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Seasonal Production of Experimental Rose Clover at Six Texas Locations

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Summary

Seasonal forage production of rose clover was evaluated at Overton, Dallas, College Station, Yoakum, Brenham, and Beeville in 1985 to 1986. Total production, averaged over four locations, ranged from 4,022 to 3,050 lbs DM/A for nine experimental rose clover lines from the Overton clover breeding program, while rose clover check varieties ranged from 3,129 to 1,793 lbs DM/A. Five experimental lines were identified with production characteristics superior to check varieties and other experimental lines. Rose clover was shown to be well-adapted to a range of Texas geographic locations in 1985 to 1986.

Introduction

Rose clover (*Trifolium hirtum* All.) is a winter annual legume with potential for use in Texas forage systems. Attributes of rose clover include a wide soil type adaptation, moderate drought tolerance and good reseeding characteristics. This species is not adapted to wet soil conditions and current commercial varieties are early maturing for most Texas locations. Experimental rose clover lines from the clover breeding program at Overton were evaluated for seasonal forage production at six Texas locations in 1985-1986. The objectives were: 1) enhance information concerning adaptation of rose clover to Texas environments, and 2) identify experimental rose clover lines suitable for germplasm or variety release.

Procedure

Experimental lines and check varieties of rose clover were established in fall 1985 at Overton, Dallas, College Station, Yoakum, Brenham, and Beeville. Planting rate was 20 lbs/A. Specific planting information for each site is shown in Table 1. Plots were harvested four times at Yoakum, three times at Overton and Brenham, twice at College Station and Beeville, and once at Dallas. At each harvest, forage samples were weighed, oven-dried and weighed again. Percent dry matter of the samples was used to calculate dry matter forage yield per acre.

Results and Discussion

Acceptable stands were obtained at all sites. Plots were harvested beginning in January at Yoakum and extending into May at Overton and Brenham. Seasonal production at each site is shown in Tables 2 to 7.

'Kondinin' and 'Hykon' are early maturing varieties, and are currently the only named varieties of rose clover available as commercial seed. 'Wilton' rose clover has not

been produced as certified seed since 1967. Kondinin and Hykon early season yield was generally high, at some sites slightly exceeding first harvest yields of the experimental lines. At sites with multiple harvests, mid- and late-season production of Kondinin and Hykon was far below the yield of the experimental lines. Wilton was intermediate in total forage production between the best experimental lines and the early varieties. Drought conditions at Beeville limited rose clover production to one early harvest and one late hand-clipped harvest. Kondinin and Hykon were winterkilled at Dallas in early December. The two experimental rose clover lines planted at Dallas were limited to one harvest by drought conditions.

Brenham, Overton, College Station, and Yoakum collected multiple harvest (regrowth) data on nine rose clover experimental lines and three check varieties. Total season production from these four locations is summarized in Table 8. Based on performance averaged over these four environments, the lines RH-18, RD-3, RD-17, RF-20, and RM-16 have a slight production advantage over the other four experimental lines. The late maturing experimental line RD-3 produced 28 percent more total forage than Wilton, the best check variety, aver-

TABLE 1. PLANTING INFORMATION BY LOCATION

Location	Planting date	Plot size (ft)	No. of replications	Soil type
Overton ¹	10-15-85	5x10	4	Sawtown fsl
Brenham ²	10-10-85	5x15	4	Houston bc
Yoakum ²	11-1-85	6x20	4	Hallettsville fsl
College Station ²	10-11-85	5x20	3	Ships c
Beeville ³	10-25-85	5x20	6	Parrita scl
Dallas ⁴	10-14-85	5x16	4	Houston bc

¹Ten experimental entries plus Kondinin, Hykon, and Wilton checks.

²Nine experimental entries plus Kondinin, Hykon, and Wilton checks.

³Nine experimental entries plus Kondinin and Hykon checks.

⁴Two experimental entries plus Kondinin and Hykon checks.

TABLE 2. SEASONAL FORAGE PRODUCTION OF SOD-SEEDED ROSE CLOVER AT OVERTON, TEXAS, 1985-1986

Variety	Harvest Date			Total
	3-13-86	4-7-86	5-13-86	
Pounds of dry matter per acre				
RH-18	693	1,908	1,503	4,104
RD-3	668	2,009	1,260	3,937
RH-7	561	1,891	1,479	3,931
RD-17	652	1,931	1,191	3,774
RM-13	648	1,890	1,230	3,768
RF-20	765	1,827	1,081	3,673
RM-16	648	1,749	1,245	3,642
Wilton	628	1,440	1,524	3,592
RR-12	619	1,413	1,532	3,564
RO-15	676	1,699	1,136	3,511
RJ-3	622	1,656	1,220	3,498
Kondinin	935	311	128	1,374
Hykon	788	334	78	1,200

C.V. = 7.9%

LSD (0.05) = 383

KEYWORDS: Rose clover/legume/forage production.

aged across four locations. RD-3 produced twice as much forage as the early varieties Kondinin and Hykon, averaged across four locations. Early season production of the best experimental lines was equal or slightly less than Kondinin or Hykon. Based on the 1985 to 1986 season, rose clover is well-adapted across a broad range of geographic locations in Texas. The experimental rose clover lines from the Overton clover breeding program were more productive than the check varieties at all six locations.

TABLE 3. SEASONAL FORAGE PRODUCTION OF ROSE CLOVER AT BRENHAM, TEXAS, 1985-1986

Variety	Harvest date			Total
	2-20-86	3-26-86	5-13-86	
Pounds of dry matter per acre				
RD-3	1,948	1,927	1,908	5,783
RH-18	1,893	1,756	1,969	5,618
RM-16	2,054	1,577	1,887	5,518
RD-17	2,052	1,842	1,480	5,374
RF-20	1,933	1,908	1,525	5,366
RJ-3	2,053	1,785	1,493	5,331
RR-12	1,799	1,361	2,140	5,300
RO-15	1,820	1,930	1,521	5,271
RH-7	1,664	1,887	1,598	5,149
Wilton	1,576	1,565	1,750	4,891
Hykon	2,094	451	0	2,545
Kondinin	1,774	329	0	2,103

C.V. = 8.8%

LSD (0.05) = 576.6

TABLE 4. SEASONAL FORAGE PRODUCTION OF ROSE CLOVER AT YOAKUM, TEXAS, 1985-1986

Variety	Harvest Date				Total
	1-24-86	2-25-86	3-25-86	5-1-86	
Pounds of dry matter per acre					
RD-17	118	582	1,527	485	2,712
RD-3	145	427	1,393	503	2,468
RF-20	132	468	1,229	555	2,384
Hykon	114	886	1,053	273	2,326
RM-16	119	460	1,156	534	2,269
RH-18	133	451	982	533	2,099
RO-15	100	417	1,141	417	2,075
RJ-3	142	405	993	459	1,999
Kondinin	134	927	730	172	1,963
Wilton	107	352	727	449	1,635
RH-7	128	471	711	302	1,612
RR-12	121	482	500	341	1,444

C.V. 18.7

LSD (0.05) = 560

TABLE 5. SEASONAL FORAGE PRODUCTION OF ROSE CLOVER AT COLLEGE STATION, TEXAS, 1985-1986

Variety	Harvest Date		Total
	3-5-86	4-4-86	
Pounds of dry matter per acre			
RH-18	1,503	2,426	3,929
RD-3	1,551	2,352	3,903
RM-16	1,570	2,247	3,817
RF-20	1,630	2,172	3,802
RD-17	1,018	2,642	3,660
RO-15	1,151	2,447	3,598
RJ-3	1,749	1,756	3,505
RH-7	1,299	1,814	3,113

TABLE 5. (Cont'd)

Variety	Harvest Date		Total
	3-5-86	4-4-86	
Pounds of dry matter per acre			
Wilton	698	1,703	2,401
RR-12	577	1,317	1,894
Kondinin	987	745	1,732
Hykon	927	625	1,552
C.V. = 21.4		LSD (0.05) = 1,144	

C.V. = 21.4

LSD (0.05) = 1,144

TABLE 6. FORAGE PRODUCTION OF ROSE CLOVER AT BEEVILLE, TEXAS, 1985-1986

Variety	Harvest date		Total
	2-18-86	5-2-86	
	Pounds of dry matter per acre		
RH-18	1,512	3,813	5,325
RM-13	1,427	2,765	4,192
RO-15	1,381	2,390	3,771
RM-16	1,380	2,399	3,779
RJ-3	1,374	2,426	3,800
RD-3	1,322	3,369	4,691
RF-20	1,299	2,883	4,182
RD-17	1,271	2,718	3,989
RR-12	999	3,374	4,373
RH-7	878	2,882	3,760
Kondinin	2,298	2,395	4,693
Hykon	1,849	1774	3,623

C.V. = 26.2%

LSD (0.05) = 1,800

TABLE 7. FORAGE PRODUCTION OF ROSE CLOVER AT DALLAS, TEXAS, 1985-1986

Variety	Harvest date	
	4-29-86	
lbs DM/acre		
RD-20	1261	
RD-3	896	
Kondinin	0 ¹	
Hykon	0 ¹	

¹Winterkilled early December.

TABLE 8. PERFORMANCE OF ROSE CLOVER AT FOUR TEXAS LOCATIONS IN 1985-1986

Line	Location			
	Overton	Brenham	Yoakum	College Station
Pounds of dry matter per acre				
RH-18	4,104	5,618	2,099	3,929
RD-3	3,937	5,783	2,468	3,903
RH-7	3,931	5,149	1,612	3,113
RD-17	3,774	5,374	2,712	3,660
RF-20	3,673	5,366	2,384	3,802
RM-16	3,642	5,518	2,269	3,817
RR-12	3,564	5,300	1,444	1,894
RO-15	3,511	5,271	2,075	3,598
RJ-3	3,498	5,331	1,999	3,505
Kondinin	1,374	2,103	1,963	1,732
Hykon	1,200	2,545	2,326	1,552
Wilton	3,592	4,891	1,635	2,401
LSD (0.05)	383	576	560	1144
C.V. %		7.9	8.8	18.7