February 1996, Circular 897

Molasses Supplements for Mature, Lactating Beef Cows Grazing Range

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Introduction

In Florida, about 3.5 million acres of range are used in cow-calf production systems. After calves are weaned in late summer or early fall, dry-pregnant cows are usually moved from bahiagrass pasture onto range where they calve. In late winter, cow-calf pairs are usually moved from range onto bahiagrass (*Paspalum notatum*) pasture for breeding. Because of the low nutritive value of native grasses, excessive cow weight loss during the winter is a problem that leads to poor reproduction.

Supplementation of cows grazing range with molasses-based feeds is a practical method to provide energy and crude protein to reduce cow weight loss. Cane molasses is readily available in Florida, is favorably priced, and is easy to transport and mix with protein sources. Urea has been used most often to increase crude protein of molasses; however, there has been concern that range forage may be too low in energy to effectively utilize urea compared to natural proteins such as cottonseed meal.

This publication discusses research that measured the performance of mature, lactating cows supplemented with either molasses-urea or molasses-cottonseed meal-urea while grazing south Florida range.

Methods and Materials

Approximately 1000 acres of range at the Range Cattle Research and Education Center at Ona was divided into 16 units. Range was roller chopped for saw palmetto (*Serenoa repens)*control in February and March 1988. Forage dry matter (DM) available for grazing averaged 1800 lb/A when cows began grazing range in each of the 3 years (1989, 1990, and 1991). Desirable grasses such as bluestems (*Andropogon* and *Schizachyrium*

spp.), indiangrass (*Sorghastrum secundum*), and maidencane (*Panicum hemitomon*) made up 42% of the available range forage.

In September 1989, 56 Braford cows, 4 years of age or older, were randomly allotted by age to eight groups of seven head each. Four cow groups were randomly assigned to one of two molasses-based liquid supplement treatments. One supplement used urea as the sole source of supplemental crude protein and contained (as fed basis) 95.5% cane molasses, and 4.5% urea. The second supplement used cottonseed meal and urea as a source of crude protein and contained 80% cane molasses, 18% cottonseed meal, and 2% urea. Supplements were formulated to contain 20% crude protein (as fed basis). From December until the end of the range utilization period cows were fed twice weekly to provide, on as fed basis, 5.0 lb/cow/day of the respective supplements. Each group grazed two range units described above from September through February. One of the two units was burned in October of alternate years (beginning in October 1990). Cows grazed unburned range from September to December, then had access to burned and unburned range until March. Cows and calves were moved from range at the end of February, weighed, and assigned a body condition score ranging from 1 to 9, with 1 = emaciated, 5 = moderate, and 9 = extremely fat. Cows were then placed on bahiagrass pasture (80 acres) as one group.

Bahiagrass was fertilized annually in early March with 50 lb of nitrogen/acre. Cows were exposed to Braford bulls from March 1 to May 31, during which time all cattle were fed 5 lb/cow/day of the molasses supplement containing cottonseed meal and urea as described above. Calves were weighed in September. At weaning, cows were pregnancy tested and assigned a body condition score. Open cows, old cows, and cows with physical defects were culled and replaced with pregnant cows. Replacement cows and pregnant cows previously in the study were returned to respective range units within 2 weeks postweaning for each of three consecutive years.

Results and Discussion

Initial weight of cows going onto range in September was similar for both treatments (Table 1). Initial weight was heaviest the first year (1100 lbs), and became progressively lighter for year 2 and 3 (1050 and 1030 lbs, respectively). Change in initial weight of cows going onto range over time resulted from a greater weight loss during the range period than was regained during the subsequent summer when cows grazed bahiagrass. The 12% weight loss during the range period was typical for mature cows having access to range in winter. Cows fed both supplements lost a similar amount of weight.

Cows supplemented with molasses-urea during the range grazing period tended to wean heavier calves than cows supplemented with molasses-cottonseed meal-urea (Table 1). However, cows fed molasses-cottonseed meal-urea had a slightly higher pregnancy rate. Estimated calf production/cow, a product of pregnancy rate and calf weaning weight, was similar for cows fed both supplements.

The overall pregnancy rate of 83% was high for lactating cows grazing range during the winter. Previous studies at the Range Cattle Research and Education Center (Kirk et al. 1974; Peacock et al. 1971) showed that mature, lactating cows grazing range and either supplemented with molasses, sugarcane, or cattonseed meal; or grazing a combination of range and clover pasture had pregnancy of 50 to 65%.

Table 1. Effect of feeding mature, lactating cows molasses-based supplements containing either urea or cottonseed meal-urea on cow performance and calf weaning weight. Average of 3 years.

	Crude Protein Source		
Item	Urea	Cottonseed meal-urea	Probability level
Cow wt on range, lb	1020	1060	0.73
Cow wt on range, lb	-123	-121	0.85
Cow condition on range	5.4	5.5	0.36
Cow condition off range	4.1	3.8	0.13
Cow wt change from end of range to weaning, lb	77	79	0.87
Pregnancy rate, %	81	85	0.51
Average date bred	Mar. 26	Mar. 30	0.24
Calf weaning wt, lb	436	419	0.09
Estimated calf production per cow, lb/year[1]	353	356	----

[1] Estimated calf production /cow = calf weaning weight x pregnancy rate/100.

Part of the reason for the high pregnancy rate was that cows in poor to fair body condition at the start of the breeding season bred equally well, and as soon after calving, as cows in moderate to good body condition. Over the 3-year study there were 48 cows with a condition score of 2 or 3 at the start of breeding, and they had an 85% pregnancy rate and an average breeding date of January 12. Compare that with 66 cows with a condition score of 4 that had an 80% pregnancy rate and and average breeding date of January 10, or 45 cows with a condition score of 5 or greater that had an 84% pregnancy rate and an average breeding date of January 19.

The apparently good reproductive performance of cows in this study may be due to the feeding of a molasses mixture containing natural protein during the breeding season. The possibility that natural protein is superior to urea as a crude protein source in molasses-based supplements fed to thin, lactating cows being bred following their grazing winter range is currently under study at the Range Cattle Research and Education Center.

Implications

Mature, lactating brood cows grazing range in winter, which supplies a low nutritive value forage, respond equally well to molasses-based liquid supplements formulated with either urea or natural protein-urea when fed at a rate of 5 lb/cow/day and containing 20% crude protein. In Florida, liquid supplements formulated with urea are more favorably priced than supplements containing natural protein, and their use as supplements fed to cows while grazing range would be economically advantageous.

Literature Cited

Kirk, W. G., E. M. Hodges, F. M. Peacock, L. L. Yarlett, and F. G. Martin. 1974. Production of cow-calf herds: Effect of burning native range and supplemental feeding. J. Range Manage. 27:136.

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