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Normal Fluctuations in Cow Body Weight and Body Condition Score

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A typical production cycle for a south Florida beef cow involves calving in late fall, rebreeding in early spring, and weaning in late summer. During this time, we expect a noticeable fluctuation in both body weight and body condition score. Body condition score is a subjective measure of the amount of fat on a cow and is the most reliable method for evaluating the nutritional assets available to that cow. Cows grazing pastures with inadequate forage availability or forage with low nutrient value will lose body condition if not provided with supplemental nutrients to meet their requirements. Body condition typically declines after calving, when the nutritional demands of the cow are at a maximum. It is during this time that supplemental nutrition is most needed. Data from University of Florida researchers have shown that cows with low body condition scores (= 4) have more than a 30% reduction in pregnancy rate.

As part of a 3-year nutrition study, we recently evaluated annual changes in cow body weight and body condition score (2002 to 2005). The results of this portion of the data illustrate normal fluctuations in cow body weight and body condition score and how these measurements vary among young and mature cows.

At the start of each production cycle (September), pregnant Braford cows (n = 168) were stratified by age and randomly allotted to one of 8, 20-acre bahiagrass pastures. All cows were provided a molasses supplement containing 16% crude protein achieved from added urea. Supplements were fed 3 times weekly (Monday, Wednesday, and Friday) at a rate to provide 5 lb per day for each animal. Supplementation began at the beginning of November of each year and ended during the month of April depending on spring rainfall and available pasture forage. Cows were exposed to mature Braford bulls over a 90 day breeding season (January - April). Calves were weaned during the first week of August.

Cow body weight and body condition score (1 to 9 scale; 1 = emaciated and 9 = obese)

was recorded at the start of the production cycle (September), at the end of winter supplementation (April), and at weaning (August). Cow pregnancy rate was determined by rectal palpation in July of each year. Calf body weight was recorded at the end of winter supplementation and again at weaning.

Results related to cow body weight, body condition score, and pregnancy rate are provided in the table below. As expected, cows lost body weight and body condition during the winter months following calving. This decline in body condition did not impact pregnancy rate in mature cows and should be expected as normal for productive commercial beef herds in south Florida. However, the same amount of body condition loss in young cows did appear to be accompanied by a lesser pregnancy rate compared to mature cows. These young cows were in their second and third lactation. They were not first calf heifers, which may have created a larger difference in reproductive performance. These data support the common management consideration supported by Ona faculty, which suggests that young cows should be managed separately from the mature cowherd to optimize the use of supplementation to achieve acceptable pregnancy results.

As expected, cows regained most of their lost body condition during the summer months as they continued further into their lactation curve and forage resources improved. Cow body weight and body condition continues to increase from the time of weaning to the start of the new production cycle (data not shown).

Cow body weight and body condition score throughout the annual production cycle (average of three consecutive production cycles).^a			
Item	Mature cows	Young cows	SEM^b
BW	----- lb -----		
Sept	1202	1093	12.1
April	1099	985	12.0
August	1176	1069	11.5
Winter change	-102	-109	6.7
Summer change	77	85	6.6
BCS^c			
Sept	6.0	5.9	0.10
April	5.0	4.8	0.10

August	5.8	5.5	0.11
Winter change	-1.0	-1.1	0.08
Summer change	0.8	0.7	0.07
Pregnancy rate, %	93.4	79.4	----
<p>^aSupplement treatments are a molasses-based feed containing urea (16% crude protein). Supplements were fed 3 times weekly at 11.7 lb/cow at each feeding. Supplements were provided from approximately November to April. Young cows are defined as all cows in their first and second lactation.</p>			
<p>^bSEM = standard error of the mean</p>			
<p>^cBCS = body condition score relative to a 0 to 9 scale, whereas 0 = emaciated and 9 = obese.</p>			