FIELD DAY REPORT - 1992

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ALFALFA INTERSEEDED INTO COASTAL BERMUDAGRASS
I. EFFECT OF ALFALFA ROW SPACING

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Background. Much of the deforested acreage in eastern Texas is producing Coastal bermudagrass. This grass tolerates acid soil conditions and a certain level of management abuse. Alfalfa requires deep, well-limed, well-drained soils and a higher level of management to maintain the stand. In this study, alfalfa was interseeded into Coastal bermudagrass to determine the feasibility of growing both crops together, evaluate forage quality improvement, and study the nitrogen requirement of the grass when grown with alfalfa.

Research Findings. The Darco fine sand soil was limed to achieve pH 6.7 to 6.9. The limestone was roto-till incorporated into the Coastal bermudagrass when growth initiated in the spring. The following fall the Coastal bermudagrass was harvested close to the soil surface. Alfalfa, variety 'Alfagraze', was seeded in rows spaced 9, 18, 27, and 36 inches apart. Five pounds of N and 100 lbs each of phosphate and potash were applied in a blend, that contained magnesium, sulfur, boron, copper, and zinc, before planting alfalfa. A blend containing 0-20-23 as N, P_2O_5, and K_2O and approximately 3% magnesium, 6% sulfur, 16% boron, 1% copper, and 0.1% zinc was applied at 500 lb/ac in mid-winter and again in late summer. More potash was applied at 100 lb/ac in mid-winter and late summer. Nitrogen rates of 0, 25, 50, 75, and 100 lb/ac were applied across the row spacings following each cutting. First year results show that alfalfa yield declined and bermudagrass yield increased as alfalfa row spacing was increased to 27 inches (Fig. 1). Total forage dry matter production remained constant (Right Y- axis Fig. 1). Alfalfa yield decreased as the growing season progressed (Fig. 2). Alfalfa planted in 9-inch rows produced the greatest amount of dry matter. The 27-inch row spaced

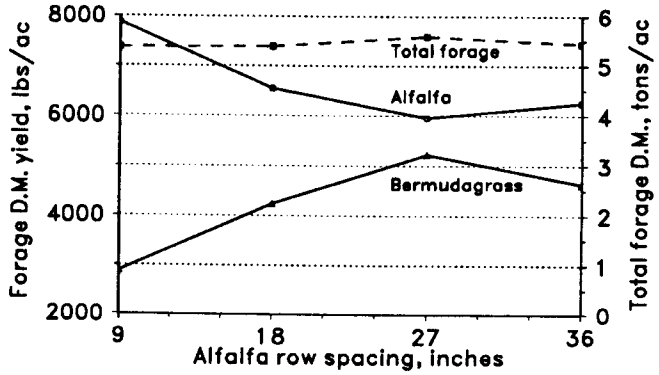

Figure 1. Effect of alfalfa row spacing on 'Alfagraze' alfalfa and 'Coastal' bermudagrass dry matter yields.

alfalfa provided the lowest mass of dry matter. Yield of Coastal bermudagrass was consistently highest at the 27-inch row spacing (Fig. 3). Increased grass yield reflects decreased yield of alfalfa as the row spacing is widened. Excellent and early regrowth of the alfalfa has occurred this spring. The alfalfa stayed green through the winter.

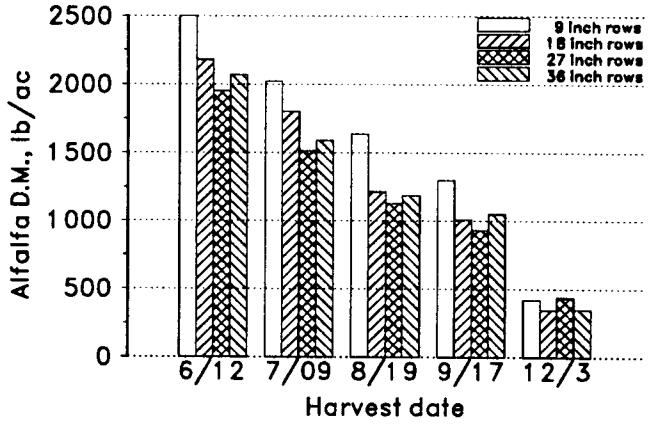

Fig. 2. Alfalfa dry matter yield by harvest date and row spacing in Coastal bermudagrass.

Application. Data in this report, although preliminary, show that alfalfa can be grown successfully in Coastal bermudagrass. Although increasing the alfalfa row spacing to 27-inches wide lowered the yield of the legume, it allowed the highest yield of bermudagrass. Interseeding alfalfa in the bermudagrass is one way to improve the total forage quality. This alfalfa is growing successfully in what is considered a poor soil but it has good surface and internal drainage. The type of soil required for alfalfa under East Texas' high rainfall conditions is critical. It should be a soil that will not become waterlogged for any length of time. The soil should be limed to a pH of approximately 6.8 and fertilizer requirements based on a soil test should be followed. Excellent management for insect control is required beginning as early as February. Rotational grazing is thought to be the harvest system of choice. Research on alfalfa interseeded into Coastal bermudagrass in East Texas is still in its infancy and has not progressed to grazing trials at this time.

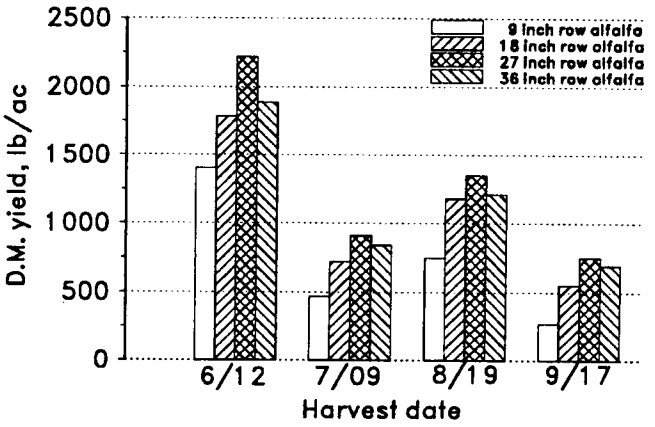

Fig. 3. Coastal bermudagrass response by harvest date in alfalfa interseeded at 4 row spacings.