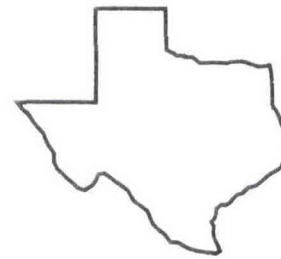
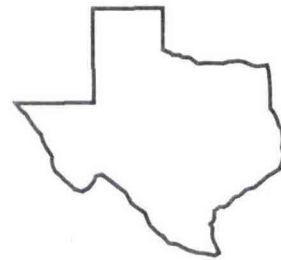


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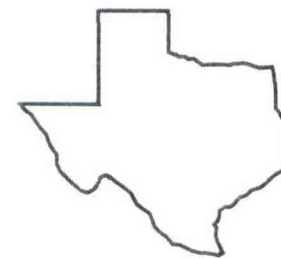
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ALFALFA PRODUCTION ON ACID, SANDY SOILS

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Background. Alfalfa is a palatable, nutritious, perennial legume that can supply 100% of the protein and energy requirements for certain classes of livestock. It requires a well-drained, neutral to alkaline soil and good management. Scientists with the Texas Agricultural Experiment Station at Overton have grown 5 tons of alfalfa/ac interseeded in Coastal bermudagrass on a limed, acid soil for three years. Soil type, lime, nutrient requirements, weed control, and grazing management in alfalfa-bermudagrass pastures are being evaluated.

Current Information. Seedling year dry matter yields of Alfagraze alfalfa declined from 4 to 3 tons of dry matter/ac as row spacing was increased from 9 to 27 inches. Bermudagrass yield was highest with 27-inch alfalfa rows. Narrow row alfalfa may be best for sustained production under grazing but will terminate Coastal bermudagrass when managed for hay. In succeeding years, alfalfa yielded 5 tons dry matter/ac at the narrow row spacing and 4 t/ac in 27-inch rows.

Site Selection. Alfalfa prefers well-drained soil. Soils that remain wet for prolonged periods are not suited for alfalfa. Wet soils may be characterized by gray-colored clay in the subsoil. Soils with red to yellow colored subsoil to 4 or 5 feet may support sustained alfalfa production. Aluminum and manganese can be toxic to alfalfa in strongly acid soils. Soil should be sampled by one-foot depths to 5 ft, when possible, and analyzed for pH. If subsoil pH is above 5.5, these metals should not be harmful to alfalfa. If less than pH 5.5, analyze the samples of subsoil for aluminum and manganese. Avoid the soil for alfalfa if high levels are found.

Soil Test. Early planning is essential. In fall, one year before alfalfa seeding time, test the 0 to 6-inch soil depth for lime and nutrient requirements. If lime is needed, apply a high-magnesium limestone and incorporate it into the 6-inch surface depth in late winter or early spring. When needed, phosphorus, potassium, and boron should be incorporated with the limestone. Where alfalfa will be seeded into a Coastal bermudagrass sod, incorporation should be done between late February and early April to help ensure successful reestablishment of the bermudagrass. Tilled soil should be packed with a roller to decrease moisture loss. Fertilize reestablished bermudagrass for grazing or hay production. Resample early the next fall to verify the pH change and determine fertilizer needs.

Establishment. Sod-seed alfalfa in fall in moist soil after cool weather has slowed growth of bermudagrass. Bermudagrass should be grazed or mowed shorter than 3 inches before seeding alfalfa. A short bermudagrass stubble allows more sunlight on the seedlings and protects seedling

alfalfa during fall and winter months. Plant no deeper than 1/2-inch using a drill with packer wheels for good soil-seed contact. At 9- to 10-inch row spacings, drill 20 lb seed/ac. At 27- to 30-inch row spacings, plant 7 pounds seed/ac. Broadcast seeding is not recommended. Alfalfa seed must be inoculated with the correct strain of nitrogen-fixing bacteria.

Fall-seeded alfalfa develops a root system that allows the seedlings to compete with the bermudagrass during the spring and summer. Alfalfa seeded in late winter or early spring cannot compete with bermudagrass.

Weed Control. A pre-emerge herbicide such as Balan or Eptam may be incorporated into the top 2 to 3 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 or Kerb. Most grassy weeds are controlled by Kerb or Poast. Herbicide recommendations are in the Texas Agricultural Extension Service publication B-5036, "Suggestions for Weed Control in Pastures and Forage Crops."

Insect Control. The alfalfa weevil and larva are active during late winter and early spring. Threshold infestations should be controlled chemically to allow optimum growth of seedling alfalfa before the first cutting. In succeeding years, infestations may be controlled chemically and sometimes can be arrested by harvest. Alfalfa should be monitored weekly for reinfestation and a buildup of other harmful insects. Other harmful insects include aphids, leafhoppers, grasshoppers, and certain beetles. Check alfalfa for blister beetle during summer months. Consumption of 2-3 dead blister beetles in hay can be fatal to horses.

Harvesting. Haying first growth alfalfa is difficult because of poor drying conditions. A cutter-conditioner to crush stems encourages drying. A slight dew during baling helps prevent leaf loss. Spring growth may be harvested by grazing. Control measures should be taken to prevent bloat during grazing. Allowing cattle their fill of dry hay, pregrazing on grass, feeding poloxalene free choice, and allowing cattle to graze intermittently for 1 to 2 hours before full-time grazing are some preventive measures to control bloat. Alfalfa should be grazed rotationally in fenced pastures to maximize utilization of available forage and to sustain stands. Remove livestock from a pasture when alfalfa and the bermudagrass have been grazed to a 2- to 3-inch height. Allow a 4-week regrowth period, depending on moisture availability, before resuming grazing.

Management practices should be followed that benefit alfalfa compared to bermudagrass. Research has shown that 50 lb N/ac for each bermudagrass regrowth period may be sufficient in 27-inch row-spaced alfalfa. Higher rates of nitrogen increase development of soil acidity and create a need for additional limestone to maintain pH in the range of 6.8 to 7.0. Soil analysis each succeeding fall is recommended.