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Growing Heifers Need Nutrition

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Most tropical grass hay made in Florida is low in quality, and historically molasses-urea supplementation of this hay has not provided adequate nutrition to develop heifers so that they will calve at two years of age. Primarily for this reason, most heifers calve for their first time at three years of age. Some research suggests that improved lifetime performance can be obtained if a heifer calves for her first time at two rather than three years of age. However, increased management and nutrition must be provided not only to develop a heifer so that she will calve at two, but also so that she will rebreed to calve again at three years of age.

After weaning in September 1988, Brahman crossbred steers (480 pounds) were placed on bahiagrass pasture and fed one of the four diets shown in the table. Mature stargrass hay was made into round bales (850 pounds) and ammoniated at four percent of the forage dry matter. Ammoniated hay was fed free-choice in round bale feeders. Standard molasses was fed in ad libitum quantities. Cottonseed meal was fed at the rate of 1.25 pounds per head per day. For the ammoniated hay plus molasses plus cottonseed meal diet, molasses and cottonseed meal were mixed into a slurry and fed. Molasses and cottonseed meal were fed on Monday, Wednesday and Friday.

Calves supplemented with molasses had reduced hay intake compared to calves fed ammoniated hay alone (see table). Molasses intake was increased when cottonseed meal was added (5.9 verses 7.0 pounds). This level of molasses feeding may appear high, and would not be recommended for feeding to cows; however, increased nutrition is required for heifer development.

Calves fed ammoniated hay alone gained .46 pounds per day. Therefore, this hay was adequate to meet Maintenance requirements plus provide a small amount of gain, and formed a base to which supplementation programs could be applied. Both molasses and cottonseed meal supplementation improved daily gain, but the response to protein (cottonseed meal was greater than the response to energy (molasses). Crude protein content of the hay before ammoniation was six percent and after treatment was 11 percent. The increase was due to nitrogen addition from anhydrous ammonia which is similar to nitrogen from urea. This demonstrates the importance of feeding natural protein (cottonseed meal, soybean meal, feather meal) to cattle with high nutrient requirements such as developing heifers. Another advantage of feeding ammoniated hay is that standard molasses at about \$75 per ton can be fed rather than a urea fortified molasses at about \$120 per ton. Calves fed ammoniated hay plus molasses plus cottonseed meal gained 1.67 pounds per day. Even though this research was conducted with steers, this feeding program (ammoniated hay plus standard molasses natural protein) can provide the level of performance necessary to develop a weaned heifer from 450 pounds to 650 pounds during the approximate six month period following weaning before she is exposed to a bull.

	Ammoniated hay alone	Ammoniated hay + molasses	Ammoniated hay + CSM	Ammoniated hay + molasses + CSM
Intake, Ibs. as-is				
Hay	14.4	10.0	13.4	12.2
Molasses	0	5.9	0	7.0
CSM	0	0	1.2	1.2
Daily gain, lbs.	.46	.77	1.03	1.67