Forage: *Bermudagrass*

The forage bermudagrasses are a group of warm-season, deep-rooted perennial pasture grasses used for grazing and hay in the South. Approximately half of the entire permanent pasture acreage in Mississippi is devoted to growing bermudagrass, alone or in combination with dallisgrass, tall fescue, or legumes. The bermudagrasses are adapted to a variety of soils and provide as much or more grazing than any of the other summer pasture grasses. Most of the bermudagrass is in central and north Mississippi, but it grows well in most areas in south Mississippi if managed properly.

With the improved bermudagrasses, it is possible to graze up to one cow per acre during parts of the summer and also harvest up to 3 tons of hay per acre. Bermudagrass is the easiest of all the grasses to manage, and it responds well to fertilizer and weed-control programs. Bermudagrass will not persist with limited or no management, as will bahiagrass.

Varieties

Several varieties of bermudagrass are used for forage in Mississippi. Most of the Mississippi pasture acreage (about 2.7 million) contains some common bermudagrass. When you buy seed, you get common bermudagrass unless you specify an improved variety. Seed can be purchased for hulled and unhulled common and blends of common and giant-type bermudagrasses. Three of the blends are Pasto Rico, Campo Verde, and Tierra Verde. The large type in these blends may help in obtaining rapid ground cover, even though there may be some winterkill of the large type during severely cold winters. Other seeded forage bermudagrasses that recently came onto the market include Cheyenne, Giant, Texas Tough, Gaucho, and Sungrazer. These varieties are being evaluated in Mississippi for yield and winter hardiness.

Coastal is a hybrid bermudagrass that does not produce viable seed. It must be planted vegetatively (using plant parts). It is the oldest of the improved forage bermudagrasses developed by Dr. Glenn Burton with the USDA at Tifton, Georgia and was released in 1941. Coastal has been planted on more than 10 million acres throughout the Southeast and is the standard of comparison for other improved forage bermudagrasses. This grass has been highly researched and can produce more than 300 cow-grazing days per acre per year. With adequate fertilizer, Coastal may yield 5 to 6 tons of hay per acre.

Alicia bermudagrass is a selected ecotype from Edna, Texas. It is more drought tolerant than Coastal and will establish rapidly. Like most of the improved forage bermudagrasses, Alicia does not produce viable seed, but it does grow fast when planted vegetatively. The quality of Alicia is lower than Coastal bermudagrass.

Callie bermudagrass is a large, fast-growing bermudagrass evaluated extensively in Mississippi. Because of a lack of rhizomes and poor winter hardiness, very little Callie remains in the state. It has served as valuable breeding material, and many surviving plants in old Callie fields have become sources of promising selected ecotypes.

Tifton 44 (See Extension Information Sheet 1086 *Tifton 44 Bermudagrass*) is a winter-hardy variety released by Dr. Burton. It's a cross between Coastal and common and has higher digestibility than Coastal. It establishes very slowly and often takes up to a full year to achieve complete ground cover. Following Tifton 44, Dr. Burton released Tifton 78, which is a cross between Tifton 44 and Callie. Like Callie, it proved not to be winter hardy for Mississippi conditions. The new, unrelated hybrid Tifton 85 has also not proved to be winter hardy. This is unfortunate because both Tifton 78 and Tifton 85 have improved digestibility compared with Coastal or Tifton 44.

Other commercially available, locally selected ecotypes include Lancaster, developed by Max Wade Lancaster in Alcorn County, Mississippi. Its stolons develop extensive lateral branching to produce a dense ground cover. Russell was selected from Russell County, Alabama, and appears to be similar in characteristics to Alicia. Ecotypes from Oklahoma, such as World Feeder, do not perform as reported in Oklahoma when grown in Mississippi; also, World Feeder's sprigs are costly. It is a low-growing, small-leafed, common type; some Mississippi producers have reported it may provide excellent grazing during dry weather.

The new, locally selected ecotype Sumrall 007, developed by Gerald Sumrall in Monticello, Mississippi, is proving to be an outstanding bermudagrass for Mississippi producers. It is fine-stemmed, with moderately large leaves and with many rhizomes and stolons. It establishes rapidly and can provide two to three hay cuttings even in the establishment year. It seems as winter hardy as Coastal or Tifton 44, and its forage quality is similar to Tifton 78 or Tifton 85. It does not produce viable seed and must be established with dug sprigs or mature hay clippings.

Planting Methods

Seed common bermudagrass and the newer seeded forage bermudagrasses into a well-prepared seedbed; no-till plantings are possible, however. Begin field

preparations the previous summer and fall. Obtain a soil test. Kill existing vegetation in mid- to late summer with a nonselective herbicide, and plow or disk along the contour in the fall. Incorporate any needed lime, potash, and phosphate during tillage. Leave the field with rough ridges along the contour to minimize erosion potential over the winter. Disk, harrow, and cultipack the soil into a smooth seedbed in the spring.

Bermudagrass seed is tiny, and even distribution of seed may be difficult. For best results, mix with sand or fertilizer, and surface broadcast with a whirly-bird planter. It is best to use the legume box of grain drill with as shallow a planting depth as possible, perhaps even with the tubes pulled so the seed drops onto the soil surface. Always cultipack again after seeding bermudagrass. Plant 5 to 10 pounds of hulled or 10 to 12 pounds of unhulled seed per acre between March 1 and July 1. Planting later in the year can be successful, but the forage from these grasses cannot be relied on during the first year unless you plant early. Unhulled seed will germinate slower but may provide a successful stand during dry conditions.

No legally labeled herbicides are available for grass control during seeded bermudagrass establishment. Broadleaf weed control must wait until bermudagrass seedlings are past the three-leaf stage or the phenoxy herbicides will kill or damage the young grass seedlings.

Plant all hybrids and most improved bermudagrass vegetatively by sprigging or cutting green, mature hay.

Dig roots, rhizomes, stolons, and crowns like potatoes, and plant using either specialized sprigging equipment or a manure spreader. Use about 20 to 30 bushels of sprigs (20,000) per acre on a well-prepared seedbed. Set sprigs 2 to 3 feet apart. Begin sprigging as early as February and complete by late June. If irrigation is available, plant as late as September in the southern part of the state. Plant these bermudagrasses by "disking in" the fresh but mature hay clippings, as is recommended for Alicia bermudagrass.

Because Alicia has a poorly developed rhizome (underground stem) system, it does not make many sprigs. A manure spreader is a good machine for spreading the clippings. Broadcast about 1,400 pounds of freshly cut, mature plants per acre in May to August, depending on available clippings. Disk immediately after spreading and cultipack. Chances for survival are better the earlier clippings are planted in the season because summer rainfall in Mississippi usually occurs by early July. One acre of good bermudagrass should provide enough planting materials for clippings to plant 10 to 15 acres. Apply a preemergent grass and broadleaf weed herbicide immediately after sprigging.

Fertilizer

Bermudagrass will respond to high rates of nitrogen fertilizer provided adequate moisture is available. After growth starts, 50 to 80 pounds of actual nitrogen per acre (150 to 240 pounds of 34-0-0 per acre) is generally needed at monthly intervals. Obtain a soil test every 1 to 2 years on intensively hayed bermudagrass and every 2 to 3 years on well-managed bermudagrass pastures. It is critical to maintain medium to high soil potassium levels, as this nutrient is important for stand persistence. Nitrogen fertilizer decreases soil pH; lime every 3 years to maintain soil pH above 5.8, depending on the soil type needed.

Hay Harvest

Cut bermudagrass for hay every 4 weeks. At this interval, yield is adequate and the protein content and digestibility of the bermudagrass is excellent. Waiting longer than this significantly reduces quality, even though yield may increase. Protein levels are more dependent upon maturity and nitrogen fertilizer levels than on bermudagrass variety. Store your best hay inside, if possible, or get it off the ground and cover it. Hay removes as much potassium as it does nitrogen, and soil potassium levels can be depleted quite rapidly in some soils. Apply 30 to 40 pounds of potash per acre per ton of harvested hay.

Grazing Management

Bermudagrass persists under continuous grazing, but you can get much more grazing per acre with the same amount of fertilizer if your pastures are cross fenced. Try to provide at least three pastures, and rotate cattle from one pasture to another on approximately 10-day intervals. With this approach, each pasture will get about 10 to 20 days of rest between grazings. Use a grazing pressure of about three to five cows per acre to determine the size of bermudagrass pastures. Improved bermudagrass responds to a grazing pressure of up to five animals per acre. In the pasture rotational system, excess forage produced in a pasture can be harvested for hay. It is best to cut hay from ungrazed bermudagrass, so designate one of your cross-fenced pastures for hay if growing conditions provide abundant forage.

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