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TIMELY INFORMATION
Agriculture & Natural Resources

Stockpiled Tifton 85 Bermudagrass as an Alternative to Feeding Hay for Lactating Beef Cows

The focus of this Timely Information sheet is to provide a summary of suggested forage management practices for stockpiled Tifton 85 bermudagrass based on the results of a recent study at the Wiregrass Research and Extension Center, Headland, Alabama.

Stockpiling defined

Stockpiling is a forage management practice in which forage is allowed to accumulate for grazing at a later time. This practice can provide a significant opportunity for reducing winter supplementation costs for the cow herd.

Why Tifton 85 bermudagrass for stockpiling?

Studies at the University of Georgia have shown that when compared with 'Coastal' bermudagrass, 'Tifton 85' bermudagrass has greater forage accumulation and is considerably more digestible than older, less improved varieties, making it an excellent candidate for stockpiling. In Alabama, some success has been seen in northern Alabama with Tifton 44 bermudagrass for supporting dry, pregnant beef cows during late fall and early winter (Rankins, 2002). However, the quality of stockpiled bermudagrass has been considered a limiting factor in supporting the performance and production of lactating beef cows. A two-year study was conducted in Headland, AL to evaluate the use of Tifton 85 for fall-calving cow herds compared to feeding hay plus supplement.

What were the goals of this study?

- To determine forage mass and quality associated with three fertility levels of stockpiled 'Tifton 85' bermudagrass and hay plus supplement;
- To determine reproductive and performance traits (weight and milk production) of cows maintained on stockpiled bermudagrass, or hay plus supplement;
- To compare calf performance measures between calves with dams on stockpiled bermudagrass or hay plus supplement;
- To evaluate costs between the three fertility levels of stockpiled Tifton 85 bermudagrass and hay plus supplement feeding systems

What was evaluated?

16 Angus × Simmental cows and their calves were assigned randomly to:

- Two-acre pastures of stockpiled Tifton 85 bermudagrass (2 cow-calf pairs/pasture) that had been fertilized with either: 50, 100, or 150 pounds (lb) of nitrogen per acre or,
- One acre of dormant summer pasture (2 cow-calf pairs/paddock) with free-choice access to August-cut bermudagrass hay plus 6 lbs whole cottonseed daily.

How was the stockpiled Tifton 85 managed?

- Tifton 85 bermudagrass was clipped to a 5-inch stubble height on August 1 in both years and was fertilized with 50, 100 or 150 lb of nitrogen in mid to late-August for stockpiling.
- Grazing began in late October/early November of each year, and ended on February 14, 2012 (116 days) and February 1, 2013 (83 days).
- Pastures were managed using ***frontal grazing***. This involved using temporary electrical fencing (wire or tape) and step posts that were moved forward every 3 to 4 days to allow animal's access to a new strip of pasture.
- The distance the fence was moved was based on how much forage the cattle would need in a 3 to 4 day period. The below calculation provides an example of how to estimate this:

Amount of forage required =

$$\frac{\text{(Animal body weight, lb x 3\% dry matter intake*) x (number of animals) x (days of grazing)}}{\text{(Total available dry matter, lb per acre}^{\dagger}\text{) x (70\% utilization)}}$$

*The amount of forage consumption by each cow included estimated loss to waste/trampling.
†Refer to FF-1 How to Use a Grazing Stick for Pasture Evaluation (www.alabamaforages.com) for how to estimate forage mass

Forage mass and nutritive value

- There were no differences in forage mass among the three fertilization rates across the two year evaluation (average 4,700 lb dry matter per acre). This suggests that an **application of 50 lbs of nitrogen per acre rate was sufficient** in providing adequate forage mass for fall stockpiling in this region.
- **Stockpiled Tifton 85** bermudagrass maintained an average of **60% total digestible nutrients (TDN) and 12% crude protein (CP)** across the study, and change in quality was minimal across fertilization rates.
- The **nutritional value of hay** fed in the study was significantly lower in quality with **51% TDN and 10% CP**.
- The change in nutritional value across the stockpiling period (TDN and CP) is shown in Table 1.

Table 1. Concentration of CP and TDN in stockpiled 'Tifton 85' bermudagrass receiving different rates of N fertilization.

Sampling Date	CP, %	TDN, %
Early-Nov	18	73
Late-Nov	12	64
Dec	11	58
Early-Jan	11	53
Late-Jan	10	53
Average	12	60

Animal Performance

- All cows lost marginal amounts of body weight (BW) and body condition score (BCS). BW and BCS losses are expected for lactating cows.

- However, cows remained within the ideal BCS range with scores of 5 and 6 throughout the study.
- Milk production averaged 20 lbs/day
- Reproductive performance of cows was not affected by the diet.
- Overall rebreeding rate was 88%.
- Using stockpiled Tifton 85 did not affect calf 205-d adjusted weaning weights among systems, and were within the desired range (550 to 620 lb per head).

Economic Evaluation

- Grazing stockpiled Tifton 85 bermudagrass fertilized at 50, 100, and 150 lbs.of N per acre reduced cow feeding costs by 66%, 61%, and 56%, respectively, when compared to the cost of feeding hay and supplement over the feeding period.

Table 2. Estimated costs ($ per cow) associated with stockpiled Tifton 85 bermudagrass pastures or hay plus supplement.

Input†	Treatment			
	50 lb N per acre	100 lb N per acre	150 lb N per acre	Hay + 6 lb whole cottonseed daily
Nitrogen, lb	$23.91	$47.81	$71.72	0
Grazing cost	$108.80	$108.80	$108.80	0
Hay	0	0	0	$237.27
Labor	$16.97	$16.97	$16.97	$32.50
Supplement	0	0	0	$146.16
Fixed costs of machinery	$24.50	$24.50	$24.50	$90.63
Cost per cow	$174.18	$198.08	$221.99	$506.53

†Variables included cost of N (ammonium nitrate). Grazing cost includes forage establishment and herbicide. Labor, hay harvest, supplement, and machinery costs were also considered.

Key Points

- An application of 50 lb N/acre was sufficient in achieving an acceptable amount of forage mass to support the animals in this study
- Reproduction and calf performance were not affected by diet, and suggests that stockpiled Tifton 85 may provide equivalent capacity to supplement lactating animals during the fall forage gap.
- Input costs on a per cow basis increased marginally with increasing rates of N application.
- The cost per cow for the hay plus supplement treatment was more than double the costs associated with grazing stockpiled Tifton 85 bermudagrass.

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