

New Forages and Their Establishment

C.G. Chambliss
Agronomy Department
University of Florida

Forage workers continually strive to develop new forages that better serve the livestock industry. Two of these forages, Tifton 85 hybrid bermudagrass and Tifton-9 Pensacola bahiagrass, will be seen on the tour of the new Santa Fe Beef Cattle Unit.

Bermudagrass

Tifton 85 Hybrid Bermudagrass. This is the latest variety to come from Dr. Glenn Burton's breeding program at the Coastal Plain Station at Tifton, Georgia. It has larger stems, broader leaves and a darker green color than other bermudagrass varieties. It is more digestible than Coastal and has produced both higher hay yield and animal weight gain than Coastal. In a Georgia test it produced higher average daily gain and more total live weight gain per acre than Tifton 78. In a test at the Forage Evaluation Field Lab near Gainesville, Tifton 85 produced higher live weight gain per acre than Florakirk bermudagrass. Long term studies of this grass in Florida are not available, but initial experiences have been positive. Hay producers should be aware that, because of its larger stems and higher yield, it may take more time for this grass to cure (dry) as compared to some of the older varieties.

Florakirk. This new release by the University of Florida/IFAS is a sister line to Tifton 78; but in long term studies at both the Ona, Florida and Jay, Florida Research and Education Centers it was easier to establish, more persistent, and more productive than Tifton 78. It is a fine-stemmed bermudagrass recommended for hay production in the panhandle and North Peninsular Florida.

Establishment

Establishment of a bermudagrass hay field or pasture is a major expense. Producers should do all

that is possible to insure success. The following suggestions may be helpful in successfully establishing bermudagrasses.

I. Site Selection and Land Preparation

- (a) Choose a reasonably well-drained soil.
- (b) Destroy common bermudagrass and other weeds by keeping the soil cultivated (fallow) over an extended time period, especially during dry weather. It may be preferable to spray spots of common bermudagrass with Roundup in the growing season prior to establishment.

II. Lime and Fertilization

(a) Raise soil pH to 5.5 by liming. Use dolomitic limestone if a soil test indicates a need for magnesium. If in the future you plan to overseed your bermudagrass with a small grain or ryegrass, adjust the pH to 6.0 and to 6.5 for clovers.

(b) For sandy soils, apply soil test recommended rates of phosphorus (P) and potassium (K), along with 30 lb nitrogen per acre as soon as the bermudagrass plants start to grow. Apply an additional 70 lb nitrogen per acre and one-half of the recommended potassium when stolons (runners) begin to develop.

III. Time of Planting

The improved hybrid bermudagrasses do not produce sufficient seed and must be established from vegetative plant parts. Dug sprigs, consisting of underground rhizomes, plant crowns and stolons, can be planted from mid-February through July. Sprigging bermudagrass in mid to late winter before it starts growing (before breaking dormancy) is encouraged. Sprigs dug in early spring after the plants have broken dormancy will have

lower levels of energy reserves. Energy reserves are needed to initiate and develop new shoots (sprouts). Also, soil moisture is usually more favorable in late winter as compared to spring (April–May). In the spring, when top growth reaches four to six inches, digging and planting of sprigs should be delayed until after the first hay harvest or harvest of tops for planting. Tops (green stems) can be planted in June and July. The grass should be overly mature with six weeks or more of growth when the tops are harvested for planting.

When planting tops, try to plant during a cloudy, rainy period. Moisture conditions must be ideal for this method to succeed. The soil becomes very hot during clear, bright summer days and the planting material can either dry out or “scald.” This seems to be more of a problem with tops than with dug sprigs. Also, chances of success when using tops are likely greater when planting on flatwoods as compared to upland deep sands.

If possible, all plantings should be completed no later than mid-August. Fall plantings have been successful in some years in peninsular Florida, but as a general rule fall planting is not recommended because of the possibility of damage from drought or an early freeze. Young plants should be allowed plenty of time (three months) to develop a strong root system before cold weather.

IV. Planting Material

(a) Obtain planting material (sprigs or tops) from nurseries that are pure as to variety and free from common bermudagrass or other weedy grasses.

(b) Plant fresh, pure, live sprigs or freshly cut tops that are six weeks old or older. Sprigs can be dug with a commercial sprig digger. They can also be harvested by using a spring-tooth harrow or field cultivator, along with a side-delivery rake and pitch fork. Green tops can be harvested with conventional hay equipment. Balers can be adjusted to form small bales that will weight whatever is

needed for ease of handling. Green bales should be moved and planted quickly before they go through a heat.

V. Planting Rate

Plant 30 to 40 bushels of dug sprigs, or approximately 1500 pounds of tops per acre. Higher planting rates can be used to insure rapid development of a good stand if planting materials is readily available or low in cost. One bushel is 1.25 cubic feet.

VI. Planting Method

Always plant in a well-prepared, weed-free, moist seedbed.

(a) Land that has been turned with a moldboard plow or has received other primary tillage should be smoothed with a disk harrow to destroy germinating weed seeds just ahead of the planter.

(b) Dug sprigs can be planted with commercial sprig planters that place the sprigs in the soil two to three inches deep. Tree planters and other machines have also been used. Both dug sprigs and tops can be broadcast on the surface with a spinner-type grass planter. The planting materials should be immediately pushed into the soil with a disk harrow or similar device.

(c) Pack the soil with a heavy roller so that soil capillarity can be established which will keep the soil moist around the planting material.

VII. Establishment Weed Control

Spray immediately after planting (same day) with 2 lb per acre of 2,4-D or 1.75 lb per acre of Karmex 80 WP. On deep sands, Karmex can be toxic to bermudagrass and probably should not be used. In 30 to 40 days after planting, an application of 2,4-D, or other similar herbicide, may be needed for control of any broadleaf weeds that escape the initial herbicide treatment. Contact your county agricultural agent for updates on herbicide recommendations. These can be found in the “Weed Control Guide” or in the publication “Weed Control in

Pastures and Rangeland,” in the series “Weeds in the Sunshine.”

With sustained soil moisture, good weed control, and adequate fertility, bermudagrass can be established in three months and ready for the first hay harvest or light grazing. Late plantings should not be harvested, but allowed to go through the winter with plenty of top growth.

When a producer intends to establish a large acreage it may be wise to first establish a smaller area as a nursery. From the nursery, the producer can harvest planting material for additional plantings. This practice spreads the risk of establishment failure over more than one season.

Bahiagrass

Tifton-9 Pensacola Bahiagrass. This has been available for several years, and most of the ranchers who have planted it have had good results. Research studies have shown that it produces 30 percent more top growth than the old Pensacola. Some establishment failures have occurred and these may have been due to a number of factors such as a high dormancy rating in the seed that was planted combined with a low seeding rate, poor seed bed preparation, inadequate soil moisture, strong weed competition, etc. Now that the price of seed has dropped, I would suggest that producers use no less than 10 lb seed per acre.

Establishment

An ideal site on which to plant Tifton-9 would be new ground (native and/or areas where bahiagrass has never been planted). Next would be fields that have been in row crops or have been cultivated for several years. These sites should have almost no bahiagrass plants and relatively low populations of bahiagrass seed in the soil. This should result in a fairly pure stand of Tifton-9 plants. Many of the sites to be planted to Tifton-9 will be old pastures that need to be renovated. These may have been

planted to bahiagrass or have been infested with bahiagrass through movement of seed by animals from one area to another. The end result is that something needs to be done to eliminate the bahiagrass plants present, and also reduce the population of seed in the soil.

In order to convert an old bahiagrass pasture to Tifton-9, the following land preparation and planting procedures are suggested:

- 1) Plow with a moldboard plow. This will bury many of the surface weed seed too deep to germinate.
- 2) Plant an annual forage crop, such as pearl millet or sorghum × sudangrass, during the warm season and a small grain, ryegrass or clover, during the cool season. The growing of annual crops with associated cultivation helps to eliminate any remaining bahiagrass plants and reduces the population of bahiagrass seed near the soil surface.
- 3) Bahiagrass can be planted February through July in most areas of Florida. Plantings made from late March through May can be lost due to drought, especially in South Central Florida. Thus, it may be wise to avoid planting during this time period. Plant on a clean-tilled seed bed that has been prepared by using a heavy cutting disc, or other suitable tillage tool, plus a finishing disc that leaves a smooth surface free of trash.
- 4) If possible, use a cultipacker type seeder or some other precision seeder in order to place all of the seed at a uniform depth. Seed should be planted at ½ to ¾ inch deep.
- 5) **Seeding rate:** Research and rancher experience have indicated that good stands of Tifton-9 can be established by planting as low as 4 lb seed per acre. But, some ranchers have also experienced failure at this low seeding rate. A seed lot that has a high rate of dormant seed (40 to 50%) may give poor results at 4 lb per acre. On

land where competition from weeds may be severe, more than 4 lb may be needed to obtain a satisfactory stand of grass. In the past, the recommended seeding rate for the older bahiagrass varieties has been 12 to 15 lb seed per acre broadcast. Since the price of seed has dropped, higher seeding rates are more affordable. I would suggest planting 10 lb seed per acre. At the lower seeding rate of 4 lb, competition from grassy and broadleaf weeds may be of concern. Mow to control the broadleaf weeds and the Tifton-9 should compete well with most seedling grasses, including the old Pensacola bahiagrass.

Fertilizing for Establishment

The soil should be limed to a pH of 5.0 to 5.5 before planting. On land that has been cropped in the past, it may be more efficient to apply the major fertilizer elements after planting. Apply fertilizer

when the bahiagrass seedlings have emerged from the soil. Apply 30 to 40 lb nitrogen per acre along with phosphorous and potassium according to a soil test recommendation. When the bahiagrass plants are large enough to start spreading, apply an additional 40 to 50 lb nitrogen.

Weed Control during Establishment

No herbicide is available for use at planting and while plants are young and immature. Therefore, be sure to start with a clean-tilled seedbed. Use mowing to control broadleaf weeds. No control is available for grassy weeds, such as seedling bermudagrass, crabgrass and the “old” bahiagrass seed that might germinate. Tifton-9 should compete with and eventually overcome these less desirable grasses. Once the grass is well established, the phenoxy type herbicides, such as 2,4-D and Banvel[®], can be used to control broadleaf weeds.