



## Perennial Grasses

Common perennial grasses adapted to the Southeast region include the following:

- **Warm-season species:** bahiagrass, bermudagrass, Johnsongrass, dallisgrass, and native warm-season grasses (big bluestem, little bluestem, eastern gamagrass, and Indiangrass)
- **Cool-season species:** tall fescue and orchardgrass

### WARM-SEASON SPECIES



Figure 4. Bahiagrass grows throughout central and south Alabama.

### BAHIAGRASS

Bahiagrass (figure 4) is widely used in the Southeastern United States. It is established by seeds and can tolerate drought, sporadic flooding, low soil fertility, and close grazing. Most forage production occurs from April through September. Stands can be overseeded with cool-season annuals in the fall to extend the grazing season.

This dense, prostrate grass has shallow and horizontal stems (rhizomes) that form a thick mat (sod). It is adapted to sandy loam soils. Its optimal pH ranges from 5.0 to 6.5, and it can grow 12 to 25 inches tall.

Bahiagrass has low to medium nutritive value and generally goes dormant in late fall/winter. In Alabama, the best time to establish bahiagrass is in spring. Seed origin is particularly important in order to avoid introduction of weeds, especially brunswickgrass (*Paspalum nicorae*).

Choose seeds that are of good quality and certified. Seed 15 to 20 pounds of pure live seed (PLS) per acre. Broadcast or drill to a depth of  $\frac{1}{4}$  to  $\frac{1}{2}$  inch. Between 7 and 10 days after seedling emergence, fertilize the stand using 35 to 50 pounds of nitrogen per acre. After 30 to 50 days, it is recommended that you apply 50 to 75 pounds of nitrogen per acre.



Figure 5. Bahiagrass is tolerant of soil acidity and low soil fertility.



**Figure 6.** Bermudagrass is the most widely grown warm-season grass in the United States.

### BERMUDAGRASS

Bermudagrass (figure 6) is adapted to moderately to well-drained soils, is tolerant to grazing, and has a canopy height ranging from 15 to 100 centimeters with both stolons and rhizomes.

Seeded and hybrid varieties are frequently grown in Alabama. Hybrid varieties have a higher production potential; among these are Russell, Tifton 44, and Tifton 85. Tifton 85 bermudagrass (T85) has high productivity and nutritive value. It supports relatively high levels of animal performance and functions well under management for either hay or grazing, for which it is highly used in the Southeast region.

Recently the bermudagrass stem maggot (*Atherigona reversura* Villeneuve [Diptera: Muscidae]) has been identified as a significant pest of T85. It was first noticed in 2010 by South Georgia hay producers and has a short life cycle (21 days).



**Figure 7.** Bermudagrass produces more than 5 tons of hay per acre per year.



**Figure 8.** Johnsongrass is commonly considered a weed.

### JOHNSONGRASS

Johnsongrass (figure 8) is a warm-season perennial rhizomatous grass. Although it is high-quality forage for cattle, it is often considered a troublesome weed because it spreads easily into annual crops and hay fields. Johnsongrass is very well adapted to the heavy clay soils in the Black Belt region of Alabama. It is best suited for slightly acidic soils.

Johnsongrass is moderately palatable and of medium forage quality. It is not grazing tolerant and will not survive under continuous grazing management. Producers who use it as a forage crop need to be aware of two significant toxicities: prussic acid poisoning and nitrate toxicity. Prussic acid can build up in the leaves of plants that have been stressed by long drought periods, a frost, or application of herbicides such as 2,4-D. Toxic levels of nitrates can occur following a period of drought or cool, cloudy weather that stunts growth. Unlike prussic acid, nitrates do not degrade over time, so it is important to test heavily fertilized Johnsongrass hay for nitrates.



**Figure 9.** Dallisgrass is found throughout the state, but most commonly in the Black Belt. (Photo credit: Rebekah D. Wallace, University of Georgia, Bugwood.org)

## DALLISGRASS

Dallisgrass (figure 9) is a warm-season bunchgrass used primarily as pasture grass in Alabama. It has excellent tolerance to poor drainage and is best adapted to clay and loam soils in areas with good moisture. It has substantial carbohydrate reserves in its stem bases, and numerous buds, which allow good tolerance to close grazing.

Dallisgrass is often grown with red or white clover, which can be planted in the fall after a killing frost occurs. Optimal soil pH ranges from 5.6 to 8.0. Recommended seeding rate is 10 to 15 PLS per acre with seeding depth of ¼ to ½ inch.

Limitations to the use of dallisgrass include forage yield potential, which is often less than other warm-season perennial forage grasses. In addition, seed production is limited by low seed set and ergot infection. In late summer and early fall when seed onset occurs, ergot can cause toxicity in cattle, but seed heads can be clipped to eliminate the ergot problem if it develops.

## NATIVE WARM-SEASON GRASSES

Native warm-season grasses are widely adapted to Alabama. These grasses typically break dormancy in late March and early April. They grow rapidly from mid-May through midsummer. Their growth slows in late summer until they become dormant in October.

Limitations to the use of native warm-season grasses in Alabama are primarily related to the slow establishment period (multiple years before the stand can be used for grazing or hay) and management required for plant persistence. Five species are commonly used: big bluestem (figure 10), little bluestem, Indiangrass, switchgrass (figure 11), and eastern gamagrass (figure 12). Their vigorous summer growth, drought tolerance, and natural adaptability make them good candidates for forage production in the Southeast.



**Figure 10.** Big bluestem



**Figure 11.** *Panicum virgatum*, commonly known as switchgrass



**Figure 12.** Eastern gamagrass (*Tripsacum dactyloides*)

## COOL-SEASON SPECIES



**Figure 13.** Tall fescue grows well in the North, Central and Black Belt regions of Alabama..

### TALL FESCUE

Tall fescue (figure 13) is a perennial cool-season forage. It is one of the most important grasses in the United States, including in North Alabama and Central Alabama. It is a deep-rooted, long-living bunch-type grass. In Alabama it grows from February to June and September to November. It can be used for grazing or stockpiled in late autumn.

The recommended seeding rate is 15 to 20 pounds PLS per acre and the seeding depth is  $\frac{1}{4}$  to  $\frac{1}{2}$  inch. Generally in Alabama it should be planted from September to October. Spring plantings are not advised due to summer weed pressure and increased likelihood of drought conditions after establishment.

Tall fescue is a desirable forage crop because of its range of adaptation and tolerance to continuous close defoliation. However, most tall fescue in the region is infected with the fungal endophyte *Epichloë coenophiala*. The Black Belt Research & Extension Center in Marion Junction, Alabama, is the site of the first study linking this fungus with a syndrome called fescue toxicity in beef cattle. This finding explains the poor performance often exhibited by cattle grazing this grass. This endophyte produces an ergot alkaloid that causes the fescue toxicosis syndrome.

Novel tall fescue varieties are available. Although they contain endophytic fungus, they do not produce the ergot alkaloids that are toxic to animals grazing.

## ORCHARDGRASS

Orchardgrass (figure 14) is a cool-season perennial bunchgrass suited for hay production or grazing management systems. It grows 2 to 4 feet tall and is less tolerant to drought and poor drainage than tall fescue. Usually it is one of the earliest grasses to initiate growth during cool weather conditions. It requires a pH ranging from 5.8 to 7.0 for good establishment and stand persistence.

Orchardgrass is best adapted to the northernmost region of Alabama, where the planting window is September and October. The recommended seeding rate ranges from 15 to 20 pounds PLS per acre and the seeding depth from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch. At planting it is recommended that 30 pounds of nitrogen per acre be added along with phosphorous and potassium fertilizer at rates according to soil test results.

Soil fertility is crucial for growth and development of grass seedlings, especially if they need to compete with voluntary weeds. Orchardgrass forage yield ranges from 4 to 8 tons per acre but can be over 10 tons per acre. Crude protein (CP) ranges from 10 to over 18 percent depending on maturity stage at harvest. Total digestible nutrients (TDN) concentration ranges from 55 to 70 percent.



**Figure 14.** Orchardgrass