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RESPONSE OF 'ALFAGRAZE' ALFALFA AND COASTAL BERMUDAGRASS TO ROTATIONAL GRAZING

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Background. 'Alfagraze' alfalfa was interplanted into a Coastal bermudagrass pasture to evaluate stand maintenance under a rotational grazing regimen. The Darco loamy sand was limed to pH 7 with 2.5 t of ECCE 65 aglime. Limestone was incorporated into the bermudagrass sod by disking four times May 29, 1992. The disked sod was rolled to conserve moisture. Reestablished bermudagrass was harvested for hay two times in the summer of 1992, and in October, the pasture was fertilized with 570 lbs/ac of a blend containing 5% N, 14% P₂O₅, 23% K₂O, 4.4% Mg, 8% S, and 0.39% boron. Alfagraze was planted during the autumn of 1992 at 3 row spacings (10, 20, and 30 in.) each in 4 replicate pastures. An excellent stand of alfalfa was obtained at all row spacings. In May 1993, all row spacing treatment paddocks were harvested as hay, and an additional 428 lb/ac of the same fertilizer blend was applied. In June, July, and August, all pastures (n = 12) were rotationally grazed to evaluate forage DM and sustainability (Rouquette et al., 1994 Research Center Tech. Rept. 94-1:93). Pastures were adequately fertilized to promote growth of alfalfa the second year. In September, 1993, analysis showed this soil was high in all plant nutrients except copper (low) and magnesium (medium). In the second year, 1994, pastures were grazed during a 5 to 12-day period and deferred for approximately 20 to 30 days (dependent upon forage regrowth).

Research Findings. At initiation of each grazing period (n = 7) in 1994, DM of both alfalfa and bermudagrass was measured via sickle bar mower and was hand separated (Table 1). During the first 3 grazing periods (April 1 to May 31), alfalfa was the predominant forage available for grazing at each row spacing. Thereafter, however, (June 30 to Oct. 3), bermudagrass was the dominant forage in the pasture mixture. Although total DM yield was relatively similar across row spacings and across harvest dates, there was a major shift in species composition during the hot, dry summer months (July-October). By the time of the last grazing event in October,, alfalfa was a relatively insignificant DM component of the pasture. Interestingly enough, the overall, total DM production from the 3 row spacings was very uniform at about 5 tons per acre (alfalfa + bermudagrass).

Application. After the second year of rotationally grazing various row spacings of alfalfa, our data suggest that, for East Texas conditions, Alfagraze does not compete well when interseeded into a Coastal bermudagrass stand and rotationally grazed. Additionally, the more

narrow the drill row of Alfagraze, the more likely that stand maintenance and survival of alfalfa will occur in our environment. Alternative grazing utilization systems such as creep-grazing, summer deferment for exclusive hay production, etc. may likely increase the opportunity for alfalfa to become a reliable, pasture alternative for East Texas.

Table 1. Forage production of Alfagraze alfalfa and Coastal bermudagrass from pastures during the second year of grazing.

1994 Harvest Date	Grazing Event	Forage	Row Spacings		
			10"	20"	30"
			-----lbs/ac DM-----		
Apr 1	1	Alfalfa	1354 a ¹	784 b	691 b
		Coastal	0	0	0
Apr 29	2	Alfalfa	1168 a	782 a	861 a
		Coastal	77 a	76 a	163 a
		TOTAL	1245 a	859 a	1023 a
May 31	3	Alfalfa	1644 a	1190 ab	934 b
		Coastal	486 a	485 a	785 a
		TOTAL	2130 a	1675 a	1719 a
Jun 30	4	Alfalfa	767 a	400 a	461 a
		Coastal	1046 a	1370 a	1279 a
		TOTAL	1813 a	1770 a	1740 a
Jul 26	5	Alfalfa	416 a	186 b	112 b
		Coastal	979 b	1445 ab	1730 a
		TOTAL	1395 a	1631 a	1842 a
Aug 29	6	Alfalfa	140 a	170 a	145 a
		Coastal	1553 a	1576 a	1925 a
		TOTAL	1693 a	1746 a	2070 a
Oct 3	7	Alfalfa	33 a	11 a	1 a
		Coastal	1081 a	1558 a	1425 a
		TOTAL	1114 a	1569 a	1426 a
SEASONAL TOTAL					
Alfalfa			5521 a	3522 b	3203 b
Coastal			5222 b	6510 ab	7307 a
TOTAL			10,743 a	10,032 a	10,510 a

¹Numbers followed by the same letter do not differ (P<.05) with a specific forage row.