LATEST FORAGE VARIETY TRIAL RESULTS

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Dennis Hancock, Forage Extension Specialist
The University of Georgia

Land-Grant Universities (and their collaborators in the USDA) provide a number of valuable services to the producers in their state. One of the most valuable services is the periodic comparison of the forage varieties that are on the market. These variety trials are conducted in an unbiased way, allowing each variety to be compared with the others in a head-to-head competition. The goal is to determine which variety is the most productive and/or persistent. We recently completed a series of reports on the current perennial forage variety trials that we have on-going in Georgia. The variety trial results are posted here: http://www.caes.uga.edu/commodities/fieldcrops/forages/varieties/index.html. The reports include data from bahiagrass, bermudagrass, tall fescue, orchardgrass, white clover, red clover, alfalfa, and chicory variety trials. In this month's article, I would like to provide an excerpt from the warm season perennial grass (bermudagrass and bahiagrass) variety trial report.

Description of the Warm Season Perennial Grass Variety Trials

Most bermudagrass and bahiagrass varieties are developed as part of the Forage Breeding programs at USDA and Land-Grant Universities in the Southeast. This variety trial was one that is periodically performed by USDA researchers at the Coastal Plain Experiment Station (CPES) in Tifton to test the success of their breeding efforts. This test was planted on the CPES in the summer of 2005, and the plots were maintained by experienced research technicians and other CPES staff. The varieties were established and managed using standard practices as recommended by UGA Specialists. Plots were not irrigated. Soil fertility was maintained in accordance with UGA soil test recommendations.

The warm season perennial grass variety trials in Tifton (left) and the flail-type plot harvester used to measure forage yield.

Harvests were made at recommended intervals, and all plots in the variety trial were harvested on the same day. Statistical analyses were performed on all data to determine if the numerical differences were truly the result of varietal differences or just random differences. To determine if two varieties are truly different, compare the difference between them and the LSD (Least Significant Difference) at the bottom of the column. If the difference is equal to or greater than the LSD, the varieties are truly different when grown under the conditions at the given locations. The comparison is aided by the fact that the value for the best variety within a column is bolded and all varieties that provided yields that were not significantly different from the best variety are bolded, as well. In addition, values sharing the same letter are not different. NS indicates no differences were observed. The Coefficient of Variation (CV) is a measure of the variability of the data and is included for each column of means when differences exist. Low variability is desirable (generally, a CV less than 15%).

Yield Trial Summary

The data presented in Table 1 show the average forage yield from the various warm season perennial grasses during the three years of this variety trial. Notice the high yield potential of Tifton 85. Relative to Russell bermudagrass, Tifton 85 produces over 25% greater yields. Of course, the "gold-standard" by which all warm season perennial grasses are compared is Coastal bermudagrass. By comparison, Tifton 85 provided over 70% greater yields than Coastal in this trial. This certainly is not a fluke. Tifton 85 has consistently demonstrated superior yields, not only in trials at Tifton, but also throughout Georgia and the entire Southeast.

Table 1. Forage yield of warm season perennial grass varieties averaged over the growing seasons in 2006 – 2008 at the CPES in Tifton, GA.[†]

Variety	Forage Type	3-yr Average 2006-08
		(dry lbs/acre/year)
Tifton 85	Hybrid Bermudagrass	**24630** a[‡]
Coastcross II[§]	Hybrid Bermudagrass	**23583** a
Russell	Hybrid Bermudagrass	19592 b
P2[§]	Seeded Bermudagrass	18840 bc
Coastcross I	Hybrid Bermudagrass	18045 c
UF-Riata	Bahiagrass	18013 c
TifQuik	Bahiagrass	16318 d
Tifton 9	Bahiagrass	15439 de
Coastal	Hybrid Bermudagrass	14343 e
Pensacola	Bahiagrass	12539 f
Tifton 44	Hybrid Bermudagrass	12150 f
Cheyenne	Seeded Bermudagrass	11707 fg
Laredo	Seeded Bermudagrass	10806 g
Wrangler	Seeded Bermudagrass	5002 h
	CV %	10
	$LSD_{\alpha=0.05}$	1253

[†] Planted: August 2, 2005. Establishment year yields are not included in this analysis. BAH = bahiagrass; HBG = hybrid bermudagrass; and SBG = seeded bermudagrass.

[‡] Values within a column that are labeled with the same letter were not significantly different (α=0.05) from one another. Yields that are in **bold** font are not significantly different from the highest yielding variety.

[§] Experimental variety (not available).

It is important to also point out how poorly the seeded bermudagrass varieties that currently are on the market compare to our best hybrid varieties. There has been a lot of effort on the part of seed companies to promote the use of seeded bermudagrasses in the South. Though seeded bermudagrasses have a niche (even in Georgia), their poor yields prevent them from being varieties that we recommend for hayfields or pastures on a large-scale. There does appear to be hope on the horizon, however. Planting breeding efforts by Dr. Bill Anderson (Research Geneticist with USDA-ARS in Tifton) have substantially improved the yield potential of some seeded cultivars. Note that the variety listed as 'P2' is a seeded variety, and its yields compare very favorably with many of the hybrid bermudagrasses. Though this variety is NOT YET AVAILABLE, the prospects of having a high yielding seeded bermudagrass on the market look very promising.

Finally, note the productivity of the newest bahiagrass varieties. Again, successful plant breeding efforts by the USDA-ARS program in Tifton and, more recently, by Dr. Ann Blount at the University of Florida have resulted in two new varieties ('TifQuik' and 'UF-Riata') that provide more forage yield than even Coastal bermudagrass.

These successes in plant breeding should instill in each of us the hope that we can continue to improve the

productivity of our hay and pasture crops. Such will ultimately allow our industry to continue to efficiently produce beef cattle. For more information on the plant breeding successes in other forage crops or to learn more about efficient forage systems, visit our website at www.georgiaforages.com or contact your local University of Georgia Cooperative Extension office at 1-800-ASK-UGA1.