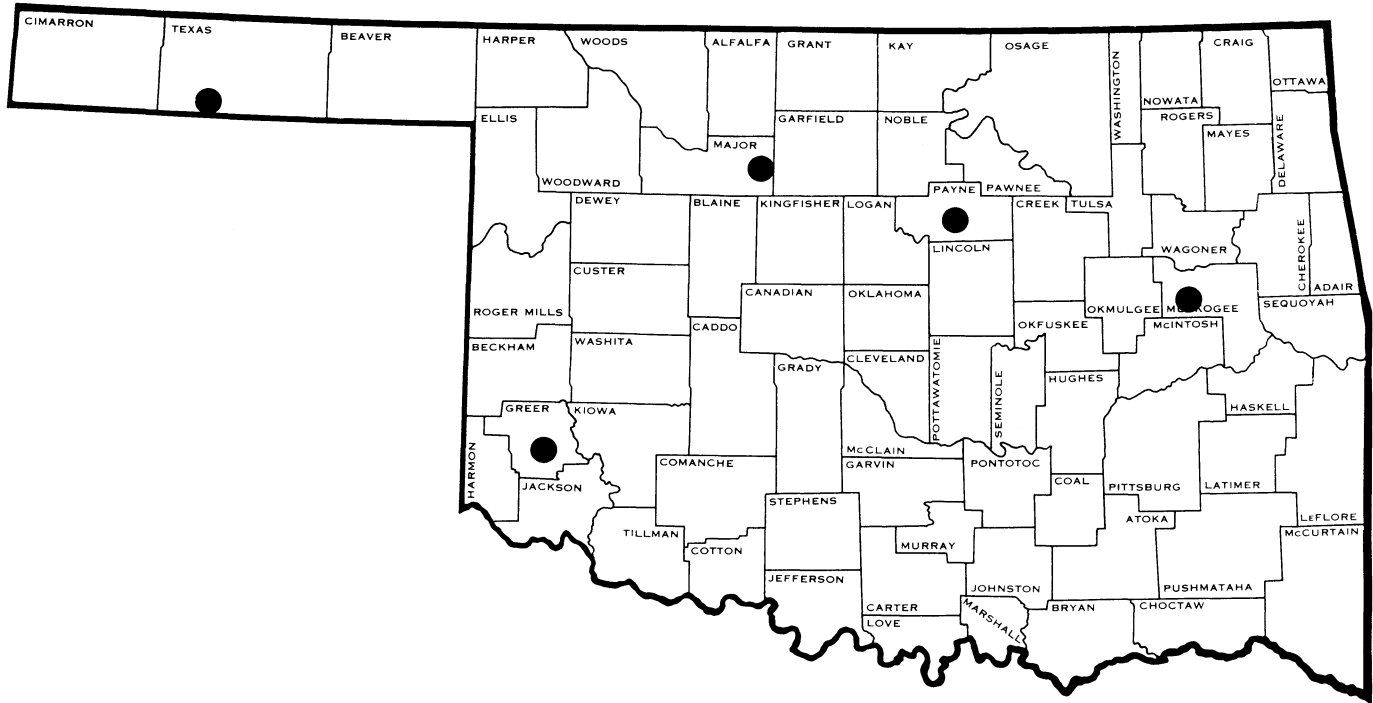


Figure 1. Locations of Small Grain and Ryegrass Forage Variety Tests in Oklahoma.

percent of the yield of Bonel rye only in the years the variety was tested. Included in this comparative summary are data from Denman and Arnold (1970). Performance of those varieties tested more than one year is more reliable; therefore, they are listed first in the comparative summary tables.

Goodwell

Irrigated small grain varieties have been seeded in August each year. With this early seeding date rye has shown no advantage over wheat for fall and winter production (Tables 1-6). Since wheat is usually more productive than rye in the spring, the wheat varieties have often outproduced rye in total forage (Table 1). Several varieties seem to excel here, but not at other locations. Kerr barley, DeKalb 9190 and some triticales compare rather favorably to rye production.

Lahoma

The rye varieties have been consistently high producers with Bonel being superior (Table 7). Among the wheat varieties, DeKalb 582, Sturdy, Triumph 64, Centurk, and Osage were good producers. Linn perennial ryegrass produced good late spring forage in only two of the four years that it was tested (Tables 8-12).

Mangum

If the objective here is to produce fall and winter forage, then there is only one species choice, rye. Fortunately, there are several good varieties of rye to select from (Table 13). Limited moisture is often a critical factor which prevents early seeding; however, the value of early seeding if possible is reflected in the 1971-72 and 1973-74 season data (Tables 15, 16).

Muskogee

The total environment at Muskogee is different from the rest of Oklahoma. The growing season precipitation is greater. The Taloka and Parsons soils have a clay pan which restricts downward water movement in the profile. This plus excessive precipitation results in water logged soils over considerable periods of time and may well be responsible for the relatively lower forage production obtained at Muskogee in comparison with other locations in Oklahoma.

The ryegrasses have proven remarkably well adapted to these wet soils and have produced significantly greater total forage than any of the small grains (Table 19). However, much of this extra forage is produced later in the spring than the small grain (Tables 21-24). Furthermore, to secure fall pro-

duction, a late August seeding date is necessary. Then the forage should be fully utilized by late December. Ryegrass has been topkilled by severe cold and only dead, brown, vegetation was available for winter grazing resulting in poor steer gains until new spring growth commenced. Possibly in southeastern and south central Oklahoma the temperature may not be severe enough to kill the topgrowth. Average daily gain of steers on ryegrass was about 73 percent that of steers on small grain pasture (McMurphy and Tucker, 1974).

The difference between Bonel and Elbon rye is much less here than at other locations. Some of the noteworthy small grain forage varieties are Bonel rye, Elbon rye, Scout 66 wheat, DeKalb 582 wheat, Osage wheat, Centurk wheat, and Triumph 64 wheat.

Perkins

Outstanding varieties at Perkins have been Bonel rye, Maton rye, Scout 66 wheat, and Centurk wheat (Table 25). Moisture conditions during these seasons have been excellent at this location.

Summary

The five locations where these tests were conducted in Oklahoma are from widely different soils and climates. Generally, the ryegrasses excel at Muskogee where wet soils prevail, but ryegrasses are very poor producers at Mangum. On the dry sandy soils at Mangum, rye varieties are superior. Then with the early seeding and irrigation at Goodwell, the wheat varieties excel.

These data are provided to assist producers in various areas of Oklahoma to select those varieties best suited to their needs.

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Table 1. Goodwell comparative summary of small grain forage production expressed as % of Bonel rye.

Variety	% of Bonel	No. yrs. tested	Variety	% of Bonel	No. yrs. tested
Rye			Wheat		
Bonel	100	7	Scout 66	116	2
Okema	101	3	Danne	114	3
NF 324	99	2	Osage	112	3
NF 270	98	3	Nicoma	108	3
Elbon	89	7	Centurk	107	3
Maton	89	3	Parker	101	2
Triplegraze	89	2	Triumph 64	101	5
Wintergr. 70	99	1	Kaw 61	93	3
Von Lochow	99	1	DeKalb 582	90	2
TE 7401	94	1	Improved Triumph	87	2
TE 7105	93	1	TAM W-101	86	4
McNair	90	1	Agent	83	5
TE Gro-Green	87	1	OK 696740	148	1
Haiwasse	84	1	McCall	124	1
Acco	77	1	Caprock	108	1
NF 306	72	1	Danne 146-4	108	1
Barley			Scout	106	1
Kerr	119	7	Sturdy	104	1
Will	79	7	TAM W-103	87	1
Nebar	153	1	OK 66V2621	79	1
Cl 13855	107	1	OK 66V2629	76	1
Luther	88	1	Yukon	74	1
Barsoy	86	1	Triticale		
Kanby	39	1	OK 72179	115	3
Misc.			T-131	112	3
DeKalb 9190	122	2	T-385	74	3
Linn Per. Ryegr.	119	3	Nebraska 69150	127	1
Mix: Rye-Wh.-Ryegr.	108	1	OK 72181	116	1
Tetra 444 Ryegr.	75	1	T-208	84	1
Wintergr. An. Ryegr.	56	1	OK 697947	81	1
			Fasgro T204	15	1

Table 2. Goodwell, 1970-1971 season, irrigated small grain forage variety production in lb/acre. Richfield clay loam.

Variety	Harvest Dates						1970-71 Total
	10-23	12-15	3-25	4-14	5-5	6-3	
Rye							
Bonel	611	661	1249	1916	646	224	5307
Elbon	455	588	1266	1514	667	202	4692
Barley							
Kerr	704	212	757	2904	959	215	5751
Will	741	755	585	2026	636	261	5004
Wheat							
Danne	571	226	947	3769	563	276	6354
Kaw 61	645	199	1219	3159	594	442	6258
Triumph 64	612	221	1075	3307	511	337	6063
D-146-4	461	285	1075	3245	656	230	5952
Nicoma	671	239	1064	3114	572	289	5949
Parker	449	108	1069	3413	466	362	5867
Sturdy	677	464	1185	2560	572	194	5652
Agent	399	746	914	1280	763	128	4230
LSD	163	110	231	398	208	92	587

Seeding Date: August 26, 1970

Fertilized: October 23, 1970, with 100-0-0
February 16, 1971, with 100-0-0

Table 3. Goodwell, 1971-72 season, irrigated small grain forage variety production in lb/acre. Richfield clay loam.

Variety	Harvest Dates									1971-72 Total
	10-14	10-28	12-17	3-7	3-21	4-12	5-3	5-26	6-27	
Rye										
Bonel	629	650	286	1497	565	1147	636	808	--	6218
Acco	753	683	360	820	643	1115	574	837	--	5785
Elbon	553	601	304	1356	542	922	456	649	--	5383
Barley										
Kerr	869	721	308	725	719	3251	2345	846	--	9784
Will	301	477	267	1158	644	2620	951	865	--	7283
Barsoy	650	623	312	1324	665	2117	307	391	--	6389
Wheat										
Triumph 64	508	575	352	811	1102	2562	364	--	--	6274
Scout 66	683	632	273	997	1078	2072	410	--	--	6145
Nicoma	580	574	240	1155	1071	2030	375	--	--	6025
D-145 B4	520	486	301	567	1451	2146	350	--	--	5821
Centurk	454	424	287	745	1481	1786	559	--	--	5736
Yukon	486	561	249	1100	1057	1506	559	--	--	5518
Texas 65 A 1682	428	447	218	1078	898	1055	382	--	--	4506
Agent	781	527	302	--	287	1628	247	--	--	3772
Triticale										
Fasgro T204	721	458	211	--	--	--	--	--	--	1390
Miscellaneous										
Linn Per. Ryegr.	149	275	143	499	531	2222	2504	2442	917	9682
Mix: Rye-Wh.-Ryegr.	501	602	422	674	478	932	1454	2018	826	7907
LSD (Lbs./A.)	194	214	154	544	430	793	354	325	--	1029
CV (%)	27	25	37	39	37	31	32	20		12

Seeding Date: August 23, 1971

Soil Test: pH 7.2, P 65 lb/A, K 675 lb/A

Fertilizer: 80-0-0 August 23, 1971

56-0-0 Oct. 15, Oct. 28, Mar. 6, Mar. 22, Apr. 13, May 4, and June 6

Total was 472 lb. N/A.

Table 4. Goodwell, 1972-73 season, irrigated small grain forage variety production in lb/acre. Richfield clay loam.

Variety	Harvest Dates					1972-1973 Total
	9-27	10-11	4-6	5-5	5-31	
Rye						
Okema	813	719	4278	180	852	6842
Bonel	942	696	3876	---	834	6348
Von Lochow	410	180	2530	2146	981	6247
Wintergraze 70	854	709	3677	142	844	6226
Maton	575	677	3989	---	827	6068
NF 270	521	665	3748	---	886	5820
Elbon	842	903	3195	---	751	5691
Triplegraze	461	623	3333	324	907	5648
McNair	899	790	3045	---	848	5582
Wheat						
Scout 66	932	809	3270	2498	2248	9757
Osage	556	740	3282	3364	1740	9682
OK696740	914	849	3410	2826	1680	9679
Centurk	837	813	2665	2450	2068	8833
Nicoma	1119	762	3055	2402	1473	8811
Danne	647	556	2996	2578	1778	8555
Triumph 64	643	733	3206	2295	1247	8124
Caprock	773	766	2447	1740	1168	6894
TAM W101	680	692	2113	1398	1653	6536
Agent	853	770	865	1890	1570	5948
Barley						
Kerr	936	779	897	4202	1818	8632
Will	703	803	---	828	1343	3677
Triticale						
Nebraska 69150	459	563	2324	3529	1327	8202
OK 72179	455	526	1929	3370	1845	8125
T-131	380	518	2251	3241	1549	7939
OK 72181	407	481	1615	3682	1273	7458
T-385	403	522	815	1807	2117	5664
T-208	726	707	---	1869	1880	5182
OK 697947	600	800	---	1642	1893	4935
Ryegrass						
Linn Perennial	199	102	493	2827	2886	6507
LSD (lbs/A)	392	248	1147	664	479	1172
CV (%)	31	20	23	21	23	12

Seeding Date: August 16, 1972

Soil Test: pH 7.6, P 56 lb/A, K 750 lb/A, NO₃-N 50/lb/A.

Fertilizer: 120-0-0 August 15, 1972

60-0-0 Sept. 28, Oct. 12, April 12, May 13, and May 31.

Total was 420 lb. N/A.

Table 5. Goodwill, 1973-74 season, irrigated small grain forage variety production in lb/acre. Richfield clay loam.

Variety	Harvest Dates							1973-74 Total
	10-18	10-31	2-14	3-7	3-28	4-16	5-20	
Rye								
NF 270	1340	749	3145	1890	1133	369	1885	10,511
Okema	1113	720	2697	1506	1454	558	1972	10,020
Bonel	914	789	2211	1778	1541	431	2186	9,850
NF 324	1260	771	2311	1524	1103	451	1895	9,315
Triplegraze	1053	692	2423	1810	936	463	1785	9,162
Maton	1198	814	2089	1703	1003	319	1907	9,033
NF 306	1374	854	1885	1442	852	154	1511	8,072
Eibon	1093	829	2542	1419	906	120	1031	7,940
Wheat								
McCall	1566	896	899	1300	1835	1676	3601	11,773
Centurk	1093	722	787	1721	2186	1930	2166	10,605
Triumph 64	1347	824	747	1701	2268	1828	1362	10,077
TAM W-101	849	545	1412	1987	1955	1061	2087	9,896
Osage	1028	677	837	1457	2146	2094	1601	9,840
DeKalb 582	1464	735	829	1113	1818	1524	1228	8,711
Barley								
Kerr	1290	802	864	1143	2537	1696	2951	11,283
Cl 13855	979	725	1180	1178	1387	1447	3615	10,511
Will	1193	769	1392	1225	1357	1023	3322	10,281
Luther	1058	725	1362	1526	1292	886	2366	9,215
Triticale								
T-131	1183	423	769	2196	2420	1536	2577	11,104
OK 72179	944	344	740	2338	2146	1277	2647	10,436
T-385	794	535	2495	996	543	207	1805	7,375
Miscellaneous								
DeKalb 9190	1372	822	936	1257	1210	1569	3802	10,968
Linn Per. Ryegr.	242	266	341	401	896	954	5301	8,401
Tetra 444 Ryegr.	1006	428	383	508	578	700	4701	8,304
Wintergr. An. Ryegr.	857	458	715	675	336	575	3307	6,923
LSD (lbs/A)	439	181	486	542	634	433	1040	1,801
CV (%)	27	18	23	25	30	29	31	13

Seeding date: August 30, 1973

Soil Test: pH 7.7, P 17 lb/A, K 740 lb/A, No₃-N 70 lb/A

Fertilizer: 60-50-0 Aug. 29, 1973

50-0-0 Oct. 19, Oct. 31, Feb. 14, Mar. 7, and Mar. 28.

Total was 310 lb. of N/A.

Table 6. Goodwell, 1974-75 season, small grain forage variety production in lb/acre. Richfield clay loam.

Variety	Harvest Dates					1974-75
	10-11	11-14	3-19	4-17	6-11	Total
Rye						
NF 324	1690	2329	1987	913	2250	9169
Bonel	1496	2204	2327	878	2262	9167
NF 270	1462	2174	2262	638	1660	8196
Okema	1253	2158	1532	946	2229	8118
TE 7401	1188	2323	1690	951	1940	8092
TE 7105	1441	2321	1786	902	1602	8052
TE Gro-Green	1429	1898	1604	743	1893	7567
Maton	1448	2227	1848	546	1443	7510
Haiwasse	1494	1998	1503	644	1722	7361
Elbon	1211	2118	1566	336	1567	6798
Wheat						
DeKalb 582	1504	1945	1383	1748	1801	8381
Osage	896	2010	1790	2280	872	7848
TAM W-103	1204	1904	1551	2156	749	7564
TAM W-101	1451	2007	1556	1493	904	7411
Triumph 64	1332	1616	1397	2301	690	7336
OK 66V2621	1223	1977	1431	1850	577	7058
OK 66V2629	1245	1669	1312	1923	694	6843
Barley						
Kerr	1685	2194	1167	1288	6456	12790
Nebar	1493	2256	1340	2090	5055	12234
Will	1796	2664	0	0	0	4460
Kanby	1830	2382	0	0	0	4212
Triticale						
OK 72179	1671	2350	1777	1422	2257	9477
T-131	1357	2037	1408	1676	1980	8458
T-385	1109	2142	1055	261	1742	6309
Other						
Linn. per. Ryegr.	387	1678	1203	1892	6744	11904
DeKalb 9190	1329	1717	1435	1565	4690	10736
LSD (lbs/A)	336	436	574	552	1051	1409
CV (%)	17	15	26	30	33	12

Seeding Date: August 30, 1974

Soil Test: pH 7.3, P 39 lb/A, K 690 lb/A, NO₃-N 300 lb/A

Fertilizer: 60-0-0 Oct. 11, 1974

60-0-0 March 20, 1975

60-0-0 April 25, 1975

Table 7. Lahoma comparative summary of small grain forage production expressed as % of Bonel rye.

Variety	% of Bonel	No. yrs. tested	Variety	% of Bonel	No. yrs. tested
Rye			Wheat		
Bonel	100	5	DeKalb 582	94	2
NF 324	100	2	Sturdy	89	2
Maton	90	3	Triumph 64	87	5
Okema	89	3	Centurk	82	3
NF 306	89	2	Osage	80	3
Elbon	87	5	TAM W-101	77	3
NF 270	85	3	Danne	77	3
Triplegrazer	85	2	Nicoma	74	3
McNair	81	3	Scout 66	65	2
Acco	78	3	Agent	65	3
TE Gro-Green	96	1	Kaw 61	95	1
Rymin	95	1	Parker	94	1
TE 7105	94	1	McCall	93	1
Puma	91	1	Danne 146-4	91	1
TE 7401	88	1	D-145 B4	88	1
Wintergr. 70	62	1	TAM W-103	87	1
Penngraze-W	52	1	Yukon	85	1
Von Lochow	42	1	OK 66V2629	85	1
Caribou	40	1	OK 66V2621	84	1
			OK 696740	54	1
			Caprock	52	1
Barley			Oats		
Kerr	84	5	Cimarron	87	2
Will	81	5	Checota	83	2
Luther	38	2	Chilocco	61	5
Kanby	93	1	Walken	50	3
Nebar	85	1	Nora	81	1
Barsoy	84	1			
CI 13855	60	1			
Triticale			Misc.		
OK 72179	79	3	DeKalb 9190	93	2
T-131	68	4	Linn Per. Ryegr.	72	4
T-385	58	3	DeKalb 9290	85	1
Nebraska 69150	62	2	Wintergr. An. Ryegr.	69	1
Rosner	60	1	Mix: Rye-Wh.-Ryegr.	68	1
Fasgro T204	60	1	Tetra 444 Ryegr.	65	1
Graze Grain 70A	56	1			
Nebraska 69150	41	1			
OK 72181	36	1			
OK 697947	15	1			
T-208	15	1			

Table 8. Lahoma, 1970-71 season, small grain forage variety production in lb/acre. Pond Creek silt loam.

Variety	Harvest Dates		1970-71
	3-30	5-7	Total
Rye			
Bonel	1223	1208	2431
Acco	1151	1016	2166
Elbon	1110	1015	2125
McNair	1276	849	2125
Barley			
Will	543	1744	2287
Kerr	656	1589	2245
Wheat			
Kaw 61	764	1630	2394
Danne	639	1750	2390
Parker	600	1710	2310
Nicoma	775	1488	2263
D-146-4	502	1677	2179
Triumph 64	607	1544	2150
Sturdy	686	1352	2039
Agent	498	1533	2030
Oats			
Cimarron	660	1576	2236
Checota	359	1818	2177
Chilocco	293	1720	2013
Nora	275	1337	1611
LSD	282	221	354

Seeding Date: September 29, 1970

Fertilized: March 10, 1971, with 40-0-0

Table 9. Lahoma, 1971-72 season, small grain forage variety production in lb/acre. Grant silt loam.

Variety	Harvest Dates				1971-72
	11-29	3-13	4-19	5-30	Total
Rye					
Bonel	1771	1045	543	768	4127
McNair	1742	1000	387	623	3752
Acco	1771	917	436	619	3743
Elbon	1278	1149	459	686	3572
Wheat					
Centurk	1670	1006	748	944	4368
Sturdy	1684	917	603	757	3961
Danne	1467	935	750	759	3911
D-145 B4	1496	884	739	739	3858
Nicoma	1445	1013	802	552	3812
Triumph 64	1459	915	715	710	3799
Yukon	1249	1045	835	575	3704
Scout 66	1365	1009	454	719	3547
Texas 65A 1682	1111	1011	648	706	3476
Agent	1525	786	394	604	3309
Barley					
Kerr	1888	877	512	1007	4284
Barsoy	1888	690	485	612	3675
Will	1241	757	717	884	3599
Oats					
Cimarron	1517	686	563	733	3499
Chilocco	1321	741	332	898	3292
Checota	1016	721	428	1027	3192
Triticale					
Nebraska 69150	1089	1035	715	728	3567
FasGro T204	1844	--	--	535	2379
Rosner	1663	--	--	692	2355
Graze Grain 70A	1503	--	--	675	2178
Miscellaneous					
DeKalb 9290	1183	764	862	922	3731
Mix: Rye-Wh.-Ryegr.	1401	532	163	702	2798
Linn Per. Ryegr.	1271	423	--	953	2647
LSD (lbs./A.)	273	210	175	176	398
CV (%)	13	17	21	17	8

Seeding date: September 2, 1971

Soil test: pH 5.8, P 46 lb/A, K 590 lb/A

Fertilizer: 60-40-0 September 1, 1971

60-0-0 December 1, 1971

60-0-0 March 15, 1972

60-0-0 April 20, 1972

Table 10. Lahoma, 1972-73 season, small grain forage variety production in lb/acre. Pond Creek silt loam.

Variety	Harvest Dates		1972-73
	2-27	5-7	Total
Rye			
Bonel	3376	7754	11,130
Triplegraze	2804	6676	9,480
NF 306	2793	6652	9,445
Elbon	2957	6425	9,382
Maton	2648	6472	9,120
Okema	2557	6559	9,116
McNair	2514	6592	9,106
Wintergrazer 70	2634	6244	8,878
Acco	2260	6409	8,669
NF 270	2601	6053	8,654
Penngraze-w	2401	5921	8,322
Von Lochow	840	6926	7,766
Caribou	485	7187	7,672
Wheat			
Triumph 64	2058	7665	9,723
TAM W-101	1984	6953	8,937
OK 696740	1385	7049	8,434
Centurk	1481	6870	8,351
Caprock	2140	6162	8,302
Osage	1049	7202	8,251
Scout 66	1410	6658	8,068
Danne	1657	6391	8,048
Nicoma	1597	6198	7,795
Agent	1495	5641	7,136
Barley			
Will	751	8696	9,447
Kerr	1401	7146	8,547
Luther	1639	4670	6,309
Oats			
Chilocco	584	5767	6,351
Walken	741	4686	5,427
Triticale			
	427	8387	8,814
Nebraska 69150	577	7158	7,735
OK 72179	653	6824	7,477
T-131	405	6988	7,393
T-385	428	6244	6,672
OK 697947	390	5919	6,309
T-208	613	4066	4,679
Miscellaneous			
Linn Per. Ryegr.	27	5625	5,652
LSD (Lbs./A)	308	866	955
CV (%)	14	9	8

Seeding Date: September 12, 1972
 Soil Test: pH 5.5, P 49 lb/A, K 615 lb/A, NO₃-N 26 lb/A
 Fertilizer: 60-40-9 Sept. 10, 1972

Table 11. Lahoma, 1973-74 season, small grain forage variety production in lb/acre. Pond Creek silt loam.

Variety	Harvest Dates				1973-74
	12-13	3-26	4-17	5-6	Total
Rye					
Bonel	1957	2635	617	842	6051
Elbon	1971	2401	497	842	5711
Maton	1971	2205	561	888	5625
NF 324	2000	2229	555	808	5592
Okema	1732	2447	657	751	5587
NF 306	2016	2352	446	739	5553
NF 270	2036	2007	577	909	5529
Triplegraze	1448	2251	612	784	5095
Wheat					
Osage	1211	1971	1191	1022	5395
DeKalb 582	1432	1820	1042	967	5261
Centurk	1456	1632	973	1002	5063
McCall	1675	1138	1033	1094	4940
Triumph 64	1742	1330	1022	770	4864
Barley					
Kerr	1879	728	677	1261	4545
Will	1510	733	784	1114	4141
Luther	1594	301	376	964	3235
CI 13855	1690	178	383	869	3120
Oats					
Walken	1655	0	0	0	1655
Chilocco	1227	0	0	0	1227
Triticale					
T-131	1006	1586	1276	844	4712
T-385	951	1432	1009	944	4336
OK 72179	575	1628	1191	795	4189
Miscellaneous					
Linn Per. Ryegr.	695	780	1454	2793	5722
DeKalb 9190	1935	1329	1004	1134	5402
Wintergr. An. Ryegr.	1405	296	512	1390	3603
Tetra 444 Ryegr.	1241	256	575	1358	3430
LSD (lbs/A)	245	356	159	176	493
CV (%)	11	17	14	12	8

Seeding Date: September 21, 1973

Soil Test: pH 5.2, P 106 lb/A, K 555 lb/A, NO₃-N 41 lb/A

Fertilizer: 60-0-0 Aug. 22, 1973

60-0-0 Dec. 14, 1973

60-0-0 Mar. 26, 1974

Table 12. Lahoma, 1974-75 season, small grain forage variety production in lb/acre. Pond Creek silt loam.

Variety	Harvest Dates				1974-75
	12-23	3-25	4-24	6-3	Total
Rye					
Maton	871	1281	1295	0	3447
TE Gro-Green	809	1252	1366	0	3427
NF 324	684	1347	1370	0	3401
Rymin	786	728	1876	0	3390
Okema	590	1310	1463	0	3363
NF 270	648	1408	1273	0	3329
TE 7105	646	1367	1314	0	3327
Bonel	630	1352	1334	0	3316
Puma	497	595	2072	0	3164
TE 7401	309	1267	1408	0	2984
Elbon	309	1096	1363	0	2768
Wheat					
Dekalb 582	376	690	2020	0	3086
Osage	191	584	2245	0	3020
TAM W-101	167	672	2165	0	3004
Triumph 64	358	584	1989	0	2931
TAM W-103	192	446	2284	0	2922
OK 66V2629	174	746	1922	0	2842
OK 66V2621	127	608	2047	0	2782
Barley					
Kanby	594	630	2023	0	3247
Kerr	485	546	1944	0	2975
Nebar	476	537	1842	0	2855
Will	151	505	1860	0	2516
Oats					
Walken	294	388	1997	2073	4752
Chilocco	419	281	2128	927	3753
Triticale					
OK 72179	779	1225	1468	0	3472
T-131	151	501	1962	0	2614
T-385	120	521	1446	0	2087
Other					
Linn Per. Ryegr.	113	158	2111	1958	4340
DeKalb 9190	436	597	1795	0	2828
LSD (lbs/A)	137	181	307	516	449
CV (%)	23	16	12	18	10

Seeding Date: October 3, 1974

Soil Test: pH 5.4, P 49 lb/A, K 400 lb/A, NO₃-N 44 lb/A

Fertilizer: 0-40-0 Sept. 9, 1974

30-0-0 Sept. 6, 1974

60-0-0 Dec. 23, 1974

Table 13. Mangum comparative summary of small grain forage production expressed as % of Bonel rye.

Variety	% of Bonel	No. yrs. tested	Variety	% of Bonel	No. yrs. tested
Rye			Wheat		
Bonel	100	9	Osage	68	3
Elbon	95	9	Scout 66	61	3
Maton	93	3	Scout	61	3
NF 270	93	3	DeKalb 582	60	2
NF 324	92	2	Agent	56	7
Acco	92	5	Improved Triumph	54	3
McNair	87	4	TAM W-101	54	4
Wintergr. 70	82	2	Parker	53	5
Okema	81	4	Danne	52	6
Triplegraze	70	3	Kaw 61	51	5
NF 306	120	1	Yukon	49	2
TE Gro-Green	107	1	Triumph 64	45	6
TE 7401	103	1	Danne 146-4	43	2
TE 7105	100	1	Nicoma	43	4
Haiwasse	89	1	Sturdy	41	4
Caribou	81	1	Centurk	39	3
Von Lochow	72	1	Caprock	37	2
			Ok 66V2629	88	1
			TAM W-103	85	1
Barley			OK 696740	77	1
Rogers	76	3	OK 66V2621	74	1
Will	69	9	McCall	49	1
Kerr	69	9	D-145 B4	26	1
Luther	65	2			
Nebar	75	1	Oats		
Kanby	73	1	Walken	95	3
CI 13855	57	1	Bronco	71	3
Barsoy	54	1	Chilocco	61	5
			Cimarron	55	6
Triticale			Checota	42	3
T-131	86	3	Nora	35	4
OK 72179	82	3	NF 199	106	1
T-385	71	3			
Nebraska 69150	79	2	Misc.		
OK 697947	90	1	DeKalb 9190	65	2
OK 72181	74	1	Linn Per. Ryegr.	27	4
T-208	62	1	Mix: Rye-Wh.-Ryegr.	67	1
Fasgro T204	51	1	Tetra 444 Ryegrass	42	1
Rosner	47	1	DeKalb 9290	38	1
Graze Grain 70A	36	1	Wintergr. An. Ryegr.	23	1

Table 14. Mangum, 1970-71 season, small grain forage variety production in lb/acre. Meno and Altus loamy fine sand.

Variety	Dec 14	March 1	April 5	May 11	Total
Rye					
Bonel	1604	951	2200	719	5474
Elbon	1307	1365	1997	552	5220
Acco	1416	1016	1706	675	4813
McNair	1387	1292	1525	545	4748
Wheat					
D-146-4			1365	1162	2526
Triumph 64			1292	1082	2367
Danne			1372	980	2352
Kaw 61			1510	799	2309
Agent			1408	661	2069
Sturdy			1002	951	1953
Nicoma			937	878	1815
Parker			973	799	1771
Barley					
Will			719	1074	1786
Kerr			682	1060	1742
Oats					
Cimarron			479	501	980
Chilocco			298	479	784
Checota			254	319	574
Nora			167	247	407
LSD	NS	NS	576	413	1095

Seeding Date: September 21, 1970

Fertilized: September 18, 1970 with 30-90-40
 December 23, 1970 with 40-0-0

Table 15. Mangum, 1971-72 season, small grain forage variety production in lb/acre. Meno and Altus loamy fine sand.

Variety	11-16	2-16	3-15	4-17	5-31	1971-72 Total
Rye						
Bonel	1599	621	1367	664	1174	5425
Acco	1548	515	1350	688	1102	5203
Wintergrazer 70	1376	499	1793	692	581	4941
Elbon	1935	829	1085	359	617	4825
Okema	1387	412	1223	795	846	4663
McNair	1309	379	1156	583	579	4006
Triple graze	957	684	1114	599	574	3928
Wheat						
Nicoma	750	116	1100	1748	145	3859
Scout 66	158	--	1471	1837	316	3782
Agent	548	410	1545	924	252	3679
Yukon	572	22	935	1830	176	3535
Sturdy	951	158	704	1358	270	3441
Centurk	319	29	897	1543	283	3071
Danne	249	--	940	1443	372	3004
Triumph 64	628	45	530	1488	152	2843
Texas 65A 1682	142	38	1033	1247	160	2620
D-145 B4	114	--	526	1528	289	2457
Barley						
Will	1125	27	922	2196	434	4704
Kerr	1862	152	278	1300	833	4425
Barsoy	1935	127	619	826	107	3614
Oats						
Checota	221	165	416	1646	1236	3684
Cimarron	329	243	546	1501	710	3329
Chilocco	280	196	481	1539	775	3271
Nora	461	107	405	1267	127	2367
Triticale						
Nebraska 69150	532	--	1178	1559	1087	4356
FasGro T204	1450	236	543	662	597	3488
Rosner	922	348	530	744	775	3319
Graze Grain 70A	1205	539	281	468	370	2863
Miscellaneous						
Rye-Wh.-Ryegr.	1256	452	1472	652	348	4180
DeKalb 9290	494	29	621	1004	802	2950
Linn Per. Ryegr.	67	--	--	--	192	259
LSD (lbs./A.)	799	305	503	453	237	1148
CV (%)	63	57	39	28	32	22

Seeding date: September 10, 1971

Soil test: pH 5.8, P 229 lb/A, K 369 lb/A

Fertilizer: 60-0-0 September 10, 1971

60-0-0 November 17, 1971

60-0-0 February 18, 1972

60-0-0 March 16, 1972

60-0-0 April 18, 1972

Table 16. Mangum, 1972-73 season, small grain forage variety production in lb/acre. Meno and Altus loamy fine sand.

Variety	Harvest Dates			1972-73
	4-6	5-1	5-30	Total
Rye				
Bonel	2119	1007	1516	4,642
NF 207	2125	924	1561	4,610
Maton	2494	781	1231	4,506
Caribou	592	2287	1291	4,170
Wintergrazer 70	1601	1007	1412	4,020
Okema	2100	998	909	4,007
Elbon	1703	746	1503	3,952
McNair	2102	724	947	3,773
Von Lochow	615	2352	793	3,760
Acco	1713	773	1093	3,579
Triplegraze	1761	584	751	3,096
Wheat				
Osage	526	2752	973	4,251
OK 696740	572	2122	1272	3,966
Agent	298	2347	960	3,605
Scout 66	555	1556	1289	3,400
Danne	630	1830	848	3,308
TAM W-101	466	1525	996	2,987
Nicoma	871	1095	757	2,723
Centurk	479	1336	866	2,681
Triumph 64	510	1022	1018	2,550
Caprock	506	909	906	2,321
Barley				
Kerr	461	1713	2124	4,298
Will	287	1641	2174	4,102
Luther	437	1566	1944	3,947
Oats				
Walken	0	842	3162	4,004
Chilocco	104	1281	1577	2,962
Triticale				
OK 697947	345	2149	2044	4,538
OK 72179	500	2338	1505	4,343
Nebraska 69150	577	2323	1136	4,036
OK 72181	267	1928	1668	3,863
T-131	189	1557	1926	3,672
T-208	405	1684	1265	3,354
T-385	128	1134	1588	2,850
Ryegrass				
Linn Perennial	16	706	1394	2,116
LSD (lbs/A)	556	619	684	977
CV (%)	48	30	36	19

Seeding Date: November 7, 1972

Soil Test: pH 5.8, P 109 lb/A, K 350 lb/A, NO₃-N 28 lb/A

Fertilizer: 40-60-40 August 29, 1972

60-0-0 April 7, 1973

Table 17. Mangum, 1973-74 season, small grain forage variety production in lb/acre. Meno and Altus loamy fine sand.

Variety	Harvest Dates					1973-74 Total
	11-12	2-28	3-20	4-18	5-15	
Rye						
NF 306	1376	1049	869	603	158	4055
Elbon	1205	848	692	515	172	3432
Bonel	1175	474	614	570	341	3174
Triplegraze	851	690	657	626	156	2980
NF 324	735	610	644	532	216	2737
NF 270	688	442	608	577	250	2565
Maton	443	561	692	581	238	2515
Okema	385	383	552	581	225	2126
Wheat						
Scout 66	383	0	379	677	171	1610
Agent	414	196	407	480	44	1541
McCall	358	0	203	505	45	1111
TAM W-101	276	51	309	375	0	1011
Caprock	128	0	209	287	0	624
DeKalb 582	245	0	183	111	0	539
Osage	44	0	149	230	0	423
Triumph 64	27	0	132	156	0	315
Centurk	73	0	143	69	0	285
Barley						
Kerr	806	0	392	731	289	2218
Cl 13855	746	0	192	383	105	1426
Will	305	0	296	508	201	1310
Luther	505	154	243	263	100	1265
Oats						
Walken	1541	0	403	388	695	3027
Chilocco	1465	0	154	325	171	2115
Triticale						
T-131	1162	0	686	873	238	2959
T-385	299	191	436	525	396	1847
OK 72179	405	0	425	570	252	1652
Miscellaneous						
DeKalb 9190	459	0	211	358	76	1104
Tetra 444 Ryegr.	421	0	154	163	62	800
Wintergr. An. Ryegr.	16	0	0	0	0	16
Linn Per. Ryegr.	0	0	0	0	0	0
LSD (lbs/A)	553	396	211	237	112	964
CV (%)	59	40	36	33	28	39

Seeding Date: August 31, 1973

Soil Test: pH 5.5, P 137 lb/A, K 285 lb/A, NO₃-N 22 lb/A

Fertilizer: 0-40-0 Aug. 21, 1973

60-0-0 Aug. 29, 1973

20-0-0 Nov. 15, 1973

Table 18. Mangum, 1974-75 season, small grain forage variety production in lb/acre. Meno and Altus loamy fine sand.

Variety	Harvest Dates				1974-75
	3-14	4-4	4-22	5-20	Total
Rye					
TE Gro-Green	955	1281	581	710	3527
Maton	1240	1071	731	445	3487
TE 7401	704	1330	597	734	3365
NF 270	1002	1071	679	542	3294
TE 7105	864	1138	677	568	3247
NF 324	904	980	617	534	3035
Okema	574	1200	668	549	2991
Bonel	348	1004	677	817	2846
Elbon	775	1007	601	463	2846
Haiwasse	456	1010	699	626	2791
Wheat					
OK 66V2629	0	619	1127	969	2715
Osage	0	330	1320	1033	2683
TAM W-103	8	804	918	855	2585
TAM W-101	0	766	811	1002	2579
DeKalb 582	44	617	984	916	2561
Triumph 64	13	699	996	726	2434
OK 66V2621	0	327	917	892	2136
Barley					
Will	0	209	1033	1137	2379
Nebar	0	180	995	1012	2187
Kanby	0	241	1029	848	2118
Kerr	0	218	869	968	2055
Oats					
Chilocco	13	347	1541	2027	3928
Walken	0	180	1220	2310	3710
NF 199	0	490	1410	1568	3468
Triticale					
OK 72179	0	416	1347	1350	3113
T-385	0	450	1290	1289	3029
T-131	0	452	1240	1272	2964
Other					
DeKalb 9190	0	439	900	1073	2412
Linn Per. Ryegr.	0	103	984	1196	2283
LSD (lbs/A)	523	245	287	356	640
CV (%)	46	27	22	26	16

Seeding Date: October 4, 1974

Soil Test: pH 5.1, P 183 lb/A, K 430 lb/A, NO₃-N 59 lb/A

Fertilizer: 0-60-60 Aug. 20, 1974

20-0-0 Dec. 5, 1974

20-0-0 Apr. 4, 1975

Table 19. Muskogee comparative summary of small grain forage production expressed as % of Bonel rye.

Variety	% of Bonel	No. yrs. tested	Variety	% of Bonel	No. yrs. tested
Rye			Wheat		
Bonel	100	8	Scout 66	105	2
NF 324	103	2	DeKalb 582	99	2
Elbon	98	8	Osage	98	3
Maton	95	3	Centurk	98	3
NF 270	92	3	Triumph 64	96	5
Wintergr. 70	90	2	Sturdy	85	3
Penngraze-W	90	2	Nicoma	83	3
Acco	88	2	TAM W-101	82	4
McNair	86	3	Agent	80	6
Okema	82	3	Parker	79	4
Triplegraze	65	2	Danne	76	5
Caribou	104	1	Kaw 61	74	4
TE 7105	102	1	Scout	71	3
TE 7401	98	1	Improved Triumph	64	3
TE Gro-Green	95	1	OK 66V2629	107	1
NF 306	89	1	D-145 B 4	106	1
Haiwasse	85	1	McCall	106	1
NF 366	83	1	TAM W-103	95	1
Von Lochow	54	1	OK 696740	95	1
Barley			Caprock	93	1
Kerr	90	8	Yukon	89	1
Luther	86	2	Danne 146-4	84	1
Rogers	73	3	OK 66V2621	76	1
Will	77	8	Oats		
Kanby	89	1	Nora	79	3
CI 13855	83	1	Walken	75	2
Nebar	81	1	Bronco	69	3
Barsoy	73	1	Chilocco	65	5
Triticale			Cimarron	64	5
OK 72179	84	3	Checota	57	2
T-385	81	3	NF 199	59	1
T-131	77	3	Misc.		
Nebraska 69150	87	2	Wintergr. An. Ryegr.	145	3
OK 697947	90	1	Linn Per. Ryegr.	145	4
T-208	76	1	Tetra 444 Ryegr.	121	2
Fasgro T204	66	1	DeKalb 9190	95	2
OK 72181	65	1	DeKalb 9290	95	2
Rosner	55	1	Mix: Rye-Wh.-Ryegr.	133	1
Graze Grain 70A	38	1	DeKalb 9291	84	1

Table 20. Muskogee, 1970-71 season, small grain forage variety production in lb/acre. Taloka silt loam.

Variety	Harvest Dates				1970-71
	11-4	2-18	3-25	4-14	Total
Rye					
McNair	1016	758	371	183	2328
Elbon	1133	559	299	236	2227
Bonel	1030	399	267	261	1957
Barley					
Kerr	768	261	211	468	1708
Will	505	307	343	502	1657
Wheat					
Triumph 64	595	293	621	498	2007
Sturdy	745	281	452	429	1907
Kaw 61	588	164	531	597	1880
Nicoma	388	245	551	507	1691
D-146-4	473	221	505	422	1621
Agent	402	490	367	358	1617
Parker	497	182	345	520	1544
Danne	369	168	467	492	1496
Oats					
Nora	543	352	460	405	1760
Chilocco	330	380	387	514	1611
Cimarron	290	401	269	489	1449
Checota	95	311	166	554	1126
LSD	135	204	113	102	357

Seeding Date: September 4, 1970

Fertilized: September 15, 1970 with 40-0-0

Table 21. Muskogee, 1971-72 season, small grain forage variety production in lb/acre. Taloka silt loam.

Variety	Harvest Dates				1971-72
	11-16	3-15	4-13	5-15	Total
Rye					
Elbon	2033	661	563	152	3409
Penngrazer-W	1510	777	643	272	3202
Bonel	1663	566	575	325	3129
Acco	1648	566	653	176	3043
Wintergrazer 70	1147	595	675	276	2693
McNair	1329	515	399	114	2363
Wheat					
Centurk	1546	603	918	323	3390
D-145 B4	1641	378	1089	178	3286
Scout 66	1583	436	831	191	3041
Triumph 64	1169	465	1044	212	2890
Yukon	1278	399	799	238	2714
Nicoma	1227	508	828	102	2665
Sturdy	1147	443	880	89	2559
Agent	1205	571	528	240	2544
Texas 65A 1682	1169	436	682	250	2537
Danne	966	269	1025	138	2398
Barley					
Kerr	1031	261	802	298	2392
Will	1271	94	646	163	2174
Barsoy	1169	385	606	---	2160
Oats					
Nora	1423	--	--	100	1523
Cimarron	1329	--	--	127	1456
Chilocco	1307	--	--	--	1307
Checota	1118	--	--	38	1156
Triticale					
Nebraska 69150	1191	436	799	323	2749
FasGro T204	1844	--	--	51	1895
Rosner	1423	--	--	100	1519
Graze Grain 70A	871	--	--	51	926
Miscellaneous					
An. Ryegr.	2258	348	577	2274	5457
Linn Per. Ryegr.	1096	203	632	2350	4281
Mix: Rye-Wh.-Ryegr.	1401	472	748	1595	4216
DeKalb 9290	1300	312	1007	425	3044
LSD (lbs./A.)	319	153	231	167	467
CV (%)	17	24	21	31	13

Seeding date: September 2, 1971

Soil test: pH 6.0, P 33 lb/A, K 100 lb/A

Fertilizer: 60-80-80 September 1, 1971

60-0-0 November 17, 1971

60-0-0 March 15, 1972

60-0-0 April 14, 1972

Table 22. Muskogee, 1972-73 season, small grain forage variety production in lb/acre. Parsons silt loam.

Variety	Harvest Dates			1972-1973 Total
	3-19	5-4	6-18	
Rye				
Caribou	863	3016	--	3,884
Bonel	2968	882	--	3,850
Maton	2674	934	--	3,608
NF 270	2842	586	--	3,428
Wintergrazer 70	2563	862	--	3,425
Elbon	2822	498	--	3,320
NF 306	2437	719	--	3,156
Acco	2254	712	--	2,966
Penngraze-W	2459	465	--	2,924
McNair	2448	456	--	2,904
Okema	1871	977	--	2,848
Triplegraze	1742	610	--	2,352
Von Lochow	586	1570	--	2,156
Wheat				
Osage	1275	3087	--	4,362
Scout 66	1875	2251	--	4,126
OK 696740	1207	2378	--	3,585
Caprock	2454	1064	--	3,518
Centurk	2156	1008	--	3,164
Agent	1726	1341	--	3,067
TAM W-101	2062	904	--	2,966
Triumph 64	1840	1042	--	2,882
Nicoma	1690	1169	--	2,859
Danne	1512	1341	--	2,853
Barley				
Kerr	1544	1986	--	3,530
Luther	1443	1926	--	3,369
Will	1310	1752	--	3,062
Oats				
Walken	1276	1688	--	2,964
Chilocco	965	1850	--	2,815
Triticale				
OK 697947	1212	2180	--	3,392
T-131	791	2554	--	3,345
Nebraska 69150	973	2207	--	3,180
T-385	690	2412	--	3,102
OK 72179	704	2305	--	3,009
T-208	1009	1891	--	2,900
OK 72181	608	1937	--	2,545
Miscellaneous				
Wintergr. An. Ryegr.	726	2638	1782	5,146
Linn Per. Ryegr.	352	2741	2005	5,098
Tetra-444 Ryegr.	528	2134	2088	4,750
DeKalb 9290	971	2476	--	3,447
DeKalb 9291	944	2238	--	3,182
LSD (lbs/A)	391	593	688	785
CV (%)	18	26	20	17

Seeding Date: September 5, 1972

Soil Test: pH 5.4, P 8 lb/A, K 125 lb/A, NO₃-N 26 lb/A.

Fertilizer: 80-60-40 August 31, 1972

60-0-0 March 20, 1973

Table 23. Muskogee, 1973-74 season, small grain forage variety production in lb/acre. Parsons silt loam.

Variety	Harvest Dates				Total
	11-6	3-6	4-24	5-31	
Rye					
NF 324	1234	561	1510	0	3305
Bonel	958	488	1748	0	3194
NF 306	1418	617	1051	0	3086
Elbon	1076	413	1537	0	3026
Okema	895	476	1280	0	2651
Maton	826	519	1256	0	2601
NF 270	858	401	1211	0	2470
Triplegraze	673	378	1407	0	2458
Wheat					
Triumph 64	1182	526	2730	0	4438
DeKalb 582	1274	541	1946	0	3761
McCall	1042	490	2145	0	3677
Centurk	900	452	2173	0	3525
Osage	808	412	2173	0	3393
TAM W-101	953	552	1588	0	3093
Barley					
Kerr	1143	287	1860	0	3290
Will	996	613	1561	0	3170
CI 13855	889	225	1773	0	2887
Luther	967	515	1385	0	2867
Oats					
Walken	1321	58	1131	0	2510
Chilocco	731	91	1305	0	2127
Triticale					
OK 72179	588	534	2396	0	3518
T-385	592	539	2087	0	3218
T-131	806	396	1586	0	2788
Miscellaneous					
Wintergr. An. Ryegr.	869	532	2167	826	4394
Tetra 444 Ryegr.	474	559	2082	829	3944
DeKalb 9190	1151	514	1967	0	3632
Linn Per. Ryegr.	368	227	2060	793	3448
LSD (lbs/A)	307	183	554	165	638
CV (%)	24	30	23	12	14

Seeding Date: August 29, 1973

Soil Test: pH 5.7, P 17 lb/A, K 140 lb/A, NO₃-N 13 lb/A

Fertilizer: 60-60-30 Aug. 29, 1973

60-0-0 March 7, 1974

Table 24. Muskogee, 1974-75 season, small grain forage variety production in lb/acre. Taloka silt loam.

Variety	Harvest Dates			1974-75
	3-7	4-16	6-19	Total
Rye				
Maton	1516	914	0	2430
Bonel	1301	1127	0	2428
NF 270	1630	788	0	2418
NF 324	1358	972	0	2330
TE 7105	1062	944	0	2006
TE 7401	859	1009	0	1868
Okema	891	902	0	1793
Elbon	1229	546	0	1775
TE Gro-Green	661	1085	0	1746
Haiwasse	673	750	0	1423
Wheat				
OK 66V2629	518	1664	0	2182
TAM W-103	194	1579	0	1773
DeKalb 582	305	1289	0	1594
Triumph 64	207	1229	0	1436
Osage	136	1055	0	1191
TAM W-101	265	913	0	1178
OK 66V2621	63	1031	0	1094
Barley				
Kanby	654	889	0	1543
Nebar	256	1004	0	1260
Kerr	347	867	0	1214
Will	167	933	0	1100
Oats				
NF 199	22	492	0	514
Chilocco	56	405	0	461
Triticale				
OK 72179	149	1149	0	1298
T-385	149	1080	0	1229
T-131	44	889	0	933
Other				
Linn Per. Ryegr.	40	1274	4302	5616
DeKalb 9190	421	987	0	1408
LSD (lbs/A)	530	468		806
CV (%)	67	64		34

Seeding Date: October 11, 1974

Soil Test: pH 6.2, P 39 lb/A, K 58 lb/A, NO₃N 54 lb/A

Fertilizer: 60-30-60 Aug. 27, 1974

60-0-0 April 21, 1975

Table 25. Perkins comparative summary of small grain forage production expressed as % of Bonel rye.

Variety	% of Bonel	No. yrs. tested	Variety	% of Bonel	No. yrs. tested
Rye			Wheat		
Bonel	100	7	Scout 66	97	2
Maton	101	3	Centurk	97	3
NF 324	100	2	Osage	92	3
NF 270	99	3	Yukon	90	2
Wintergr. 70	91	2	DeKalb 582	88	2
McNair	88	5	Triumph 64	83	6
Elbon	86	7	Agent	82	5
Okema	86	4	Sturdy	81	4
NF 306	86	2	Nicoma	81	4
Acco	84	4	TAM W-101	80	3
Triplegraze	84	2	Danne	80	4
TE Gro-Green	108	1	Parker	73	2
TE 7105	103	1	Kaw 61	71	3
TE 7401	94	1	OK 696740	93	1
Haiwasse	94	1	McCall	93	1
Winter Grazer	89	1	D-145 B4	93	1
Von Lochow	57	1	OK 66V2629	88	1
Caribou	55	1	OK 66V2621	85	1
Barley			Caprock	83	1
Kerr	82	7	Improved Triumph	80	1
Will	80	7	Danne 146-4	76	1
Luther	80	2	Danne 146-5	76	1
Rogers	75	1	TAM W-103	75	1
Nebar	73	1	Scout	70	1
CI 13855	71	1	D-146-4	61	1
Kanby	68	1	Oats		
Barsoy	67	1	Nora	78	2
Triticale			Walken	77	3
T-131	90	3	Cimarron	75	4
OK 72179	87	3	Chilocco	63	5
T-385	70	3	Checota	60	2
Nebraska 69150	88	2	NF 199	72	1
OK 72181	84	1	Bronco	58	1
OK 697947	82	1	Misc.		
T-208	66	1	DeKalb 9190	102	2
DOT	54	1	Linn Per. Ryegr.	85	4
Rosner	45	1	Wintergr. An. Ryegr.	80	2
Fasgro T204	41	1	Tetra 444 Ryegr.	117	1
Graze Grain 70A	33	1	DeKalb 9290	98	1
			Mix: Rye-Wh.-Ryegr.	96	1
			#13 Agroticum 1011	87	1

Table 26. Perkins, 1970-71 season, small grain forage variety production in lb/acre. Teller loam.

Variety	Harvest Dates					1970-71
	10-16	11-6	12-1	3-23	4-30	Total
Rye						
Bonel	1540	632	705	2446	1457	6779
McNair	1129	786	775	2541	1066	6297
Elbon	993	795	776	2515	1139	6218
Barley						
Will	1971	633	167	1223	2396	6389
Kerr	1503	660	313	1744	1678	5898
Wheat						
Danne	836	347	41	1734	2641	5598
Agent	600	276	582	2459	1479	5395
Sturdy	590	408	81	1976	2126	5182
Nicoma	405	216	0	1725	2619	4966
Parker	727	252	0	1860	2106	4944
Triumph 64	617	286	28	1472	2338	4741
Kaw 61	326	171	0	1828	2384	4710
D-146-4	470	205	0	1714	2253	4642
Oats						
Chilocco	1078	586	305	1287	2311	5567
Cimarron	1064	749	352	1061	2142	5368
Checota	557	570	318	1192	2444	5080
Triticale						
DOT	713	424	497	704	1838	4175
LSD	361	147	155	421	341	739

Seeding Date: September 4, 1970

Fertilized: August 28, 1970 with 0-45-0
 October 16, 1970 with 45-0-0
 November 6, 1970 with 45-0-0
 March 11, 1971 with 40-0-0

Table 27. Perkins, 1971-72 season, small grain forage variety production in lb/acre. Teller loam.

Variety	Harvest Dates				1971-72 Total
	11-4	3-15	4-13	5-16	
Rye					
Bonel	2475	2193	1176	791	6635
Wintergrazer 70	2031	2062	1300	508	5901
McNair	2639	1634	980	428	5681
Okema	2347	1713	1169	421	5650
Acco	2447	1488	1191	421	5547
Elbon	2301	1728	1016	319	5364
Wheat					
Scout 66	2047	1568	1873	1038	6526
Centurk	1842	1401	1873	1038	6154
Agent	2756	653	1481	1234	6124
Sturdy	2555	1074	1742	624	5995
D-145 B4	2024	1053	2171	646	5894
Texas 65A 1682	1705	1358	1808	929	5800
Yukon	1622	1307	2033	777	5739
Danne	1472	1307	2033	886	5698
Triumph 64	1753	1336	2040	545	5674
Nicoma	1756	1176	2062	632	5626
Barley					
Kerr	2262	414	1278	1561	5505
Barsoy	2372	276	908	690	4246
Will	2383	290	1104	770	4547
Oats					
Cimarron	1770	203	748	1612	4333
Chilocco	2059	44	283	1183	3569
Checota	1834	29	334	1009	3206
Triticale					
Nebraska 69150	2069	1140	2040	1154	6403
Rosner	1947	--	80	762	2789
Fasgro T204	2234	--	102	189	2525
Graze Grain 70A	1725	--	160	138	2023
Miscellaneous					
DeKalb 9290	1781	1002	1946	1532	6261
Mix: Rye-Wh.-Ryegr.	2364	1292	942	1503	6101
Linn Per. Ryegr.	1517	951	972	2470	5910
#13					
Agroticum 1011	1011	1249	1653	1628	5541
LSD (lbs./A.)	442	264	272	343	719
CV (%)	15	16	15	28	10

Seeding date: August 26, 1971

Soil test: pH 5.4, P 119 lb/A, K 295 lb/A

Fertilizer: 60-0-0 August 24, 1971
60-0-0 November 8, 1971
60-0-0 March 16, 1972
60-0-0 April 14, 1972

Table 28. Perkins, 1972-73 season, small grain forage production in lb/acre. Teller loam.

Variety	Harvest Dates					1972-1973
	10-13	2-24	4-12	5-24	6-13	Total
Rye						
Maton	2188	3675	4374	913	--	11,150
Bonel	2082	3552	4519	920	--	11,073
NF 306	1877	3158	4135	850	--	10,020
NF 207	1977	3067	4024	797	--	9,865
Wintergraze 70	1744	2828	4452	771	--	9,795
Acco	1942	2801	4064	608	--	9,415
Triplegraze	1764	2846	4184	603	--	9,397
McNair	1949	3115	3559	661	--	9,284
Okema	1701	3080	4216	272	--	9,269
Elbon	1601	3234	3374	336	--	8,545
Von Lochow	1202	1898	4271	336	--	7,707
Caribou	1753	1056	4503	318	--	7,630
Wheat						
Centurk	1790	2514	4498	1784	--	10,586
OK 696740	1728	1459	4630	2236	--	10,053
Scout 66	1748	2093	4142	2053	--	10,036
Osage	1641	1075	4214	3058	--	9,988
Agent	1677	2296	4407	1594	--	9,974
Nicoma	1906	1866	4726	1376	--	9,874
Triumph 64	1472	2271	4630	1388	--	9,761
TAM W-101	1354	2280	4282	1668	--	9,584
Caprock	1654	2151	4030	1565	--	9,395
Danne	1236	1663	4636	1779	--	9,314
Barley						
Luther	2105	1928	3499	2652	--	10,184
Will	1862	957	5463	1717	--	9,999
Kerr	1951	1104	4086	1978	--	9,119
Oats						
Walken	2047	1040	2214	3986	--	9,287
Chilocco	2129	650	1514	3899	--	8,192
Triticale						
OK 72181	1051	797	5318	2298	--	9,464
OK 697947	1575	1305	2966	3507	--	9,353
OK 72179	1111	323	5512	2136	--	9,082
Nebraska 69150	1352	540	5037	2020	--	8,949
T-131	1042	512	5133	2111	--	8,798
T-208	1566	1223	2367	3151	--	8,307
T-385	457	1260	4153	2378	--	8,248
Ryegrass						
Wintergreen annual	757	1381	3537	2610	418	8,703
Linn Perennial	232	305	3503	3334	630	8,004
LSD	380	496	621	451	614	993
CV	17	19	11	18	52	8

Seeding Date: August 24, 1972

Soil Test: pH 5.2, P 23 lb/A, K 220 lb/A, NO₃-N 40 lb/A.

Fertilizer: 60-0-0 September 5, 1972

0-80-0 September 6, 1972

60-0-0 October 23, 1972

60-0-0 February 26, 1973

60-0-0 April 16, 1973

Table 29. Perkins, 1973-74 season, small grain forage variety production in lb/acre. Teller loam.

Variety	Harvest Dates						1973-74 Total
	10-19	12-7	3-8	4-5	5-6	6-10	
Rye							
Bonel	2517	1234	929	1107	1314	0	7101
NF 270	2409	967	761	904	1704	0	6745
NF 324	1989	1156	739	942	1340	0	6166
Maton	1922	1151	722	915	1269	0	5979
Triplegraze	1984	1104	506	663	1247	0	5504
Elbon	2056	1272	452	492	1084	0	5356
NF 306	2095	913	606	526	1107	0	5247
Okema	1722	1002	323	701	1125	0	4873
Wheat							
Triumph 64	2265	993	432	1595	1256	0	6541
Osage	1320	557	577	2213	1664	0	6331
DeKalb 582	1472	1198	505	1325	1677	0	6177
Centurk	2080	820	468	1477	1251	0	6096
McCall	2022	1044	220	639	2089	0	6014
Barley							
Kerr	1505	828	65	510	2327	0	5235
Will	1561	761	0	430	2171	0	4923
CI 13855	1802	1154	0	203	1477	0	4636
Luther	1790	1242	0	189	977	0	4198
Oats							
Walken	2251	1124	0	0	1080	0	4455
Chilocco	2207	989	0	0	0	0	3196
Triticale							
T-131	1668	681	788	2278	1113	0	6528
OK 72179	1263	472	929	2000	1020	0	5684
T-385	1477	898	267	477	1472	0	4591
Miscellaneous							
Tetra 444 Ryegr.	1398	1488	174	731	2018	1824	7633
DeKalb 9190	1924	1196	363	839	2403	543	7268
Linn Per. Ryegr.	693	966	254	1822	2637	703	7075
Wintergr. An. Ryegr.	1563	1559	265	1868	503	0	5758
LSD (lbs/A)	595	373	206	366	468	402	1102
CV (%)	23	26	28	25	22	28	14

Seeding Date: August 22, 1973

Soil Test: pH 5.0, P 66 lb/A, K 265 lb/A, NO₃-N 54 lb/A

Fertilizer: 60-0-0 Sept. 11, 1973

60-0-0 Oct. 23, 1973

60-0-0 Dec. 21, 1973

60-0-0 Mar. 11, 1974

Table 30. Perkins, 1974-75 season, small grain forage variety production in lb/acre. Teller Loam.

Variety	Harvest Dates				1974-75
	11-14	4-4	5-8	6-12	Total
Rye					
TE Gro-Green	2459	3737	1774	0	7970
NF 324	2739	3319	1732	0	7790
NF 270	2279	3817	1572	0	7668
TE 7105	2251	3799	1568	0	7618
Elbon	2369	3865	1249	0	7483
Maton	2624	3334	1493	0	7451
Okema	2145	3739	1391	0	7275
Bonel	2180	3292	1648	0	7120
Haiwasse	2361	2735	1961	0	7057
TE 7401	2136	3252	1645	0	7033
Wheat					
OK 66V2629	1840	1839	2973	0	6652
Osage	1666	1383	3474	0	6523
OK 66V2621	1626	1686	3140	0	6452
Triumph 64	1960	1418	2922	0	6300
Dekalb 582	1704	1583	2942	0	6229
TAM W-103	1967	1534	2314	0	5815
TAM W-101	1545	1768	1784	0	5097
Barley					
Kerr	1737	1271	3366	0	6374
Nebar	1704	921	3038	0	5663
Will	1722	1323	2358	0	5403
Kanby	1840	1373	2149	0	5362
Oats					
Walken	2289	875	2463	707	6334
NF 199	2251	441	2922	0	5614
Chilocco	2426	737	2307	0	5470
Triticale					
T-131	1824	1734	3568	0	7126
OK 72179	1906	1730	3448	0	7084
T-385	1626	1734	2428	0	5788
Other					
DeKalb 9190	2075	1568	2946	350	6939
Linn Per. Ryegr.	858	374	4164	457	5853
LSD (lbs/A)	457	385	386	272	755
CV (%)	16	13	11	31	8

Seeding Date: September 10, 1974
 Soil Test: pH 5.2, P 76 lb/A, K 230 lb/A, NO₃-N 16 lb/A
 Fertilizer: 60-0-0 Sept. 27, 1974
 60-0-0 Nov. 22, 1974
 60-0-0 April 11, 1975

Table 31. Goodwell precipitation distribution by months and total irrigation recorded in inches.

Month	Growing Season				
	1970-71	1971-72	1972-73	1973-74	1974-75
August	3.11	0.55	1.57	1.98	4.05
September	0.54	1.09	1.73	2.81	0.69
October	1.18	1.30	1.35	0.22	1.37
November	0.27	2.78	2.23	0.34	0.10
December	0	0.54	0.15	0.45	0.16
January	0.13	0.07	0.63	0.27	0.12
February	10.90	0.04	0.12	0	0.09
March	0	0.10	4.31	1.38	0.63
April	0.97	0.48	0.39	0.18	0.32
May	4.60	5.00	1.92	0.70	2.83
Total	21.70	11.95	14.40	8.33	10.36
Irrigation		22.00	16.50	22.5	27.00

Table 32. Lahoma precipitation distribution by months recorded in inches.

Month	Growing Season				
	1970-71	1971-72	1972-73	1973-74	1974-75
August	2.20	1.60	4.20	1.69	5.90
September	3.00	4.30	1.45	8.20	3.77
October	1.20	4.70	4.15	5.47	2.80
November	0	0.70	1.90	1.35	3.81
December	0.80	1.60	0.60	1.59	1.55
January	1.25	0.20	3.70	0.85	1.94
February	1.35	0.30	0	1.05	1.76
March	0	0.10	9.95	0	2.55
April	2.15	2.45	3.00	2.60	1.17
May	0.40	2.40	3.26	4.35	6.69
Total	12.35	18.35	32.21	27.15	31.94

Table 33. Mangum precipitation distribution by months recorded in inches.

Month	Growing Season				
	1970-71	1971-72	1972-73	1973-74	1974-75
August	1.75	2.28	2.48	0.32	4.53
September	6.19	4.76	0	7.16	6.82
October	1.38	5.13	4.34	2.65	5.52
November	0.45	0.56	1.70	0.48	0.72
December	0.29	1.84	0.29	0.03	1.27
January	0.26	0.04	2.60	0.10	1.63
February	1.21	0.05	0.67	0	2.27
March	0	0	4.38	0.76	1.19
April	0.30	0.58	4.27	2.75	0.96
May	1.60	4.09	2.02	2.26	3.02
Total	13.43	19.33	22.75	16.51	27.93

Table 34. Muskogee precipitation distribution by months recorded in inches.

Month	Growing Season				
	1970-71	1971-72	1972-73	1973-74	1974-75
August	0.98	2.28	1.54	2.35	5.68
September	6.71	10.45	4.15	7.44	9.35
October	7.52	6.83	8.97	2.64	6.11
November	1.32	2.41	4.58	6.06	3.42
December	1.03	4.98	1.92	2.38	2.60
January	1.87	0.36	2.34	0.18	0.82
February	2.49	0.70	2.07	2.21	3.01
March	0.20	0.95	10.35	3.53	5.03
April	2.73	5.13	7.35	3.63	2.40
May	2.93	1.03	8.07	2.96	5.61
Total	27.78	35.12	51.34	33.38	44.03

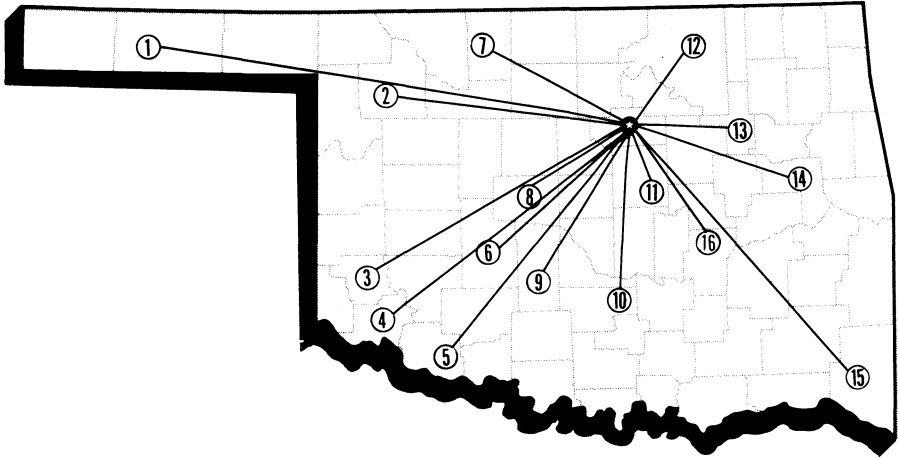
Table 35. Perkins precipitation distribution by months recorded in inches.

Month	Growing Season				
	1970-71	1971-72	1972-73	1973-74	1974-75
August	0.27	1.90	6.71	2.52	3.87
September	7.42	7.68	1.86	6.69	6.29
October	4.53	2.61	7.02	3.10	7.15
November	0.60	0.87	2.56	3.29	6.03
December	0.45	2.81	1.22	1.50	2.17
January	1.32	0.17	3.00	0.45	2.70
February	1.44	0.32	0.43	2.26	1.64
March	0	1.72	7.83	2.66	3.24
April	2.09	2.42	2.61	3.13	1.70
May	2.35	2.38	3.68	6.28	9.72
Total	20.47	22.88	36.92	28.88	44.51

OKLAHOMA

Agricultural Experiment Station

System Covers the State



Main Station — Stillwater, Perkins and Lake Carl Blackwell

1. Panhandle Research Station — Goodwell
2. Southern Great Plains Field Station — Woodward
3. Sandyland Research Station — Mangum
4. Irrigation Research Station — Altus
5. Southwest Agronomy Research Station — Tipton
6. Caddo Research Station — Ft. Cobb
7. North Central Research Station — Lahoma
8. Southwestern Livestock and Forage Research Station — El Reno
9. South Central Research Station — Chickasha
10. Agronomy Research Station — Stratford
11. Pecan Research Station — Sparks
12. Veterinary Research Station — Pawhuska
13. Vegetable Research Station — Bixby
14. Eastern Pasture Research Station — Muskogee
15. Kiamichi Field Station — Idabel
16. Sarkeys Research and Demonstration Project—Lamar