

Intake and Digestibility of Coastal and Tifton 85 Bermudagrass Hays by Female Boer x Spanish Goats

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BOTTOM LINE

- Tifton 85 bermudagrass hay had higher crude protein and lower fiber concentrations than Coastal bermudagrass hay.
- Tifton 85 hay was more digestible which led to higher intakes than Coastal hay.
- Tifton 85 bermudagrass hay appears to be a suitable forage for maintaining satisfactory performance in most classes of goat.

Introduction

Tifton 85 is a relatively recently introduced variety of bermudagrass, with superior agronomic and nutritional characteristics when compared to the “industry standard”, Coastal bermudagrass. While there is some data available for Tifton 85 regarding its value as a fresh forage as well as hay for cattle, there is no data available regarding its value for goats. In general, goats are not grazed on bermudagrass, but with the advent of varieties such as Tifton 85 and Jiggs, their worth for goats may become more apparent.

In this study, Tifton 85 and Coastal bermudagrass hay was fed to yearling female Boer x Spanish goats to compare the intake and

digestibility of these hays by animals of this type.

Experimental Approach

Six, 1 year old, 3/4 Boer x Spanish nannies (BW = 66 lbs) were randomized into two groups of three and placed on one of two bermudagrass hay diets. For this study, 20 bales each of Tifton 85 and Coastal bermudagrass hay were provided by private individuals in east Texas. The hay was chopped using a Gehl® forage harvester before being fed. The animals were placed in metabolism stanchions for a 5 day period after a 7 day adaptation period. While in the stanchions, hay and water intake, and fecal and urine output were measured. The hays were fed three times each day at a level that resulted in less than half a pound of feed being refused each day. A sub-sample of each diet was taken daily. A fecal and urine sub-sample was taken daily and batched on a per animal basis for the trial period. Diet and fecal samples were analyzed for fiber, nitrogen and energy content. Urine samples were analyzed for nitrogen and energy.

A second 5-day trial was conducted using the same animals immediately following the digestibility trial in order to determine ad-libitum hay intake. Animals were fed three times a day in amounts such that refusals of more than 2 pounds were common.

In addition to the 5 day intake trial, an in-vivo digestibility trial was performed using 2 rumen-fistulated nannies. A set of nine nylon bags, each containing 4 grams of one of the diets, was placed in each animal. Bags were removed at each of the following times: 4, 8, 12, 24, 36, 48, 72, 96 and 120 hours after insertion. Following removal the bags were thoroughly washed, and dried at 200 F overnight. The dry weight was obtained and digestibility of the hay determined. The trial was replicated 4 times, alternating diets between animals. Fiber and nitrogen analyses were conducted on the residues.

Results and Discussion

The Tifton 85 hay contained higher concentrations of crude protein (N x 6.25), but lower concentrations of both neutral detergent fiber (NDF) and acid detergent fiber (ADF) than the Coastal hay (Table 1).

Table 1. Constituents of the Coastal and Tifton 85 Bermudagrass hays.

	Hay	
	Coastal	Tifton 85
DM (%)	0.98	0.98
NDF (% DM)	0.70	0.72
ADF (%DM)	0.33	0.30
N (%DM)	1.67	2.29
Gross energy (kcal g ⁻¹ DM)	4365.49	4318.28

As a result of these differences, the Tifton 85 hay was more digestible, both in vivo and in situ. The Tifton 85 hay was digested at a faster rate and more completely (in-situ) than the coastal hay (Figure 1). As another result of Tifton 85's higher digestibility, the goats ate

more Tifton 85 hay than Coastal hay in both the digestibility and the intake trials. The animals receiving Tifton 85 hay ate on average 1.25 pounds of hay DM, while the animals receiving Coastal hay only ate 1.0 pounds of dry matter. The animals receiving Tifton 85 hay also drank more water

than the goats eating Coastal hay. Increased water consumption is often seen in animals that are eating relatively high protein diets. Tifton 85 is clearly a superior forage compared to Coastal bermudagrass, and appears suitable for maintaining acceptable levels of production in most adult goats.

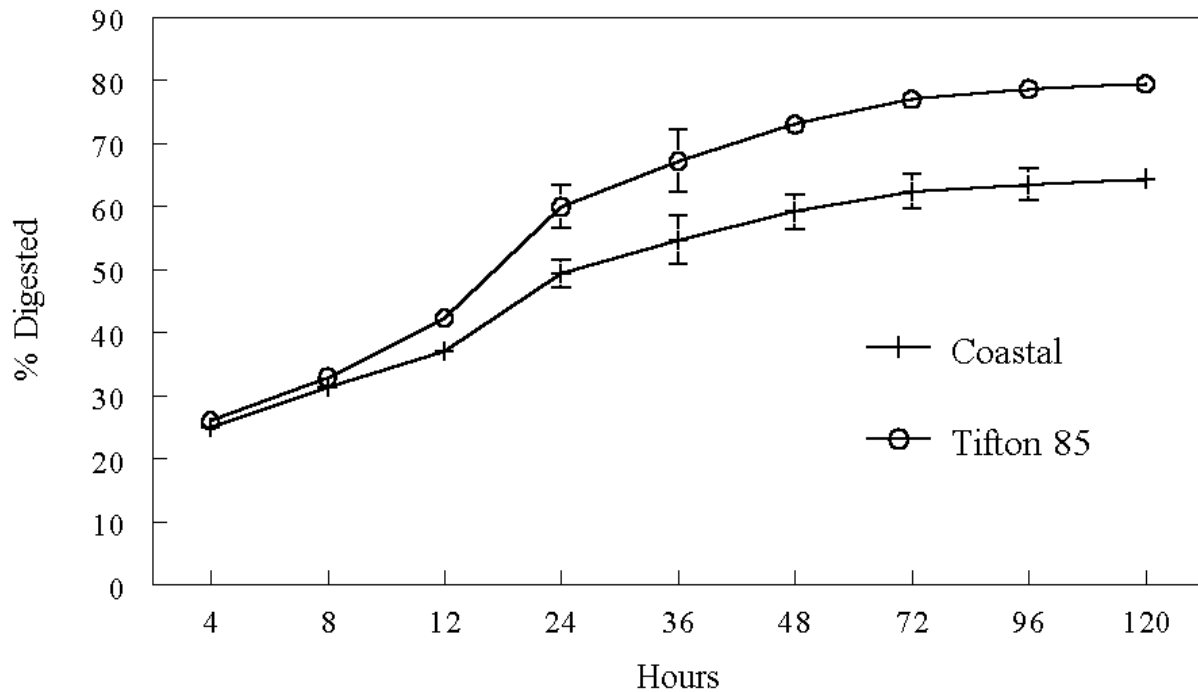


Figure 1. Rate and extent of digestion (% digested) of Coastal and Tifton 85 bermudagrass hay by female goats.