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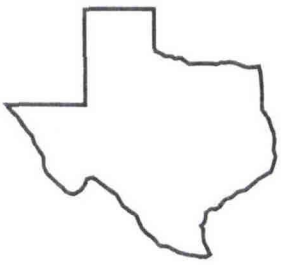

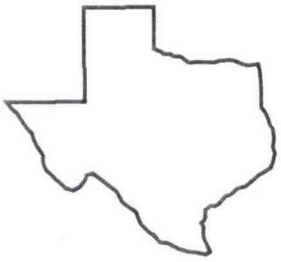

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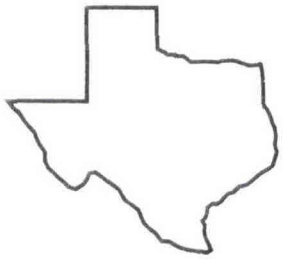

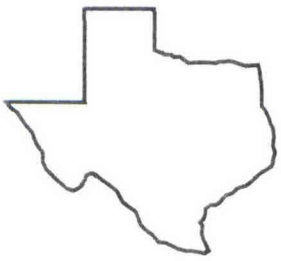

1994 Research Center Technical Report No. 94-1

Texas Agricultural Experiment Station • Edward A. Hiler, Director
The Texas A&M University System • College Station, Texas

ALFALFA INTERSEEDED INTO COASTAL BERMUDAGRASS
I. EFFECT OF ALFALFA ROW SPACINGS ON FORAGE PRODUCTION

Vincent Haby, James Davis, and Allen Leonard

Background. Coastal and other hybrid bermudagrasses are the major warm-season forages grown on the sandy, acid, upland Coastal Plains soils in the South. Bermudagrass is tolerant to moderately acid soils. Alfalfa is adapted to deep, well-drained, alkaline soils. Acid soils must be limed to pH 7 for alfalfa production. In this study, alfalfa was interseeded into Coastal bermudagrass to determine the feasibility of growing the two together, evaluate forage quality, and measure the effects of concurrent growth on alfalfa and bermudagrass production. Alfagraze alfalfa was interseeded in fall of 1990 into established Coastal bermudagrass in rows spaced 9, 18, 27, and 36 inches apart. Yields of both forages were measured for the three following growing seasons.

Research Findings. When averaged across nitrogen rates, alfalfa yielded 4 tons of dry forage at the 9-inch row spacing the first season after seeding while the bermudagrass produced 1.5 tons/per acre (Fig. 1). When the alfalfa row spacing was increased to 27 inches, alfalfa yield declined to 3 tons/acre as bermudagrass yield increased to 2.5 tons/acre. Total forage yield remained relatively constant near 5.5 tons dry matter/acre across row spacings.

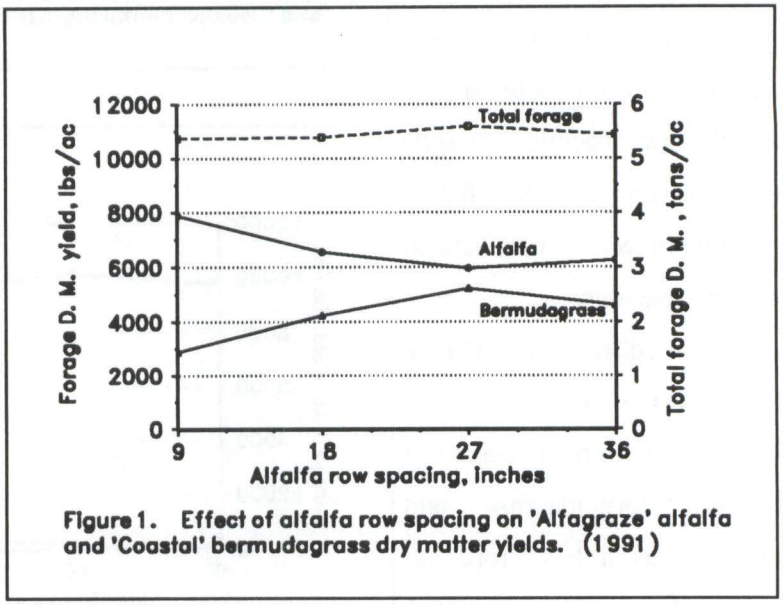

Figure 1. Effect of alfalfa row spacing on 'Alfagraze' alfalfa and 'Coastal' bermudagrass dry matter yields. (1991)

In 1992, regrowth of alfalfa began in late February. Two harvests were made before bermudagrass initiated growth. Bermudagrass density in the 9-inch-row alfalfa declined to the point that less than 500 lb grass was produced/acre (Fig. 2). Alfalfa yield increased to about 4.8 tons/acre at the 9-inch row spacing. A steady decline in alfalfa yield occurred as the row spacing was increased from 9 inches to 36 inches. Total forage production was constant, approximating 5.2 tons dry matter/acre. During this second season, the proportion of forage that was alfalfa

increased over that of bermudagrass.

The third year, 1993, was initially wet. A drought began on June 29. No precipitation fell in July. From June 29 until September 26, the total rainfall that was measured at the Overton Center was 1.23 inches. The largest amount received during any rainfall event was 0.22 inches. Alfalfa gained advantage from the early season rainfall to produce nearly 5 tons forage/acre at all row spacings (Fig. 3). Bermudagrass production was less than 400 lb/acre at any alfalfa row spacing. Despite the dry summer, total forage production was 5 tons/acre at all row spacings.

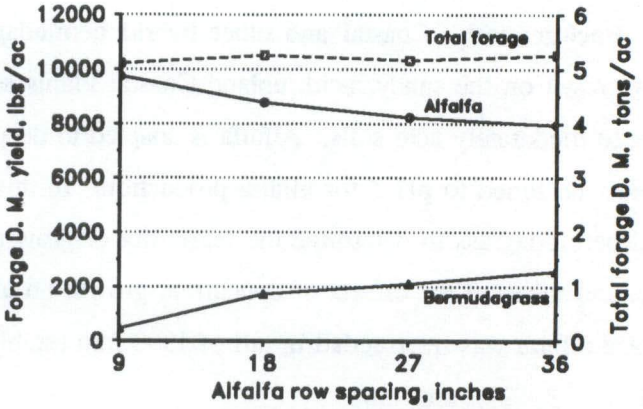

Figure 2. Effect of alfalfa row spacing on 'Alfagraze' alfalfa and 'Coastal' bermudagrass dry matter yields. (1992)

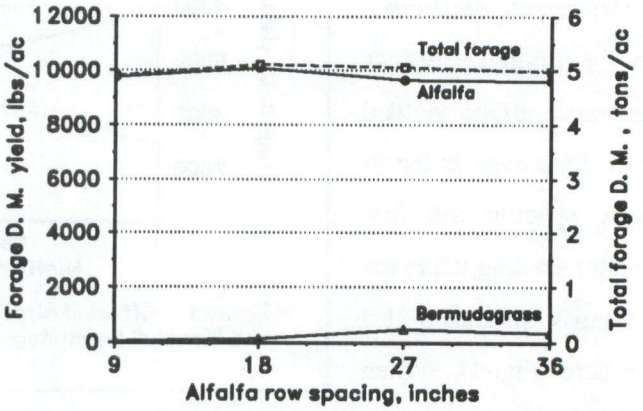

Figure 3. Effect of alfalfa row spacing on 'Alfagraze' alfalfa and 'Coastal' bermudagrass dry matter yields. (1993)

Application. Alfalfa, the Alfagraze variety interseeded into a stand of Coastal bermudagrass and managed as a hay crop, has remained productive through 3 years on this limed acid soil. Each succeeding year it has been in production, the alfalfa has further suppressed Coastal bermudagrass yield. Total forage production has approximated 5 tons of dry matter/acre each year. During the 1993 summer drought, the alfalfa plants gained access to most of the available soil water. These data show that alfalfa holds promise as a viable and competitive forage crop on acid soils. Additional research is being done to determine the most efficient methods of production for alfalfa. Studies are being conducted to evaluate the response of alfalfa and bermudagrass to grazing in this simultaneous production forage system. Guidelines for establishing alfalfa on acid soils are presented in a companion brief entitled, "Alfalfa production on acid sandy soils", in this report.