

LOTUS RESEARCH IN GEORGIA

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Variety Trials

Forage yields were obtained on four birdsfoot trefoil cultivars at three Georgia locations, Blairsville (700 meters elevation), Athens (300 meters), and Eatonton (150 meters). Plots 4 x 20 feet with 4 replications were planted in September 1989 and harvested 3 to 5 times during 1990.

Table 1. Forage yield of birdsfoot trefoil varieties at the Mountain Branch Station, Blairsville, GA. 1990.

Entry	Pounds/acre oven dry forage					Total
	May 14	June 14	July 16	Aug. 15	Oct. 19	
AU Dewey	1996 a	1663 a	724 a	1589	1366 a	7738 a
Georgia 1	1032 b	1370 b	429 ab	1586	1356 a	5773 b
Bonnie	1040 b	1433 b	472 ab	1679	993 b	5617 b
Norcen	649 b	974 c	160 b	1388	410 c	3581 c
CV%	21	10	44	NS	12	4
LSD	399	216	316		198	338

*Means within a column followed by the same letter are not significantly different at the 5% level.

Planted: September 20, 1989

Table 2. Forage yield of birdsfoot trefoil varieties. Plant Sciences Farm, Athens, GA. 1990.

Entry	Pounds/acre oven dry forage			Total
	May 31	Aug. 3	Nov. 8	
AU Dewey	2092 a	3180 a	1208	6480 a
Bonnie	1247 bc	2642 ab	1357	5246 b
Georgia 1	1634 ab	2271 b	1196	5101 b
Norcen	734 c	775 c	1327	2836 c
CV%	24	19	NS	12
LSD	537	671		952

*Means within a column followed by the same letter are not significantly different at the 5% level.

Planted: September 20, 1989

Table 3. Forage yield of birdsfoot trefoil varieties at Central Georgia Branch Station, Eatonton, GA. 1990.

Entry	Pounds/acre oven dry forage					Total
	May 1	May 30	June 21	July 24	Sept. 6	
AU Dewey	2038 a	1994	481 a	903 ab	977	6393
Bonnie	1822 a	1982	575 a	1042 a	874	6295
Georgia 1	1689 a	1705	496 a	1017 a	869	5776
Norcen	260 b	1947	306 b	788 b	1261	4562
CV%	42	NS	14	9	NS	NS
LSD	975		106	142		

*Means within a column followed by the same letter are not significantly different at the 5% level.

Planted September 22, 1989

AU Dewey was the most productive entry with the highest total annual yield (Tables 1, 2, and 3). AU Dewey was early, producing nearly twice that of GA 1 or Bonnie at first harvest at the mountain location. Bonnie and GA 1 were similar in performance. Norcen was slow to establish and had substantially lower production than other entries.

Trefoil-Tall Fescue Mixtures with Variable Nitrogen Fertilization

AU Dewey and Fergus trefoil were grown in association with AU Triumph endophyte-free tall fescue and harvested every 4 to 6 weeks from March to December at a stubble height of 6 cm. Supplemental N was applied to certain treatments to stimulate grass production and extend the productive season.

Forage yields were much higher at the two more northern locations, Blairsville and Athens (Table 4). Unfortunately, potash levels were low the third year at Eatonton, resulting in sharply lower yields and few differences among treatments. At the other two locations, trefoil-tall fescue mixtures at 0 N had total forage yields similar to tall fescue alone + 100 lb N/acre. Nitrogen increased total yields, but the greatest effect was on seasonal distribution. Spring production of tall fescue-trefoil mixtures was increased 50 to 114% with 50 lb N/acre, but 100 lb N/acre had only a small additional effect on yields. Autumn production was increased 80 to 200% with 50 lb N/acre in September. Tall fescue N concentration was increased from 18.5% with no N fertilization to 23.0% when grown with trefoil. apparent N fixation of trefoil grown with tall fescue ranged from 70 to 120 lb N/acre during a good rainfall year. Birdsfoot trefoil did not fix sufficient N for cool season growth of tall fescue so that application of 50 lb N/acre in February and again in September substantially extended the productive season of tall fescue-trefoil mixtures. At Athens, with supplemental N in February and September, production of tall fescue-trefoil extended from early March to December. application of N to tall fescue-trefoil mixtures did not adversely affect trefoil stands or productivity.

Table 4. Forage yield of AU Triumph tall fescue-birdsfoot trefoil mixtures with variable nitrogen applications at three Georgia locations, 3-year average 1987-1989.

Entry	Lb N/acre		L/acre dry forage of tall fescue + trefoil		
	Sept.	Feb.	Blairsville	Athens	Eatonton
Fescue + AU Dewey trefoil	0	0	3770 g*	5270 ef	3060 e
	0	50	5010 de	5830 cd	3850 c
	0	100	5350 cd	6220 bc	4070 bc
	50	50	5837 bc	7080 a	4410 ab
Fescue + Fergus trefoil	0	0	4720 ef	4820 g	2540 f
	0	50	5530 cd	5690 de	3660 cd
	0	100	6260 ab	5890 cd	4540 a
	50	50	6390 a	6550 b	4730 a
Fescue only	0	0	1590 i	3320 i	2410 f
	0	50	2700 h	4230 h	3280 de
	0	100	3720 g	4910 fg	3960 bc
	50	50	4190 fg	5680 de	3910 c

*Significant at 5% level for columns.

Publication:

Hoveland, C. S., M. W. Alison, Jr., N. S. Hill, R. S. Lowrey, Jr., S. L. Fales, R. G. Durham, J. W. Dobson, Jr., E. E. Worley, P. C. Worley, V. H. Calvert, II, and J. F. Newsome. 1990. Birdsfoot trefoil research in Georgia. Georgia Agric. Exp. Stn. Res. Bull. 396.