PUBLICATIONS

1980

FORAGE AND BEEF CATTLE RESEARCH

1980 - Overton

RESEARCH CENTER

TECHNICAL REPORT NO. 80-1

YIELD POTENTIALS OF SELECTED BERMUDAGRASSES

F. M. Rouquette, Jr. and M. J. Florence

SUMMARY

Eight bermudagrasses were established in 1975 and harvested at 7-, 14-, and 28-day intervals throughout the 1977, 1978, and 1979 growing seasons. A substantial decline in yield occurred during the 3-year period on all harvest frequencies. Yield decline from 1977 to 1978 may be attributed to rainfall; however, the difference in forage production between the first and third years cannot be explained by climatological data. Some of the bermudagrass selections produced less total dry matter because of the invasion of common bermudagrass.

During the initial year of sampling, 1977, S-83 was included in the trial. However, because of nearly complete dominance and invasion by common bermudagrass into these plots, S-83 was eliminated from this trial and also as a potential commercial variety for East Texas. The 3-year average yield for all selections was 4743, 6066, and 9859 lbs/ac, for the 7-, 14-, and 28-day frequencies, respectively. Almost without exception, the top four selections within each harvest frequency were S-66, Coastal, Alicia, and Coastcross I. On the other hand, the two selections which consistently produced the least amount of forage dry matter were S-16 and Callie.

OBJECTIVES

The primary objectives of this trial were to evaluate selected bermudagrasses for their potential dry matter production, vigor, stand maintenance, and nutritive characteristics at harvest frequencies which simulated grazing and haying conditions.

PROCEDURES

Bermudagrass selections were arranged in a randomized complete block design with four replications. Each whole plot, 8'x24', was split into 3 subplots of 8'x8' dimension. Subplots were then used to collect data at 7-, 14-, and 28 day harvest frequencies. The 7- and 14-day frequency plots were harvested with a reel-mower; whereas, the 28-day frequency plots were harvested with a sickle mower. All plots were cut to a 2-inch stubble

height. Each year, a balanced fertilizer was applied at the rate of 100-100-100 lbs/ac of N-P_2O_5-K_2O in early to mid-April. Thereafter, 60 lbs/ac N was applied to all plots after the 28-day harvest. Thus, the season total fertilizer applied was 340-100-100.

RESULTS

The yearly and 3-year average dry matter production from the 7-, 14-, and 28-day harvest frequencies are shown in Tables 1-3, respectively. The 28-day frequency plots produced twice as much dry matter as the 7-day frequency plots. The consistent high yielding selections were S-66, Coastal, Alicia, and Coastcross I; whereas, the consistent low forage producing selections were S-16 and Callie.

A 3-year monthly average dry matter production for the 28-day frequency is shown in Table 4. During these 3 test years, the percent of the total forage produced during May through October was 40.1, 16.2, 12.0, 14.0, 10.7, and 7.0%, respectively. Table 5 shows the monthly rainfall that occurred during the 3-year period. Forage yields did not reflect the abundant rainfall received in 1979. One possible explanation for the reduced regrowth may be due to the reduced stand and vigor of the bermudagrasses following the drought-like conditions of 1978.

Table 1. Total dry matter production of selected bermudagrasses cut at 7-day intervals.

Selection	Yield (lbs/ac)			
	1977 (4-26 to 10-5)	1978 (5-4 to 10-12)	1979 (5-2 to 10-9)	3-Year Avg.
S-66	7213	3871	5790	5625
Coastal	6647	4517	5264	5476
Coastcross I	6605	4119	5140	5288
Alicia	6699	4652	4017	5123
SS-16	5497	3277	4930	4568
S-54	5481	2501	3976	3986
Callie	4898	2894	4082	3958
S-16	5534	2712	3518	3921
S-83*	2707	0	0	
AVG	6072	3568	4590	4743

*Dry matter yield was not used in computing average yields.

Table 2. Total dry matter production of selected bermudagrasses cut at 14-day intervals.

Selection	Yield (lbs/ac) 1977 (4-26 to 10-5)	1978 (5-4 to 10-12)	1979 (5-2 to 10-9)	3-Year Avg.
S-66	9439	5461	7100	7333
Alicia	8504	6764	5518	6929
Coastal	7988	5195	7090	6758
Coastcross I	8037	5451	5315	6268
SS-16	6648	4426	6963	6012
S-54	7142	3947	5152	5414
S-16	6904	3727	4547	5059
Callie	6181	3509	4572	4754
S-83*	4006	0	0	
AVG	7605	4810	5782	6066

*Dry matter yield was not used in computing average weights.

Table 3. Total dry matter production of selected bermudagrasses cut at 28-day intervals.

Selection	Yield (lbs/ac) 1977 (4-26 to 10-5)	1978 (5-4 to 10-12)	1979 (5-2 to 10-9)	3-Year Avg.
S-66	14809	10374	11698	12294
Coastal	12624	10628	11850	11701
Alicia	13415	9296	10254	10988
SS-16	10300	7390	10698	9463
Coastcross I	13024	8013	7205	9414
S-54	11723	7899	8042	9221
S-16	11549	6369	7242	8387
Callie	10197	5974	6041	7404
S-83*	6533	0	0	
AVG	12205	8243	9129	9859

*Dry matter yield was not used in computing average yields.

Table 4. Monthly dry matter production of selected bermudagrasses cut at 28-day intervals.

	3-Year Avg.					
Selection	May	June	July	Aug	Sept	Oct
S-66	5293	2038	1410	1562	1239	754
Coastal	4990	1747	1429	1534	1210	792
Alicia	5346	1423	1303	1325	956	636
SS-16	4300	1245	1004	1199	1015	700
Coastcross I	2886	1601	1228	1753	1065	881
S-54	4081	1299	1044	1169	894	734
S-16	3147	2391	959	1215	1236	739
Callie	2117	1257	1272	1447	1001	679
AVG	4020	1625	1206	1401	1077	702
% of Yearly Total	40.1	16.2	12.0	14.0	10.7	7.0

Table 5. Monthly rainfall for the 3-year period.

	Inches			
Month	1977	1978	1979	Avg.
January	3.89	4.21	9.35	5.82
February	4.35	2.69	3.45	3.50
March	5.11	3.49	5.70	4.77
April	3.61	1.16	4.95	3.24
May	1.05	4.20	7.06	4.10
June	2.59	0.39	2.04	1.67
July	2.14	2.14	4.03	2.77
August	2.98	1.55	0.57	1.70
September	1.63	0.95	6.64	3.07
October	1.14	1.65	2.47	1.75
November	3.60	5.90	4.31	4.60
December	1.38	2.57	5.12	3.02
Growing Season - TOTAL (May-Sept)	10.39	9.23	20.34	
YEAR TOTAL	33.47	30.90	55.69	