

Establishing Hybrid Bermudagrass in Mississippi



Consider planting hybrid bermudagrass varieties as forage to establish pasture or hayfields. Variety testing at Mississippi State University has shown that although most hybrid bermudagrasses propagate only through vegetative material, they can yield more than seeded bermudagrass (Lang, 2010). If you sprig a field instead of seeding it, carefully consider variety selection and source of sprigs (Lemus et al, 2010).

Demand for sprigs is high, and it is a long-term investment. Cost ranges from \$90 to \$120 per acre, depending on the variety, source of sprigs, labor, and transportation cost. This cost does not include land preparation, fertilization, and weed control. Using sprigs that have poor viability could result in a poor stand that has low productivity and is undesirable for hay production or grazing.

Bermudagrass is a very productive perennial warm-season grass from May through September throughout most of Mississippi. It is very tolerant of drought (Figure 1). There are several factors that contribute to stand failure:

- Desiccated or poor-quality sprigs
- Planting in dry soil and high heat
- Planting sprigs too deeply
- Poorly prepared seed bed
- Poor weed control
- Poor fertility, and
- Severe grazing before plants are well established.

Soil Testing and Fertilizing

Soil testing should be the first step in establishing hybrid bermudagrass. Use the soil test results to fertilize if necessary. Acidity can be reduced by liming a few months before planting, during seedbed preparation. Phosphorus (P) can also be applied per soil test

recommendations during seedbed preparation. Based on soil test recommendations, apply half of the recommended potassium (K), along with 30 pounds per acre of nitrogen (N) as soon as the bermudagrass starts to grow. About 30 days later or when the runners (stolons) begin to develop, apply another 50 pounds per acre of nitrogen and the other half of the recommended K. If poultry litter will be used as nutrient source, determine the manure nutrient content and apply the needed amount to supply the N, P, and K recommendations. Also, manure could be incorporated when preparing the seedbed. Keep in mind that extra N might be needed when using manure applications.

Preparing the Seedbed

Good seedbed preparation is especially important when sprigging a hybrid bermudagrass. A well-drained soil is best. If common bermudagrass is present in the area for new establishment, keep the soil weed-free by deeply turning it or by spraying Roundup during the growing season before establishment.

Controlling Weeds

Weed control is very important during establishment because weeds compete with the new plants for water, nutrients, and light. A pre-emergence herbicide can be applied to reduce early weed competition. Apply the herbicide immediately after sprigging but before new growth emerges. For example, Diuron applied at a rate of 0.8 to 2.4 pounds per acre controls broadleaf weeds and some grasses before they emerge.

2,4-D or other similar herbicide approved for forage crops could be applied 30 to 40 days after sprigging for control of broadleaf weeds that escaped the pre-emergence application. Avoid these herbicides during the establishment of seeded bermudagrass. Contact the local county MSU Extension office for herbicide



Figure 1. Steps to a successful establishment of hybrid bermudagrass: 1) Select a good sprigging material (regrowth after one week), 2) prepare a firm seed bed, 3) reduce weed competition, and 4) provide good fertilization for adequate growth. Photos courtesy of Dr. Yoana Newman, Extension Forage Specialist, University of Florida.

recommendations or consult Extension Publication 1532 Weed Control Guidelines for Mississippi.

Planting Hybrid Bermudagrass

Planting Sprigs

Most sprigs are a mixture of underground rhizomes, crowns, and stolons (runners). Sprigs can be planted from March to July, depending on the location and weather conditions. Sprigs usually have a better chance of survival under cooler conditions. The problem with planting sprigs in early spring is that they have low energy reserves at that time, and they need energy to sprout. Dig sprigs before bermudagrass breaks dormancy or in late spring, when plants have accumulated enough root reserves.

To increase the success of establishment, use only fresh, healthy material that has been under a good fertility program. Sprigs should be thick, tan to amber colored, and crisp. Sprigs should be kept moist, cool, and shaded in case planting is delayed. Exposing sprigs to the sun and wind after digging will dry them out and decrease their chances of survival (Table 1). If sprigs have been dug and not planted within 24 hours, they should be soaked in water for 12 to 15 hours before planting.

Both sprigs and tops can be broadcast on the surface with a spinner-type grass planter, also called a slinger, but this method can cause plants to dry out and reduce

establishment. A better choice is a commercial sprig planter, which can plant sprigs at a depth of 2 to 3 inches. Planting rates for sprigs are 30 to 40 bushels per acre [600–800 lb/ac, 1.25 cubic feet, ~1 round bale/acre or 13 square bales/acre (1 square bale, 60 lbs = 3 bushels of sprigs; assuming 1 bushel = 20 lb sprigs)]. To establish the stand quickly, plant extra sprigs. Higher planting rates will ensure rapid colonization and ground coverage (Figure 2), but those are recommended only if the sprigs are readily available or inexpensive.

Planting Tops

Green tops can also be used as planting materials, but planting green, mature stems or tops is different from planting sprigs. Tops can be planted from late May to July, but the material should not be collected until the grass has matured for at least 8 to 10 weeks, is 18 to 24 inches long, and has six or more nodes. Tops should be cut with a sickle mower, baled immediately, and planted as soon as possible before they go through a heating cycle. Baling the material makes it easier to transport.

Tops should be planted at a rate of 15 to 20 bales per acre, and each bale should contain 60 to 80 pounds of freshly cut material. Each acre requires about 1,200 to 1,500 pounds of freshly cut tops, so the number of bales depends on the weight per bale.

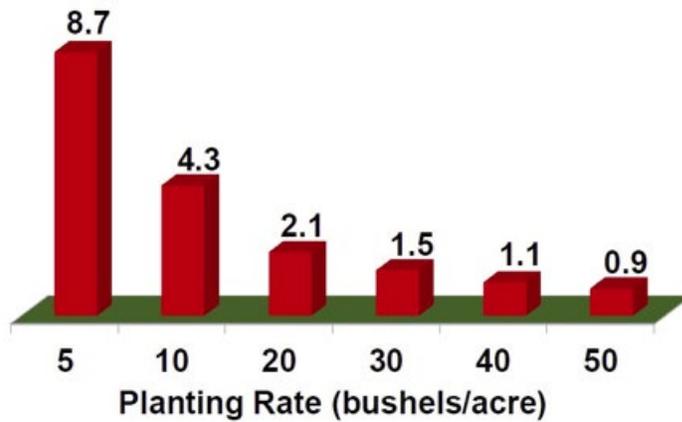


Figure 2. Square feet for one sprig based on planting rate. Source: Stichler and Bade, 1996.

Tops should be planted when rain is expected because moisture is necessary for establishment. During hot summer days, soil temperatures increase and cause the top to either dry out or scald. To plant a small area, pitch and spread tops on a trailer. To plant a larger area, use a planting device that can broadcast large roll bales of the material. Tops should be scattered and disked into soil before they wilt; they can dry out and die within minutes. A device called a crimper can help push long stems into the soil. A disk, set straight, can also push the material into the soil. Use a roller to pack the soil around the new runners to avoid excessive moisture loss and ensure good soil-to-nodes contact.

After planting, cover the material with a disk harrow and pack the soil with a heavy cultipacker or land roller. Do not use cultipackers on heavy clay soils because they can compact soil. In small areas, you can drive the tractor back and forth to help keep the soil around the planted material moist.

Tifton 85 bermudagrass establishes more rapidly by tops than other bermudagrass hybrids. With adequate and continuous soil moisture, complete coverage of Tifton 85 should occur in 90 to 100 days.

Establishing Bermudagrass

Give new plants from sprigs or tops at least 3 months to develop a strong root system and store carbohydrates before the onset of cold weather. Do not harvest or clip late plantings. Allow them to keep plenty of top growth throughout the winter as a protection against freezing. Clip the accumulated top growth the spring after establishment.

Burning is not recommended until the second season. Burn in late February to early March and only when the soil surface is moist.

If you plan to establish a large acreage of hybrid bermudagrass, consider establishing a small area of pure, weed-free grass as nursery. You can harvest the nursery for additional plantings later in the season or in subsequent

Table 1. Effect of exposure and delayed planting on the viability of bermudagrass sprigs.

Time (hrs.)	Exposure Period	Condition	Live Sprigs (%)
0	-	No Exposure	100
8	9a.m.-5p.m.	Shaded and Moist	100
2	9a.m.-11a.m.	Exposed	94
4	9a.m.-1p.m.	Exposed	72
2	12p.m.-2p.m.	Exposed	30
4	12p.m.-4p.m.	Exposed	3

years. This method is a bit risky; if the nursery sprigs are weak, they could cause establishment failure over more than one season, which could be costly.

Obtaining Quality Planting Material

Planting only sprigs or tops that are free from common bermudagrass and other weedy species is essential. Purchase planting material only from reputable sources. There are not certified spriggers in Mississippi, but there are some well-known, reputable, and experienced spriggers across the state. So think carefully about your source of sprigs and sprigging contract. Make sure sprigs are at least 90 percent pure bermudagrass in the variety being offered. It is very difficult to find fields of pure stands and to distinguish between varieties of sprigs. If you sign a sprigging contract, consider including an establishment percentage in it. That way, if the stand fails, the person hired in the first place will do the re-sprigging. Contact your local MSU Extension office for information about spriggers in the state.

Sources

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