

NAME OF TEST: Seeding Gulf ryegrass on prepared seedbed and on Coastal bermudagrass sod

OBJECTIVES: (1) To compare the yield of Gulf ryegrass when seeded on a prepared seedbed and on Coastal bermudagrass sod with and without disking before seeding; (2) to determine the effect of several rates of nitrogen fertilization on the yield of ryegrass; and (3) to determine the effect of ryegrass on the subsequent growth of Coastal bermudagrass.

EXPERIMENTAL PROCEDURE:

Location: Substation No. 3, Angleton, Texas

Soil type: Lake Charles clay

Experimental design: Split plot design with main plots as follows:

(1) Gulf ryegrass seeded on a prepared seedbed; (2) Gulf ryegrass seeded on Coastal bermudagrass disked after the last cutting of hay; and (3) Gulf ryegrass seeded on Coastal bermudagrass sod not disturbed after the last cutting of hay. Split plot treatments were 0, 30, 60 and 120 pounds nitrogen per acre at planting time and 60 and 120 pounds nitrogen per acre split into 2 applications with one half applied at planting time. There were 4 replications.

Cultural practices: Planted October 18, 1961 in plots 5 feet x 20 feet.

Thirty pounds P_2O_5 per acre applied to all plots at planting.

RESULTS: See tables

DISCUSSION: Gulf ryegrass grown on a prepared seedbed produced 50% more yield than ryegrass grown on disked Coastal bermudagrass sod and almost three times more than ryegrass grown on undisturbed Coastal bermudagrass sod by February 9. While acceptable yields were produced with rather high levels of nitrogen on disked sod, almost twice the amount of nitrogen was required to produce about equal amounts of yield. The effect of seedbed preparation also had a highly significant effect on yield at the second harvest date, April 13, but differences were not as great as with the harvest on February 9. The amount of nitrogen applied per acre had a highly significant effect on yield, both on February 9 and April 13. Nitrogen applied in a split application resulted in a much more efficient utilization of the nitrogen.

PROJECT: H-388

WORKER: Marvin E. Riewe

DATE SUBMITTED: January, 1963

Table 1. Effect of method of seedbed preparation and nitrogen fertilizer on yield of Gulf ryegrass, Angleton, 1962

Pounds N per acre		Yield, lbs. per acre, Gulf ryegrass		
At planting	Topdressed	2/9/62	4/13/62	Total
Prepared seedbed				
0		580	1720	2300
30		1340	1790	3130
60		1360	2030	3390
120		1570	3090	4660
30	30	1460	3430	4900
60	60	1330	4000	5330
Average		1270	2680	3950
Disked Coastal bermudagrass				
0		150	700	840
30		730	1270	2000
60		1190	1520	2710
120		1560	2630	4190
30	30	600	2760	3360
60	60	1000	2760	4760
Average		870	2110	2980
Undisturbed Coastal bermudagrass				
0		110	470	580
30		230	960	1190
60		750	1270	2120
120		890	2440	3330
30	30	350	2190	2540
60	60	460	3070	3530
Average		460	1730	2200

Table 2. Yield of Coastal bermudagrass following season of Gulf ryegrass
Angleton, 1962

Methods of seedbed preparation for ryegrass	Pounds per acre N applied to ryegrass	<u>Yield, lbs. per acre, Coastal bermudagrass</u>		
		6/27/62	10/3/62	Total
Disked sod	0	1450	3830	5280
	30	1550	3840	5390
	60	1570	3760	5330
	120	1860	4090	5950
	60*	1620	4440	6060
	120*	1570	4520	6090
Average		1600	4080	5680
None	0	2010	3250	5260
	30	2410	3820	6230
	60	2520	3670	6180
	120	2970	4020	6990
	60*	2400	3480	5880
	120*	3150	4500	7650
Average		2570	3790	6360

* 1/2 N applied at planting and 1/2 after establishment.

NAME OF TEST: Seeding Gulf ryegrass on prepared seedbed and on Coastal bermudagrass sod.

OBJECTIVES: (1) To compare the yield of Gulf ryegrass when seeded on a prepared seedbed and on Coastal bermudagrass sod with and without disking before seeding; (2) to determine the effect of several rates of nitrogen fertilization on the yield of ryegrass; and (3) to determine the effect of ryegrass on the subsequent growth of Coastal bermudagrass.

EXPERIMENTAL PROCEDURE:

Location: Substation No. 3, Angleton, Texas

Soil type: Lake Charles Clay

Experimental design: Split plot design with method of seedbed preparation as main plots. These were: (1) well prepared seedbed, (2) disked Coastal bermuda sod and (3) Coastal bermuda sod with no tillage. Split plot treatments were 0, 30, 60, and 120 pounds nitrogen per acre at planting time and 60 and 120 pounds nitrogen per acre split into 2 applications with one-half applied at planting time. There were 4 replications. All Coastal bermuda plots received 60 pounds of nitrogen per acre on April 18 and July 15 and 30 pounds of nitrogen per acre on September 4.

Cultural practices: Planted October 25, 1962 in plots 5 feet x 20 feet. Thirty pounds P_2O_5 per acre applied to all plots at planting.

RESULTS: See tables

DISCUSSION: Ryegrass grown on a prepared seedbed produced significantly more (about 70%) forage than when the ryegrass was grown on Coastal bermuda sod. However, the differences were greatest with low levels of nitrogen fertilizer and least with higher levels of fertilization causing a highly significant fertilizer x method of seedbed preparation interaction.

The effect of method of seedbed preparation had a very marked effect on the subsequent growth of Coastal bermudagrass, particularly early in the season. However, there was no significant carryover effect of the differential nitrogen treatment on the ryegrass.

PROJECT: H-388

WORKER: Marvin E. Riewe

DATE SUBMITTED: January, 1964

Table 1. Effect of method of seedbed preparation and nitrogen fertilizer on yield of Gulf ryegrass, Angleton, 1963

Pounds N per acre		Yield, lbs. per acre, Gulf ryegrass		
At planting	Topdressed 2/27	2/27/63	4/18/63	Total
Prepared seedbed				
0		1510	2460	3970
30		1670	2810	4480
60		1590	3230	4820
120		1420	3900	5320
30	30	1630	3960	5590
60	60	1560	4290	5850
Average				5000
Disked Coastal bermudagrass				
0			1260	1260
30			2220	2220
60		310	2510	2820
120		970	2880	3850
30	30		3460	3460
60	60	410	4320	4730
Average				3060
Undisturbed Coastal bermudagrass				
0			1360	1360
30			2090	2090
60		890	1340	2230
120		1530	2380	3910
30	30		2950	2950
60	60	820	3490	4310
Average				2810

Table 2. Yield of Coastal bermudagrass following season of Gulf ryegrass
1963

Method of seedbed preparation for ryegrass	Pounds per acre N applied to ryegrass	Yield, lbs. per acre, Coastal bermudagrass			
		7/15/63	9/4/63	11/15/63	Total
Disked sod	0	1230	2300	500	4030
	30	1160	1990	380	3530
	60	1050	1900	410	3360
	120	1070	1730	320	3120
	60*	1220	1890	280	3390
	120*	1750	2190	310	4250
Average		1250	2000	370	3610
None	0	3320	2500	470	6290
	30	3400	2740	360	6500
	60	3670	3100	390	7160
	120	3690	2610	460	6760
	60*	3340	2970	460	6770
	120*	4000	2760	290	7050
Average		3570	2780	410	6760

* Split application of nitrogen with one-half applied at planting and one-half February 27.

NAME OF TEST: Small grain date of planting for forage production.

OBJECTIVES: To study the effect of date of planting and harvest frequency on seasonal and total forage production.

EXPERIMENTAL PROCEDURE:

Experiment No.: 3973

Location: Agronomy Farm, College Station, Texas

Soil type: Lufkin fine sandy loam

Cultural practices: The land was prepared and fertilized with 300 pounds of 12-12-12 per acre before planting. Plots were 5 12-inch rows, 17 feet long, 6 replications, 3-foot alley between replications. Seedings were made on September 15, October 1, October 15, November 1, November 15, December 1. The test was irrigated September 25, October 18, November 7, and November 13. Nitrogen (30 pounds per acre) was applied January 10.

General conditions: Severe freezes in January reduced stands and retarded growth. The December 1 planting of Mustang and Moregrain was completely killed. Gator survival was fair but too variable for harvest.

RESULTS: See tables.

DISCUSSION: Yields were low because of extreme temperatures in January.

Early production was essentially the same with September 15, October 1, and October 15 plantings. The best total production was with October 15 planting. Average yield was greater with harvest only at maturity but the difference was not as great as in previous years.

The winter hardiness and winter growth ability of Gator is demonstrated by the greater yield in March particularly with the November 1 and November 15 plantings and by the greater total yield of Gator with these two planting dates.

The September 15 seeding and to some extent the October 1 seeding encountered stand losses from disease and severe weed invasion. These seedings were hand weeded to prevent perchalaca from completely crowding out the seedlings. No doubt some of the harvested material reported in the table is weeds.

PROJECT: 388

WORKER: E. C. Holt

DATE SUBMITTED: September, 1963

Forage yield of small grain varieties with various dates of planting, College Station, Texas, 1962-63.

Date of planting	Variety	Pounds of dry forage per acre				Harvested at maturity
		Dec. 5	March 7	April 10	Total	
Sept. 15	Gator	470	1050	390	1910	1750
	Mustang	520	510	530	1560	1360
	Moregrain	830	900	590	2320	1280
	Average				1930	1460
Oct. 1	Gator	250	970	230	1450	1230
	Mustang	470	590	610	1670	1830
	Moregrain	670	500	500	1670	1860
	Average				1600	1640
Oct. 15	Gator	370	1810	470	2650	2160
	Mustang	320	1070	700	2090	3120
	Moregrain	710	830	730	2270	2740
	Average				2340	2670
Nov. 1	Gator		2020	320	2340	2730
	Mustang		740	700	1440	2040
	Moregrain		490	700	1190	2190
	Average				1660	2320
Nov. 15	Gator		780	1350	2130	3390
	Mustang		0	1310	1310	2330
	Moregrain		0	930	930	1430
	Average				1460	2380
Harvest frequency average					1800	2090
C.V. (%)						24.8

Forage yield of small grain varieties with various dates of planting, College Station, Texas, 1960-63

Date of planting	Variety	1960 - 61		1961 - 62		1962 - 63	
		Total of 4 clippings	Harvested at maturity	Total of 4 clippings	Harvested at maturity	Total of 3 clippings	Harvested at maturity
Sept. 1	Gator ^{1/}	2760	6370				
	Mustang	2380	5420				
	Suregrain ^{2/}	2630	5970				
Sept. 15	Gator	3080	5790	2610	5250	1910	1750
	Mustang	2540	3770	2040	4930	1560	1360
	Suregrain	2550	5470	1770	4900	2320	1280
Oct. 1	Gator	3380	6290	1900	4780	1450	1230
	Mustang	2700	4110	2000	4860	1670	1830
	Suregrain	2690	4550	2120	5730	1670	1860
Oct. 15	Gator	4250	5560	1910	6320	2650	2160
	Mustang	3840	4560	1900	6200	2090	3120
	Suregrain	4530	4500	1890	5550	2270	2740
Nov. 1	Gator	3230	6500	2150	6890	2340	2730
	Mustang	3690	3620	1810	4850	1440	2040
	Suregrain	3350	4620	2000	5950	1190	2190
Nov. 15	Gator			1890	3500	2130	3390
	Mustang			1740	3360	1310	2330
	Suregrain			1820	3380	930	1430
Dec. 1	Gator	1670	5140	2040	3970		
	Mustang	2360	4030	1860	4020		
	Suregrain	1580	3600	1600	3260		

^{1/} Cordova barley was used in 1961-62.

^{2/} Moregrain was used in 1962-63.

NAME OF TEST: Gahi Pearl Millet evaluation

OBJECTIVE: To determine the forage yield of Gahi Pearl Millet with different seeding and spacing practices.

EXPERIMENTAL PROCEDURE:

Experiment No: 4036-1

Location: D. C. Henson Farm, Mt. Pleasant, Texas

Soil type: Sawyer fine sandy loam

Source of material: Ethan C. Holt

Cultural practices: Planted June 4, 1963, row plots 30 feet long with spacings of 18 and 36 inches; broadcast plots 7 feet by 30 feet; split plot design with 4 replications. A 30-60-60 fertilizer broadcast prior to planting.

Area clipped for yield:

(a) Broadcast: 34 inches by 20 feet

(b) Row: 1 row (center row of 3 row plot)
20 feet long

General: Weather conditions were about normal for most of the growing period. Moisture was limited in August. Total rainfall - 11.03 inches.

RESULTS: See table.

DISCUSSION: The only indications of seeding rate effects were at the first cutting in broadcast plots and in total yields in 18-inch rows. Yield with 8 pounds of seed broadcast was 300 pounds less than with heavier rates at the first harvest. Total yields in 18-inch rows were 600 to 800 pounds higher at the 4-pound seeding rate than at heavier rates.

The distribution of production among the three harvests was essentially the same for the three methods of seeding. Work at other locations with sudangrass had indicated greater production proportionally at the initial harvest with broadcasting and less at subsequent harvests. Pearl Millet did not follow this pattern at Mt. Pleasant in 1963. Approximately 50 percent of the total production was obtained at the initial harvest with each treatment.

PROJECT: 388

DATE SUBMITTED: November, 1963

WORKER: J. A. Lancaster

The influence of seeding method and seeding rate on Gahi-1 Pearl Millet forage yields, Mt. Pleasant, 1963.

Seeding method	Seeding rate (lbs./acre)	Pounds air-dry forage per acre			
		July 1	July 19	August 23	Total
Broadcast	8	630	590	500	1720
	16	980	470	510	1960
	24	900	430	550	1880
	32	900	490	380	1770
		850	495	485	1830
18-inch rows	4	1660	1300	950	3910
	8	1560	790	1020	3370
	12	1620	620	770	3010
	16	1690	710	460	2860
		1635	855	800	3290
36-inch rows	2	1020	580	550	2150
	4	860	670	630	2160
	6	960	500	600	2060
	8	970	360	560	1890
		950	530	585	2065

18-inch row yields significantly greater than others. No significant differences due to seeding rates.

Gahi-1 Pearl Millet evaluation
Mt. Pleasant, 1962-63

Method	Rate	Pounds of air-dry forage per acre		
		1962	1963	Average
Broadcast	8 lbs.	2020	1720	1870
	16 lbs.	2320	1960	2140
	24 lbs.	2390	1880	2135
	32 lbs.	2570	1770	2170
Average		2325	1830	2075
18"	4 lbs.	3570	3910	3740
	8 lbs.	3860	3370	3615
	12 lbs.	3440	3010	3225
	16 lbs.	3600	2860	3230
Average		3620	3290	3455
36"	2 lbs.	2650	2150	2400
	4 lbs.	2920	2160	2540
	6 lbs.	3000	2060	2530
	8 lbs.	2800	1890	2345
Average		2840	2065	2450