

FIELD DAY REPORT - 1993

Texas A&M University Agricultural Research and Extension Center at Overton

**Texas Agricultural Experiment Station
Texas Agricultural Extension Service**

Overton, Texas

May 28, 1993

Research Center Technical Report 93-1

All Programs and information of the Texas Agricultural Experiment Station and Texas Agricultural Extension Service are available to everyone without regard to race, color, religion, sex, age, or national origin.

Mention of trademark of a proprietary product does not constitute a guarantee or a warranty of the product by the Texas Agricultural Experiment Station or Texas Agricultural Extension Service and does not imply its approval to the exclusion of other products that also may be suitable.

SO YOU WANT TO GROW ALFALFA ON ACID, SANDY SOILS!

Sim Reeves, Vincent Haby, and James Robinson

Background. Alfalfa, a perennial legume, is a palatable and nutritious forage crop that can supply 100% of the protein and energy requirements for livestock. It requires a well-drained, neutral to alkaline soil and a proper ratio of plant nutrients. Alfalfa has not been grown economically for hay production on the acid, sandy soils of East Texas due to poor soil fertility, inadequate soil pH, and possibly to wet soil conditions. A new, grazing-tolerant variety of alfalfa is being evaluated for production on acid, sandy soils.

Current Information. A higher level of management is needed to produce alfalfa on sandy, acid, infertile, leached, and wet soils of East Texas. Research at the Texas A&M University Agricultural Research and Extension Center at Overton has shown that alfalfa can be grown in East Texas under certain soil conditions. Alfalfa was interseeded into an established stand of Coastal bermudagrass in rows spaced 9, 18, 27, and 36 inches. Yield data show that alfalfa yields declined and bermudagrass yields increased as alfalfa row spacing increased to 27 inches. The 27-inch row spacing is adequate for maximizing bermudagrass yield with alfalfa.

Site selection. Site selection is a factor critical to successful production of alfalfa. Alfalfa must be planted on a well-drained soil. Soils such as bottomlands that remain wet for prolonged periods are not suited for alfalfa. Gray-colored clay in the subsoil underlying the sand is an indicator of a wet soil. Wet soils lack sufficient oxygen for alfalfa root development.

Soil Test. Early planning is essential. Soil samples should be collected and analyzed for lime requirement one year in advance of the alfalfa seeding time. If needed, limestone should be applied in late fall or early winter preceding the next fall seeding time. A high magnesium limestone should be applied. The rate of application should adjust soil pH to 7 or above. Lime should be worked into the soil so it will have time to raise the pH by fall planting time. This is essential for successful production of alfalfa. A second soil sample, collected in early autumn of the seeding year, should verify that the applied limestone neutralized all the soil acidity. Tests for the major, secondary, and micro-nutrients will allow suggestions to be made for fertilizer to establish and to maintain alfalfa.

Establishment. Alfalfa should be planted in moist soil from mid-September through November. Plant alfalfa into a prepared seed bed or a Coastal bermudagrass sod. A prepared seed bed should be smooth and firm. Plant seed 1/4- to 1/2-inch deep using a drill or a cultipack seeder. Heat will kill nitrogen-fixing rhizobia on seed broadcast and left on the soil surface.

Bermudagrass should be grazed or mowed shorter than 3 inches. Light disking will help reduce competition with alfalfa seedlings. Alfalfa should be planted after cool temperatures have slowed grass growth. The soil should be packed to establish good soil-seed contact. Nitrogen should not be applied to the bermudagrass after July the seeding year.

Drill 20 pounds of seed/ac at a 7- to 9-inch row spacing. This row width will severely reduce the stand of Coastal bermudagrass when interseeded. Plant 50% more seed if broadcast. Alfalfa in 27-inch rows, planted with 6 to 7 pounds seed/ac, will allow for satisfactory bermudagrass and alfalfa production from the same area. Alfalfa seed should be properly inoculated with an effective strain of nitrogen-fixing bacteria.

Weed Control. A pre-emerge herbicide such as Balan or Eptam should be incorporated into the top 2- to 4-inches of soil before planting alfalfa on a prepared seed bed. Incorporation into bermudagrass sod is difficult. On established alfalfa, most broadleaf weeds can be controlled by 2,4-DB. Read and follow label directions for all pesticides. Herbicide recommendations are listed in publication B-5036, "Suggestions for Weed Control in Pastures and Forage Crops."

Insect Control. Alfalfa weevil, larval and adults stages, is the primary insect that damages alfalfa during late winter and early spring. Infestations in first spring growth of new alfalfa should be controlled chemically to allow optimum growth for establishment before the first cutting. In succeeding years, infestations may be controlled chemically and sometimes can be arrested by harvest. Regrowth should be monitored closely for reinfestation. Other potentially harmful insects include aphids, leafhoppers, grasshoppers, and certain beetles. Blister beetles have not been a major pest in Texas, but fields harvested during the summer months should be monitored.

Harvesting. First growth alfalfa may be difficult to cure for hay because of frequent rain and high humidity. A cutter-conditioner is needed to crush stems to allow for faster drying time. Alfalfa needs a slight dew to prevent leaf loss during baling. Spring growth may best be harvested by grazing. To help prevent bloat, allow livestock to fill on hay before grazing alfalfa. Bloat potential can be reduced by feeding poloxalene free-choice (as mineral supplements or in liquid molasses or blocks) and by allowing cattle to graze 1- to 2-hours initially. The grazing period may be lengthened gradually. Alfalfa should be rotation-grazed in fenced pastures. Rotate livestock when alfalfa has been grazed to a 2- to 3-inch height. Allow alfalfa about a 3 week regrowth period before resuming grazing.

Management practices should be followed that benefit alfalfa over the bermudagrass. Research has shown that 50 lb N/ac is sufficient for the bermudagrass in 27-inch row-spaced alfalfa. Higher nitrogen rates rapidly lowered soil pH and created a need for additional limestone.