Adding Fats to Liquid Supplements

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When we consider winter supplementation of cattle in Florida we immediately think 'crude protein' supplementation. We often fail to realize that Florida forages are quiet low in energy or digestibility (TDN) during the late fall and winter months. For example, bahiagrass pasture averages about 45% TDN from October through March. The TDN requirement for a lactating brood cow is around 57%, and a yearling heifer requires a diet containing around 62% TDN. This is why we recommend that brood cows be fed relatively liberal quantities of supplement from the time they calve in the fall or early winter until well into the breeding season. This recommendation is 5 lb/cow/day of a good molasses-based liquid feed or 4 lb/cow/day of a good dry concentrate feed when they are grazing bahiagrass and similar quality pasture forages.

Yearling heifers require an even greater quantity of TDN as supplement to bahiagrass forage because of their higher TDN requirement. This requirement is difficult to obtain using a liquid feed with a recommended daily intake of about 1% of a yearling heifer's body weight. A possible solution to this problem is the use of fat in the molasses mixture. Fat provides 2.25 times more energy than the same amount of carbohydrate (sugars and starches). A small amount of fat can significantly increase the TDN content of a liquid feed, and thus TDN intake by the animal.

Research was conducted on supplementing cattle with molasses containing added fat at the Everglades Experiment Station at Belle Glade in the late 1960's by Dr. Dan Beardsley. Yearling steers grazing St. Augustinegrass pasture and fed 3 lb/animal/day of molasses with 10% vegetable fat gained 16% faster than steers fed molasses without fat. This result showed that young growing cattle would respond to fat in molasses.

More recently, a series of two trials were completed at the Range Cattle Station in which 5% catfish oil was added to a molasses and feather meal slurry. Supplements were fed to yearling heifers grazing bahiagrass from weaning through a 60 day breeding season. Stargrass hay was fed from December through April. Heifers fed the slurry mix with fat gained .45 lb/day more than heifers fed the slurry mix without fat. When palpated in August heifers fed molasses and feather meal slurry with catfish oil had a 14 percentage point (50 vs. 64%) higher pregnancy rate than heifers supplemented with the same slurry mix without catfish oil.
Another series of 6 trials evaluated the use of 5 and 10% animal and vegetable fats as additives to a molasses-based slurry fed as a supplement to brood cows during the winter. Evaluations of means over all six trials showed that pregnancy rate of cows fed supplement with added fat was 83% compared to 80% for cows fed supplement with no fat. The average weaning weight of calves over all six trials was 453 pounds for the fat treatments and 446 pounds for the no fat treatment.

An overall measurement of cow productivity is a product of cow reproduction and calf weaning weight. Estimating cow productivity, using the average pregnancy rate and calf weaning weight data above, suggests that cows fed a molasses-based slurry containing 5 to 10% added fat will produce approximately 20 pounds more calf per cow than cows fed a similar supplement without added fat. With the current feeder calf market this would be a very economical response.

For questions or comments regarding this publication contact Findlay Pate