

Supplementation of Mature Crossbred Cows Fed Bermudagrass Hay During the Last One-third of Gestation

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Findings

- Performance of cows receiving good quality hay (8% CP, 54% TDN) was equal to the performance of cows receiving hay and a supplement.
- Corn-based supplement was equal to the molasses-based supplement.
- No benefit was derived from providing cows a supplement when grazing ryegrass after calving.

Introduction

Cow-calf production is the primary beef cattle enterprise in Louisiana and the southeastern United States. Most beef cows in this region give birth during late winter and early spring. Forage quality and quantity are often limited during this period, and the increasing nutritional requirements of gestating cows are largely met with hay and supplemental feed. Adequate amounts of good quality hay can meet the nutrient requirements of gestating cows, but many producers offer some type of supplemental feed as well. While supplemental feeds come in many different forms or packages, increasingly many of the feeds used by producers incorporate some type of intake limiter so they can be fed free-choice. Producers usually pay more for these feeds than conventional supplements that are fed daily. The objective of this study was to provide to Louisiana cattlemen data comparing performance of gestating cow supplementation programs in association with feeding hay that would be most beneficial and cost effective.

Experimental Approach

One-hundred fifty pregnant spring-calving crossbred (mostly Brangus and Angus crosses) cows were randomly divided by weight, age, breed type and body condition score into six groups of 25 cows. Two groups of cows were allotted to each of three treatments that were fed during the last three months of gestation. Treatments were: 1) molasses tub containing 30% crude protein; 2) corn, cottonseed meal, urea, dicalcium phosphate mixture that provided the same amount of natural protein and non-protein nitrogen as the molasses tub; and 3) no supplement. Hay was fed free-choice to all treatments in hay rings.

Each group of cows was maintained on 10-acre tracts of dormant bermudagrass pastures during this phase of the study.

Cows remained on the above treatments until they calved. At calving, cows on each treatment were divided into two groups and were moved to pastures that had been overseeded with ryegrass the previous fall. One group of these cows received a molasses tub product (27% CP) until July 1, and the other group received only pasture. Cows were exposed to bulls from May 1 to July 1 and checked for pregnancy at weaning. After the breeding season, cows grazed bermudagrass/ dallisgrass pastures as a single group until calves were weaned in October.

Cows were weighed individually and scored for body condition at the initiation of pre-calf treatments (December 1), before calving (February), after calving (April), mid-summer (July) and at weaning (October). Body condition scores (scale, 1-9) were assigned independently by two individuals and averaged. Birth weights of calves were recorded within 24 hours of birth. Calves also were weighed in October at weaning. Postpartum interval was calculated for pregnant cows by subtracting 285 days from the difference of the calf birth date during the trial from the birth date of the subsequent calf for each cow.

Results and Discussion

Estimated hay intake was 26 to 27 pounds and not different among treatment groups. Supplement intake of the free-choice molasses tub was lower (1.1 pound per head per day) than the intake of the corn-based supplement (set at 2 pounds per head per day). Intake of the molasses-based supplement was in the range of the manufacturer's recommendation.

There was no effect ($P < .05$) of supplementation on cow weight gain during the gestation supplementation period (Table 1). All three treatment groups gained between 81 and 97 pounds during this period; this increase in weight was primarily fetal weight gain since there was little if any increase in condition score during this period. Although small, there was a difference ($P < .05$) in the change in condition score during this period. Cows fed only hay lost 0.2 of a condition score, and cows on the molasses-based and

the corn-based supplements gained 1.2 of a condition score.

All cows gained some weight from calving to April (Table 1). Cows fed the corn-based supplement before calving gained more weight ($P < .05$) from calving to April than cows that received either the molasses-based supplement or received only hay. The increase in weight of all treatments during this period was reflected by an increase in condition score; however, there was no difference ($P > .05$) in condition score change. Cows fed the molasses-based supplements lost weight ($P < .05$) from April to July, and cows that received either the corn-based supplement or only hay maintained weight. There was no effect ($P > .05$) of supplemental treatments on the weight change or condition score change of the cows from the start of the gestation supplementation treatment to weaning, with all cows having weights in October similar to their weights the previous December.

Supplementation treatment during gestation did not affect pregnancy weights or postpartum interval (Table 1). Calves born to cows supplemented with the molasses tubs had higher birth weights ($P < .05$) than cows receiving either the corn-based supplement or only hay; however, there was no difference in either weaning weight or adjusted weaning weight ($P > .05$) of the calves.

These data suggest that good quality hay fed free-choice can meet nutrient requirements during the last

one-third of gestation, a period when the nutrient requirements of the cow increase because of the growth of the fetus. Although supplementation of the corn-based supplement did result in an increase in weight at the start of the breeding season, no effects on fall pregnancy rates, postpartum interval or calf weaning weight were observed among the different treatments. All cows were in good condition throughout the breeding season, supporting the concept that satisfactory conception rates will be obtained with cows in good condition and on an adequate plane of nutrition (ryegrass) during the breeding season.

There was no effect ($P > .05$) of supplementing the molasses tub to cows grazing ryegrass after calving on cow weight, cow condition score, fall pregnancy rate or postpartum interval. Calf weaning weight was not affected ($P > .05$) by post-calving supplement treatment. These data suggest that ryegrass and early summer grasses met the nutrient requirements of the lactating beef cows used in this study.

Feeding harvested feeds, whether in the form of hay or a supplement, is more expensive than grazing. The lack of forage during the winter in Louisiana often requires producers to feed hay. This study supports other data demonstrating that producers who produce good quality hay can provide the nutrients required for beef cows during the three months before calving without the expense of supplemental feeds.

Table 1. Effect of supplementing a molasses- or corn-based supplement to gestating cows consuming bermudagrass hay.

Item	Molasses	Corn	Hay	SE
Initial cow weight, lb	1304	1276	1290	20
Initial cow condition score	5.9	5.6	5.9	0.1
Cow weight change, lb				
February	81	97	83	8
April	49 ^a	94 ^b	62 ^a	11
July	-28 ^a	4 ^b	7 ^b	10
October	-7	10	0	11
Cow condition score change				
February CS change	0.1 ^a	0.2 ^a	-0.2 ^b	0.1
April CS change	0.3	0.5	0.3	0.1
July CS change	-0.2 ^a	0.1 ^b	0.0 ^b	0.1
October CS change	0.0	0.1	0.0	0.1
Cow pregnancy, %	89.6	86.0	90.9	
Cow postpartum interval, day	71.8	84.8	79.4	4.4
Calf birth weight, lb	90 ^a	85 ^b	81 ^b	2
Calf adjusted weaning weight, lb	543	526	519	8

^{ab}Row means with different superscripts differ ($P < .05$).

Table 2. Effect of a molasses-based supplement fed to cow/calf pairs grazing ryegrass

Item	Molasses	None	SE
Initial cow weight, lb	1281	1300	16
Initial cow condition score	5.8	5.8	0.1
Cow weight change, lb			
April CS change	71	66	9
July CS change	-15	4	9
October CS change	-3	5	9
Cow condition score change			
April	0.3	0.5	0.1
July	-0.1	0.1	0.1
October	0.0	0.0	0.1
Cow pregnancy, %	86.4	91.2	
Cow postpartum interval, day	76.9	80.4	3.4
Calf birth weight, lb	86	84	2
Calf adjusted weaning weight, lb	535	524	6

