

Warm Season Perennial Grasses

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Long periods of hot, dry weather in summer make us appreciate the value of warm season perennial grasses. Cool season annuals such as ryegrass and wheat are dead and cool season perennials like tall fescue may turn brown and go on vacation. In south Georgia, bermudagrass and bahiagrass are the mainstay of our pastures and hayfields. In the central and northern part of our state except for the mountains, bermudagrass is often an important part of tall fescue pastures. In addition, there are other warm season perennial grasses used for pasture and hay. This article will try to give an overall look at these grasses, their attributes, problems, adaptation, and management.

Physiology of warm season perennial grasses

Most of these grasses originated in the tropics and subtropics and have a number of physiological advantages over cool season grasses in hot summer climates. Whereas cool season grasses can utilize less than 3% of the incoming sunlight for photosynthesis, the warm season grasses have a light energy conversion of 5 to 6%. Warm season grasses have a different photosynthetic pathway, allowing them to utilize more light energy and not waste any of it as is the case with cool season grasses which may waste up to 40%. Warm season grasses have a higher optimum temperature for photosynthesis, about 85 to 95 F, compared to an optimum for cool season grasses of 60 to 80 F. However, cool season grasses have a much greater temperature range for photosynthesis while warm season grasses have very little occurring below 50 F. Warm season grasses are more efficient in use of water than are the cool season grasses. In addition, the greater rooting depth of warm season grasses as compared to cool season grasses also contributes to better growth during hot dry weather. Warm season grasses are also more efficient in terms of dry matter production per unit of nitrogen fertilizer.

Warm season perennial grasses are well adapted to the long hot season of southern Georgia and provide grazing for

seven to eight months of the year. Further north in the state, tall fescue will have a longer productive season. However, tall fescue in the Piedmont and Limestone Valley areas is undependable in summer and during hot dry periods will supply little or no forage. It is during these periods of time that the warm season grasses can furnish grazing. Thus, cattle producers can benefit greatly in summer by having these grasses available for grazing, either alone or in mixture with tall fescue.

Nutritive quality of warm season grasses

Digestibility and protein content of warm season grasses is usually lower than for cool season grasses. Both digestible energy (TDN) and protein decline more rapidly in warm season grasses as they become more mature. Thus, the nutritive quality of overmature warm season grass pastures and hay has the potential to become too low, especially for growing or lactating cattle. Good grazing and hay management can alleviate much of this problem. It should be emphasized, that with **good management**, the nutrient quality of warm season grasses is quite adequate for beef cows both as pasture and hay.

Bermudagrass

Common bermudagrass, a native of southeastern Africa, has long been one of the most important pasture grasses in Georgia. The development of the hybrid variety, Coastal, by Dr. Glenn Burton at Tifton, GA supplied a high-yielding grass that has become the most important hay crop in the state. Other hybrid varieties from Dr. Burton's program have furnished the coldhardy Tifton 44 variety and higher digestibility but less cold hardy varieties Coastcross-1, Tifton 78, and Tifton 85. All of these hybrids, along with Russell, Alicia, and several others, are planted from sprigs. Common, and several giant varieties, are planted from seed. Hybrid bermudagrasses are highly responsive to fertilizer. Good quality hay can be obtained by harvesting at 4 to 5 week intervals.

Bahiagrass

Bahiagrass, a native of southern Brazil, is widely used as a pasture grass in southern Georgia, nearly all of it being the Pensacola variety. Although less productive than hybrid bermudagrass, it is more tolerant of soil acidity, low fertility, poor drainage, and overgrazing. Some bahiagrass pastures are rarely fertilized, yet continue to maintain stands and provide a low level of grazing over many months year after year. Obviously, fertilization will greatly increase productivity. A new variety, Tifton 9, is more productive and better suited for hay production than Pensacola.

Dallisgrass

Also a native of southern Brazil, this grass is of higher nutritive quality than bermudagrass but lower yielding. Dallisgrass is best adapted to low, moist areas and preferably clay soils. White clover grows well with it. Seed are of low germination and seedlings are slow to establish. It is mainly used as a pasture grass.

Johnsongrass

Johnsongrass, native to the Mediterranean area, is a serious pest in row crops because it spreads by seed and underground rhizomes. It thrives on moist, fertile soils, especially clay bottomland. Nutritive quality of this grass is high and Johnsongrass harvested at early heading has excellent feed value. Feeding Johnsongrass hay to cows will spread the seed to pastures where it may not be wanted. Close, continuous grazing will weaken stands and eliminate it. Thus, to maintain stands and productivity it must be rotationally grazed.

Warm season perennial bunch grasses

Big bluestem, eastern gamagrass, indiagrass, and switchgrass are warm season perennials native to the eastern USA. These grasses were grazed by wild bison and deer prior to settlement by European people. Overgrazing by cattle and sheep reduced vigor and stands to be replaced by grass species more tolerant of abuse. Currently, the Natural Resource and Conservation Service is encouraging

planting seed of these grasses for forage and conservation use. These tall growing bunchgrasses grow from late April or May to September or October. Yields can be high with surprisingly low inputs of fertilizer. They are deep rooted and drought-tolerant. Nutritive quality is good early in the season but declines rapidly with maturity. Our experience with these grasses indicates two potential problems. First, seedling growth is slow and volunteer crabgrass and other weedy annual grasses can make establishment difficult. Secondly, these grasses will not tolerate close continuous grazing as is often done with bermudagrass and bahiagrass. Unless rotational grazing is done, stands will weaken and be lost. If managed properly, these grasses can be productive and provide good yields of forage during the summer season.

Conclusion

Warm season perennial grasses are a valuable resource in Georgia. In the Coastal Plain area, they are the staple for pasture and hay with the possibility of overseeding with cool season annuals to extend the productive season during winter. Further north, these grasses are highly desirable to provide dependable grazing during hot dry weather in summer when tall fescue is unproductive. Nutritive quality of these grasses is lower than the cool season perennials but this can be offset to a considerable extent by good management. Much bermudagrass hay produced in the state is of poor quality and must be supplemented with protein and energy. This need not be the case! Cutting bermudagrass hay at 4 to 5 week intervals can provide adequate nutrition for beef cows and horses.

SCRIPTURE OF THE MONTH

For I am the Lord, I change not.

MALACHI 37:3

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