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Seasonal Production of Annual Forage Legumes at Overton, 1987-1988

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Summary

Fifteen annual clovers, including arrowleaf (*Trifolium vesiculosum* Savi.), crimson (*T. incarnatum* L.), berseem (*T. alexandrinum* L.), ball (*T. nigrescens* Viv.), and seven vetches (*Vicia* sp.) were evaluated for forage production and adaptation at Overton in 1987-88. Common ball was the most productive annual clover with 4,962 lbs DM/A while 85 Bigbee berseem produced 2,444 lbs DM/A. Woodford vetch produced 3,863 lbs DM/A in 1987-88 while Nova II produced 1,043 lbs DM/A.

Introduction

Reseeding winter-annual legumes have the potential to provide high quality grazing during late fall, winter, and spring without the input of nitrogen fertilizer. The distribution of forage production from these legumes is a direct complement to warm-season perennial grasses. The objectives of these experiments were: 1) to determine seasonal distribution of annual forage legume dry matter production; and 2) to determine the general adaptation of annual forage legumes to East Texas soil and climatic conditions.

Procedure

Fifteen annual clovers and seven vetches were drilled into a common and Coastal bermudagrass sod on October 23, 1987. A small-plot drill with six double disk openers, spaced 9 inches apart, was used to place the seed one-half inch deep in the 5x10 ft. plots. Fertilizer applied to the Sawtown fine sandy loam was 86 lbs P₂O₅, 86 lbs K₂O, and 1.07 lbs B/A. The clovers were harvested at 2.25 inches and the vetch at 1.75 inches with a rotary mower.

Seeding rates and *Rhizobium* inoculants for each legume species are shown in Table 1. Peat inoculant, supplied by the Nitragin Co., was applied at 1.6 oz/lb of seed with Pelgel solution used as an adhesive to adhere inoculant to the seed.

Each experiment was arranged in a randomized complete block design with four replications. At each harvest, subsamples were weighed, dried at 60°C for 48 hours and weighed again to calculate dry matter yield per acre.

Results

Woodford vetch production was lower than the previous season, but remained above the average at Overton with 3,863 lbs DM/A (Table 2). Latimer vetch followed with 3,580 lbs DM/A. Hairy vetch remained close to its production average at Overton with 3,264 lbs DM/A. The common vetches, Vantage, Cahaba White, Vanguard, and Nova II, are not

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TABLE 1. SEEDING RATES AND RHIZOBIUM INOCULANTS USED IN EVALUATION OF ANNUAL FORAGE LEGUMES

Species	Seeding Rate	Inoculant Type ¹
	lbs/A	
Arrowleaf	14.3	0
Ball	3.6	B
Berseem and Crimson	19.6	R
Common Vetch	35.0	C
Hairy and Bigflower Vetch	25.0	C

¹Supplied by the Nitragin Co., Milwaukee, WI. Applied at 1.6 oz/lb of seed with Pelgel solution as an adhesive.

well-adapted to East Texas growing conditions. Production of these vetches is generally about one-third to one-half of the production of Woodford and Hairy vetch.

Forage production of annual clovers ranged from 4,962 to 2,444 lbs DM/A for common ball and 85 Bigbee berseem, respectively, in 1987-88 (Table 3). Common ball production was unusually high, approximately 1,800 lbs DM/A above its average at Overton. Production of all the annual clovers was higher than in 1986-87.

TABLE 2. SEASONAL FORAGE PRODUCTION OF SOD-SEEDED VETCH AT OVERTON, 1987-1988

Variety	Harvest Date			Total
	3-7-88	4-4-88	5-16-88	
	lbs DM/A			
Woodford	593	1421	1849	3863 a [†]
Latimer (mix)	394	1140	2046	3580 a
Hairy	527	1089	1648	3264 a
Vantage	509	933		1442 b
Cahaba White	510	910		1420 b
Vanguard	595	475		1070 b
Nova II	467	576		1043 b
				C.V. = 13.9%

[†]Means not followed by the same letter are significantly different according to SNK (P<0.01).

TABLE 3. SEASONAL FORAGE PRODUCTION OF SOD-SEEDED ANNUAL CLOVERS AT OVERTON

Variety	Harvest Date			Total
	3-7-88	3-28-88	5-3-88	
		lbs DM/A		
Common ball	109	912	3,941	4962 a [†]
Meechee arrowleaf	514	1,026	3,328	4,868 a
Chief crimson	534	1,561	2,467	4,562 ab
FL-XPC-B crimson	507	1,352	2,675	4,534 ab
Yuchi arrowleaf	638	1,142	2,617	4,397 ab
RRP-5 arrowleaf	503	927	2,956	4,386 ab
Segrest ball	161	832	3,238	4,231 ab
RRPS-6 arrowleaf	562	916	2,671	4,149 ab
OLS-1 arrowleaf	603	814	2,709	4,126 ab
Amclo arrowleaf	500	973	2,612	4,085 ab
Dixie crimson	609	1,145	2,052	3,806 b
Tibbee crimson	585	1,202	1,871	3,658 b
OVB-2 berseem	239	549	1,878	2,666 c
Bigbee berseem	318	761	1,566	2,645 c
85 Bigbee berseem	320	386	1,738	2,444 c

C.V. = 8.3%

[†]Means not followed by the same letter are significantly different according to SNK (P<0.01).