1-1-1979

Variety evaluation of winter annual forage crops, 1976-77

Ned C. Edwards

Clarence E. Watson Jr.

Vance H. Watson

Billy L. Arnold

T. G. Sanders

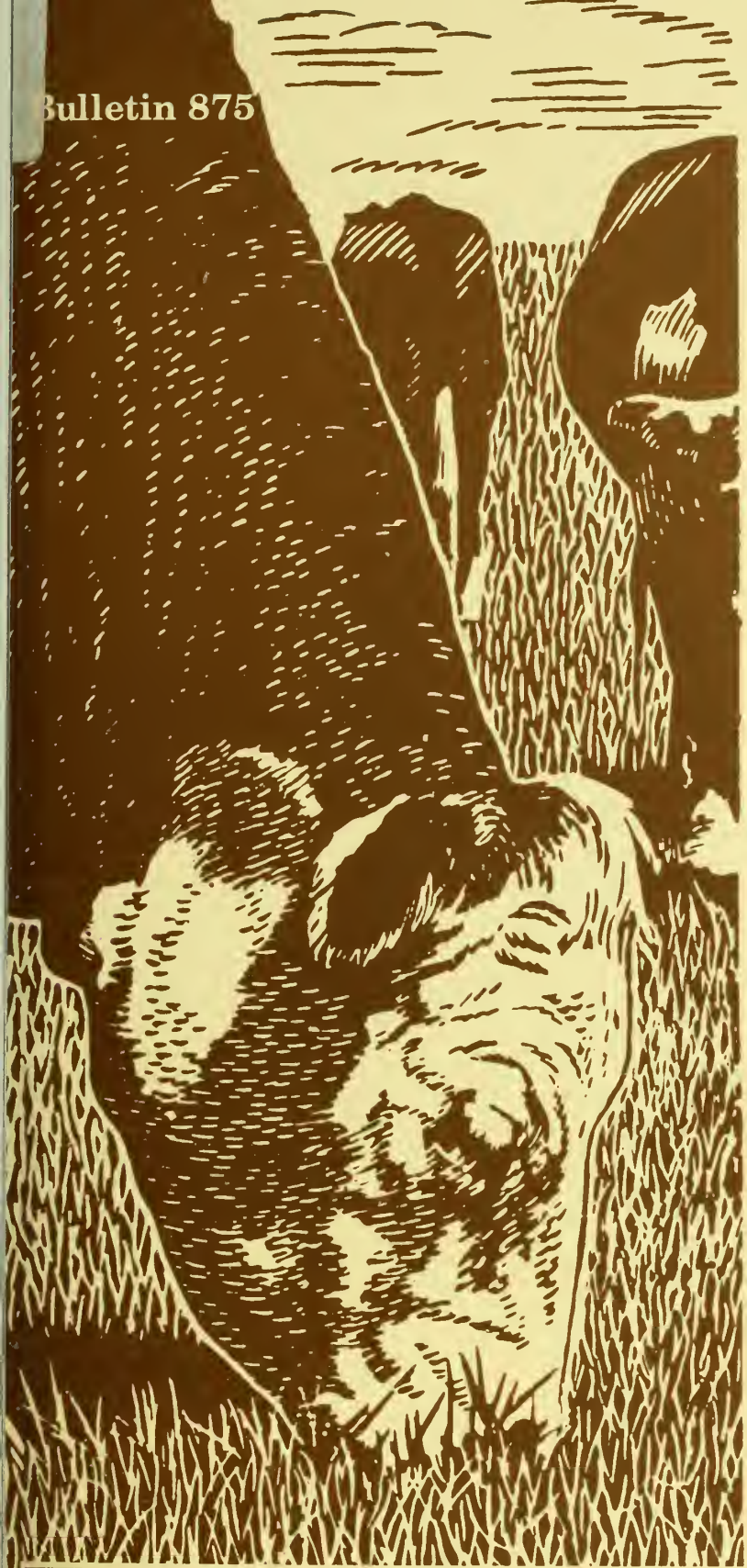
See next page for additional authors

Authors

Ned C. Edwards, Clarence E. Watson Jr., Vance H. Watson, Billy L. Arnold, T. G. Sanders, and Carl H. Hovermale

Bulletin 875

January 1979



Variety Evaluation of Winter Annual Forage Crops, 1976-77

By
Ned C. Edwards
C. E. Watson, Jr.
V. H. Watson
B. L. Arnold
T. G. Sanders
C. H. Hovermale

MAFES MISSISSIPPI AGRICULTURAL & FORESTRY EXPERIMENT STATION
R. RODNEY FOIL, DIRECTOR MISSISSIPPI STATE, MS 39762

Mississippi State University
James D. McComas, President Louis N. Wise, Vice President

Bulletin 875

Variety Evaluation of Winter Annual Forage Crops, 1976-77

Ned C. Edwards, Associate Agronomist, MAFES Brown Loam Branch
C. E. Watson, Jr., Assistant Professor and Assistant Agronomist, Mississippi State University Department of Agronomy
V. H. Watson, Professor and Agronomist, Mississippi State University Department of Agronomy
B. L. Arnold, Superintendent, MAFES North Mississippi Branch
T. G. Sanders, Associate Agronomist, MAFES Coastal Plain Branch
C. H. Hovermale, Assistant Agronomist, Mississippi State University Agricultural Research and Extension Center, Poplarville

Mississippi Agricultural and Forestry Experiment Station
Mississippi State University

January 1979

Variety Evaluation of Winter Annual Forage Crops, 1976-77

Winter annual forages are grown widely in Mississippi and are important in both beef and dairy production programs. Ryegrass probably is the most widely used winter annual forage crop and may be grown alone or in mixtures with small grains. Earlier research has demonstrated that a mixture of small grain and ryegrass will provide earlier grazing than ryegrass alone, but ryegrass generally will give a longer grazing season than a small grain. Wheat and rye probably are more cold tolerant than ryegrass.

New improved and standard varieties of winter annual forage crops are evaluated in MAFES small plot trials each year. Seed for the 1976-77 trials were obtained from commercial seed companies and state universities and tested at a number of locations in Mississippi. We used a randomized complete block with three to five replications, depending on location. Plot size differed from one location to another, depending upon harvesting equipment available. The number of harvests during the season varied by location because of different planting dates and growing conditions.

Results

Yields of most winter annual forage crops were lower than normal in 1976-77. Date of planting was delayed at most locations, and the unusually cold fall and winter delayed growth until spring.

The number of ryegrass varieties evaluated ranged from five at Holly Springs to 51 at Mississippi State (Tables 1-6). Five varieties were grown at six locations, and yields averaged over the six locations ranged from 4224 pounds per acre for Tetrablend to 5195 pounds for North Mississippi Reseeding (Table 7). Yields of North Mississippi Reseeding were much higher than those of other varieties at the two northernmost locations but differed only slightly from those of other varieties at locations south of Mississippi State. Yields of all varieties at locations south of Mississippi State were lower than at Holly Springs and Mississippi State.

North Mississippi Reseeding is a strain selected from a pasture on the MAFES North Mississippi Branch at Holly Springs. Ryegrass on this pasture has been managed as a reseeding stand for 25 years.

Oats were evaluated at four locations (Tables 1 and 8-10), and the number of varieties in the trials ranged from only two at Holly Springs to 13 at Poplarville. Nine varieties were grown at three locations, and yields averaged over the three locations ranged from 2959 pounds per acre for Cortez to 4348 for Cumberland (Table 11). Yields increased progressively from the southernmost to the northernmost location.

Wheat was evaluated at three locations (Tables 1, 12 and 13), and the number of varieties in the trials ranged from five at Holly Springs to 21 at Poplarville. Twelve varieties were grown at two locations, and yields averaged over the two locations ranged from 2639 pounds per acre for Abe to 3481 for McNair 3001 (Table 14). Yields of all but one variety were higher at Newton than at Poplarville.

Ryes and triticales were evaluated at four locations (Tables 1 and 15-19). Four rye varieties and four triticales were grown at three locations. Yields of the rye varieties averaged over the three locations ranged from 4848 pounds per acre for Vitagraze to 5321 for Wintergrazer 70, and yields of the triticales averaged over the three locations ranged from 4218 pounds per acre for 6 TA 522 to 4707 for 6 TA 131 (Table 20). Yields of the four rye varieties and the four triticales evaluated at the three sites increased progressively from the southernmost to the northernmost location.

The superior cold tolerance of wheat and rye was evident from results of the trials at Holly Springs (Table 1).

Table 1. Dry matter yield and winter kill of winter annual forage crops, by species and variety, Holly Springs, Miss. 1976-77.

Species and Variety	Dry Matter Yield					Winter Kill*
	Harvest Date					
	Oct. 18	March 12	April 18	May 5	Total	
	lbs/acre					%
Ryegrass						
North MS Reseeding	1289	1382	4150	673	7494	0
Tetrablend	1586	618	3402	771	6377	4
Magnolia	995	455	3737	722	5909	28
Common	1646	393	3058	682	5779	27
Gulf	1628	260	3183	660	5731	55
Mean	1429	622	3506	702	6259	
Wheat						
Coker 74-27	1118	1599	4392		7109	0
Coker 68-15	1508	2168	2836		6512	0
Arthur 71	1112	1756	3323		6191	0
Coker 73-23	1005	1621	3336		5962	4
Coker 75-20	522	1285	2968		4775	26
Mean	1053	1686	3371		6110	
Oats						
Coker 227	1652	458	2672		4782	73
Coker 75-11	1670	129	2245		4044	76
Mean	1661	294	2458		4413	
Rye						
Vitagraze	1965	2611	2246		6822	0
Wintergrazer	1457	2538	2784		6779	0
Mean	1711	2574	2515		6800	
Triticale						
6 TA-131	1711	1111	4380		7202	0
LSD (.05)	190	315	337	NS	584	

Planted: Aug. 24, 1976
Fertilizer: 60-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
60 lbs N Oct. 18
60 lbs N March 15

***Determined March 14, 1977**

Table 2. Dry matter yield of ryegrass grown for forage, by variety, Mississippi State, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	March 16	April 26	May 30	Total
	lbs/acre			
Billion	1584	3901	1117	6602
Common	1609	3820	858	6287
Florida 76-B	2311	3610	594	6515
Florida Rust Res.	1553	4899	622	7074
Furore	963	3204	699	4866
Gulf	1685	4501	498	6684
Magnolia	1326	4159	549	6034
Meritra	1182	2862	1027	5071
Midmar	1176	3232	735	5143
MR-2	1439	3345	526	5310
MR-4	1453	3595	507	5555
MR-9	1377	4367	699	6443
MR-14	1155	4086	573	5814
MR-19	1574	3604	461	5639
MR-30	1640	4917	693	7250
MR-32	1345	3697	502	5544
MR-35	1813	3919	616	6348
Ninak	1472	3607	977	6056
North MS Reseeding	2080	5539	1241	8860
NK K5-98	955	3293	703	4951
NK K5-99	1149	3215	1000	5364
NK K5-100	1136	3317	708	5161
NK K5-101	1012	2904	731	4647
NK K5-102	1322	3113	857	5292
NK K5-103	1130	3986	1017	6133
NK K5-104	958	3726	1126	5810
Oregon 68-1	1133	3407	658	5198
Oregon 69-2	1325	3389	1170	5884
Oregon 69-3	1454	3233	697	5384
Oregon 69-4	1667	3863	761	6291
R. 0018	1353	3159	915	5427
R. 0028	1298	3656	987	5941
R. 0051	1555	3296	910	5761
State College 1	1308	3956	306	5570
State College 2	1063	3633	376	5072
State College 3	952	2862	233	4047
State College 4	1076	3461	210	4747
State College 5	1609	3707	398	5714
State College 7	1265	3622	429	5316
State College 8	1197	3410	367	4974
State College 9	1530	3925	299	5754
State College 11	1166	3254	259	4679
State College 12	1491	3534	426	5451
State College 13	1708	3296	363	5367
State College 14	1396	3978	348	5722
State College 67	1616	3716	687	6019
Stoneville 3	1215	4365	602	6182
Tetrablend	1041	3908	939	5888
Tetrone	1395	4059	1033	6487
Urbana	1308	3560	1103	5971
Vital	1156	3144	1087	5387
Mean	1366	3683	690	5739
LSD (.05)	653	1093	312	2028

Table 3. Dry matter yield of ryegrass grown for forage, by variety, Brooksville, Miss., 1976-77.

Variety	Dry Matter Yield		
	Harvest Date		
	April 12	May 30	Total
	lbs/acre		
North MS Reseeding	1146	2356	3502
Magnolia	1326	1926	3252
Ninak	1468	1499	2967
Billion	1023	1293	2316
NK K5-104	1018	1079	2097
NK K5-102	1079	1273	2352
Gulf	1069	1691	2760
NK K5-99	1177	1613	2790
NK K5-101	1287	1612	2899
NK K5-98	1022	1665	2687
Tetrablend	1003	1375	2378
Common	766	2134	2900
Vital	1106	1355	2461
Tetrone	887	1123	2010
Urbana	1032	1434	2466
Furone	1036	1297	2333
NK K5-100	956	1595	2551
Mean	1082	1548	2631
LSD (.05)	NS	600	710

Planted: Oct. 15, 1976 25 lbs /acre
Fertilizer: 60-60-60- (N-P_2O_5-K_2O) lbs /acre at planting
60 lbs N March 17

Table 4. Dry matter yield of ryegrass grown for forage, by variety, Newton, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	March 15	April 8	April 29	Total
	lbs/acre			
Magnolia	1726	1439	1337	4502
Tetrablend	1610	1617	1368	4595
North MS Reseeding	1656	1648	1392	4696
Gulf	1781	1524	1065	4370
Common	1890	1525	1407	4822
NK K5-98	1096	1338	1431	3865
NK K5-99	1602	1664	1260	4526
NK K5-100	1687	1478	1221	4386
NK K5-101	1703	1602	1213	4518
NK K5-102	1625	1556	1167	4348
NK K5-103	1618	1369	1229	4216
NK K5-104	1633	1509	1283	4425
Mean	1635	1552	1281	4438
LSD (.05)	NS	NS	107	323

Planted: Oct. 5, 1976
Fertilizer: 65-65-65 (N-P_2O_5-K_2O) lbs /acre at planting
45 lbs N December
45 lbs N March
45 lbs N April

Table 5. Dry matter yield of ryegrass grown for forage, by variety, Raymond, Miss., 1976-77.

Variety	Dry Matter Yield		
	Harvest Date		
	April 7	May 5	Total
	lbs/acre		
Magnolia	2172	958	3130
Tetrablend	2006	1456	3462
North MS Reseeding	2168	1500	3668
Gulf	2398	906	3304
Common	2232	1258	3490
NK K5-98	1850	992	2842
NK K5-99	1984	1358	3342
NK K5-100	1844	1306	3150
NK K5-101	1936	1434	3370
NK K5-102	2234	1316	3550
NK K5-103	2010	1362	3372
NK K5-104	1620	1586	3206
Mean	2038	1286	3324
LSD (.05)	272	360	364

Planted: Nov. 2, 1976
Fertilizer: 80-60-60- (N-P_2O_5-K_2O) lbs /acre at planting
80 lbs N Feb. 15

Table 6. Dry matter yield of ryegrass grown for forage, by variety, Poplarville, Miss. 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	Feb. 8	March 10	April 6	Total
	lbs/acre			
Magnolia	116	1365	1543	3024
Tetrablend	55	935	1653	2643
North MS Reseeding	34	1326	1589	2949
Gulf	100	1463	1837	3400
Common	37	1266	1461	2764
NK K5-98	38	932	1530	2500
NK K5-99	88	1168	1635	2891
NK K5-100	29	935	1713	2677
NK K5-101	25	670	1244	1939
NK K5-102	23	1055	1711	2789
NK K5-103	47	1184	1562	2793
NK K5-104	37	1037	1693	2767
Mean	52	1111	1598	2761
LSD (.01)	52	NS	NS	NS

Planted: Oct. 19, 1976
Fertilizer: 68-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
68 lbs N Feb. 8

Table 7. Dry matter yield of the five ryegrass varieties grown for forage at six locations, by location and variety, Mississippi, 1976-77.

Location	Dry Matter Yield				
	Magnolia	Tetrablend	North MS Reseeding	Gulf	Common
	lbs/acre				
Holly Springs	5909	6377	7494	5731	5779
Mississippi State	6034	5888	8860	6684	6287
Brooksville	3252	2378	3502	2760	2900
Newton	4502	4595	4696	4370	4822
Raymond	3130	3462	3668	3304	3490
Poplarville	3025	2643	2949	3400	2764
Mean	4309	4224	5195	4375	4340

Table 8. Dry matter yield of oats grown for forage, by variety, Mississippi State, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	Feb. 17	March 16	May 30	Total
	lbs/acre			
Coker 227	1164	2222	3424	6810
Coker 234	1423	1698	2747	5868
Coker 75-11	1964	1500	3227	6691
Coronado	1162	1389	2134	4685
Cortez	788	1047	1628	3463
Cumberland	1356	1964	3554	6874
Florida 501	1553	1228	2126	4907
TAM-O-301	837	1288	2225	4350
TAM-O-312	927	1311	1960	4198
Mean	1242	1516	2558	5316
LSD (.05)	473	348	614	910

Planted: Sept. 24, 1976
Fertilizer: 60-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
60 lbs N Feb. 17

Table 9. Dry matter yield of oats grown for forage, by variety, Newton, Miss., 1976-77.

Variety	Dry Matter Yield		
	Harvest Date		
	March 17	April 15	Total
	lbs/acre		
Coker 227	2778	581	3359
Coker 234	2533	670	3203
Coker 75-11	2288	729	3017
Coronado	2298	621	2919
Cortez	2308	877	3185
Cumberland	2788	936	3724
Fla. 501	2355	837	3192
TAM-O-301	2374	985	3359
TAM-O-312	2473	946	3419
Mean	2466	798	3264
LSD (.05)	NS	234	NS

Planted: Oct. 5, 1976
Fertilizer: 65-65-65- (N-P_2O_5-K_2O) lbs /acre at planting
45 lbs N December
45 lbs N March
45 lbs N April

Table 10. Dry matter yield of oats grown for forage, by variety, Poplarville, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	Feb. 8	March 10	April 6	Total
	lbs/acre			
Coker 76-14	111	844	820	1775
Coker 227	106	1371	1325	2802
Coker 234	106	1124	1086	2316
Coker 75-11	140	1200	1242	2582
Coker 76-19	202	1337	1006	2545
Coker 76-16	153	1602	1295	3050
Coker 76-18	246	1388	1336	2970
Coronado	53	941	921	1915
Cortez	62	898	1269	2229
Cumberland	19	1110	1316	2445
Fla. 501	126	1131	1047	2304
TAM-O-301	15	447	1134	1596
TAM-O-312	31	689	1101	1821
Mean	106	1083	1146	2335
LSD (.05)	121	552	NS	NS

Planted: Oct. 19, 1976
Fertilizer: 68-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
68 lbs N Feb. 8

Table 11. Dry matter yield of the nine oat varieties grown for forage, at three locations, by variety and location, Mississippi, 1976-77.

Variety	Dry Matter Yield			
	Miss. State	Newton	Poplarville	Average
	lbs/acre			
Coker 227	6810	3359	2802	4324
Coker 234	5868	3203	2316	3796
Coker 75-11	6691	3017	2582	4097
Coronado	4685	2919	1915	3173
Cortez	3463	3185	2229	2959
Cumberland	6874	3724	2445	4348
Fla. 501	4907	3192	2304	3468
TAM-O-301	4350	3359	1596	3102
TAM-O-312	4198	3419	1821	3146
Mean	5216	3264	2223	3601

Table 12. Dry matter yield of wheat grown for forage, by variety, Newton, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	Dec. 9	March 9	April 27	Total
	lbs/acre			
McNair 3001	340	2205	1862	4407
McNair 3069	770	924	1251	2945
Coker 68-15	520	2063	1090	3673
Coker 68-19	680	1819	1301	3800
Coker 74-27	360	1758	1241	3359
Coker 75-20	300	2042	1210	3552
Abe	280	1432	920	2632
Arthur 71	450	1849	1091	3390
Oasis	310	1624	1050	2984
Stoddard	300	1819	1131	3250
Doublecrop	290	2002	1261	3553
L 723	280	2246	1531	4057
L 724	360	2459	1280	4099
L 754	350	2012	1381	3743
Mean	399	1875	1257	3531
LSD (.05)	215	545	NS	773

Planted: Oct. 5, 1976
Fertilizer: 65-65-65 (N-P_2O_5-K_2O) lbs /acre at planting
45 lbs N December
45 lbs N March
45 lbs N April

Table 13. Dry matter yield of wheat grown for forage, by variety, Poplarville, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	Feb. 8	March 10	April 6	Total
	lbs/acre			
McNair 3001	350	1307	898	2555
McNair 3069	490	1157	794	2441
DeKalb H-55	237	1467	714	2418
DeKalb H-54	405	1453	871	2729
DeKalb H-60	91	1190	943	2224
DeKalb H-61	129	1849	1099	3077
DeKalb HG-22	68	1554	1093	2715
DeKalb HG-23	28	1407	1002	2437
Coker 68-15	320	1591	1256	3167
Coker 68-19	584	1329	597	2510
Coker 74-27	186	1572	1218	2976
Coker 75-24	645	1181	882	2708
Coker 75-27	393	1456	739	2588
Abe	67	1441	1137	2645
Arthur 71	265	1469	1142	2876
Oasis	127	1352	818	2297
Stoddard	90	1288	1262	2640
Doublecrop	69	1091	993	2153
L 723	482	1598	734	2814
L 724	334	1483	989	2806
L 754	639	1420	652	2711
Mean	285	1412	944	2641
LSD (.01)	227	NS	LSD (.05) 406	NS

Planted: Oct. 19, 1976
Fertilizer: 68-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
68 lbs N Feb. 8

Table 14. Dry matter yield of the 12 wheat varieties grown for forage, at two locations, by variety and location, Mississippi, 1976-77.

Variety	Dry Matter Yield		
	Newton	Poplarville	Average
	lbs/acre		
McNair 3001	4407	2555	3481
McNair 3069	2945	2441	2693
Coker 68-15	3673	3167	3420
Coker 74-27	3359	2976	3168
Abe	2632	2645	2639
Arthur 71	3390	2876	3133
Oasis	2984	2297	2641
Stoddard	3250	2640	2945
Doublecrop	3553	2153	2853
L 723	4057	2814	3436
L 724	4099	2806	3453
L 754	3743	2711	3227
Mean	3508	2673	3091

Table 15. Dry matter yield of ryes and triticales grown for forage, by variety, Mississippi State, Miss., 1976-77.

Variety	Dry Matter Yield			
	Harvest Date			
	Feb. 17	March 23	May 23	Total
	lbs/acre			
Rye				
Wintergrazer A	3578	1884	1888	7350
Wintergrazer 70	3916	1799	2082	7797
Wintergrazer	3920	1953	1747	7620
Vitagraze	3913	1339	1259	6511
Mean	3832	1744	1744	7320
Triticale				
6 TA 131	1504	2291	2865	6660
6 TA 522	2045	1832	2038	5915
6 TA 876	1349	1961	3111	6421
Commercial Blend	1795	1924	2046	5765
Mean	1671	2002	2515	6188
Mean	2752	1873	2130	6754
LSD (.05)	946	410	436	875

Planted: Sept. 24, 1976
Fertilizer: 60-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
60 lbs N Feb. 17

Table 16. Dry matter yield of ryes grown for forage, by variety, Poplarville, Miss., 1976-77.

Variety	Dry Matter Yield Harvest Date Feb. 8	March 10	April 6	Total
	lbs/acre			
Wintergrazer A	456	2115	966	3537
Wintergrazer 70	424	2190	965	3579
Wintergrazer	289	1913	1423	3625
Vitagraze	862	1952	762	3576
Mean	508	2042	1029	3579
LSD (.05)	569	NS	NS	NS

Planted: Oct. 19, 1976
Fertilizer: 68-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
68 lbs N Feb. 8

Table 17. Dry matter yield of triticales grown for forage, by variety, Poplarville, Miss., 1976-77.

Variety	Dry Matter Yield Harvest Date Feb. 8	March 10	April 6	Total
	lbs/acre			
6 TA 131	19	1447	1604	3070
6 TA 522	2	679	1482	2161
6 TA 867	6	1084	1332	2422
Commercial Blend	135	1209	1257	2601
Mean	40	1105	1419	2564
LSD (.05)	41	NS	NS	NS

Planted: Oct. 19, 1976
Fertilizer: 68-60-60 (N-P_2O_5-K_2O) lbs /acre at planting
68 lbs N Feb. 8

Table 18. Dry matter yield of ryes grown for forage, by variety, Newton, Miss., 1976-77.

Variety	Dry Matter Yield Harvest Date Dec. 17	Feb. 25	March 15	April 14	Total
	lbs/acre				
Wintergrazer A	985	861	1893	1056	4795
Wintergrazer 70	822	751	1951	1062	4586
Wintergrazer	744	807	1797	842	4190
Vitagraze	960	719	1659	1119	4457
Mean	878	784	1825	1020	4507
LSD (.05)	NS	NS	NS	NS	NS

Planted: Oct. 5, 1976
Fertilizer: 65-65-65 (N-P_2O_5-K_2O) lbs /acre at planting
45 lbs N December
45 lbs N March
45 lbs N April

Table 19. Dry matter yield of triticales grown for forage, by variety, Newton, Miss., 1976-77.

Variety	Dry Matter Yield Harvested on				
	Dec. 17	March 17	April 14	May 12	Total
	lbs/acre				
6 TA 131	429	1877	1306	778	4390
6 TA 522	327	1895	1577	778	4577
6 TA 876	171	1719	1625	866	4381
Commercial Blend	196	1992	1530	759	4477
Mean	281	1871	1510	795	4456
LSD (.05)	NS	NS	NS	NS	NS

Planted: Oct. 5, 1976
Fertilizer: 65-65-65 (N-P_2O_5-K_2O) lbs /acre at planting
45 lbs N December
45lbs N March
45 lbs N April

Table 20. Dry matter yield of the four rye varieties and four triticales grown for forage, at three locations, by variety and location, Mississippi, 1976-77.

Variety	Dry Matter Yield			
	Newton	Poplarville	Miss. State	Average
	lbs/acre			
Rye				
Wintergrazer A	4795	3537	7350	5227
Wintergrazer 70	4586	3579	7797	5321
Wintergrazer	4190	3625	7620	5145
Vitagraze	4457	3576	6511	4848
Mean	4507	3580	7320	5135
Triticale				
6 TA 131	4390	3070	6660	4707
6 TA 522	4577	2161	5915	4218
6 TA 876	4381	2422	6421	4408
Commercial Blend	4477	2601	5765	4281
Mean	4456	2564	6190	4403