



Boosting precalving nutrition of beef cows in Florida
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Beef cattle production is constantly exposed to environmental and seasonal conditions that can lead to nutrient deficiency in pregnant beef females and young growing calves. **Long-term progeny growth and health may be modulated by pre-calving nutrition of cows and calf nutrition after birth.** Late gestation is one of the most critical periods for the formation of muscle and adipose tissues¹. In terms of health, nutrient restriction during late gestation reduced the vaccine response, increased the number of antibiotic treatment against bovine respiratory disease, and increased morbidity and mortality of beef calves^{2,3}. Recently, our previous study funded by the Florida Cattlemen Enhancement Board evaluated the impact of dry distillers grains (DDG) supplementation during the last 84 days of gestation of beef cows (2 lb/day) compared

to no precalving supplementation.

Calves born from cows that received supplementation with DDG for 84 days before calving were 28 lb heavier at 8 months of age than calves born from cows that did not receive pre-calving supplementation. Supplementation cost was \$26/cow, whereas additional income was \$36/cow. Hence, supplementing cows during the entire late gestation increased net return per cow by \$10. In another study from our group, a greater percentage of calves positively responded to vaccination against bovine respiratory disease (84% vs. 56%) if they were born from cows that received supplementation for 60 days before calving compared to calves born from non-supplemented cows⁴. These results highlight the importance of also accounting for the long-term impacts on calf performance before deciding which supplementation strategy should be offered to pregnant cows. **In this report, we will demonstrate an additional supplementation strategy that further increased calf pre-weaning**



performance and net return to our producers in Florida.

Ionophores (for example, Monensin) should be provided to young calves as a strategy to further increase their growth performance by changing physiological parameters and improving feed efficiency while controlling coccidiosis, as these calves are highly susceptible to this disease until 8 mo of age⁵. Our hypothesis was that calf pre-weaning growth would be further boosted by adding monensin into cow precalving supplementation. At approximately 70 days before calving, 160 pregnant Brangus multiparous cows were assigned to 1 of 16 bahiagrass pastures (10 cows/pasture) and provided: no precalving supplementation (NOSUP), or supplementation with 2.25 lb of DDG per cow daily added (SUP+MON) or not (SUP) with 200 mg of monensin per cow daily (Rumensin 90; Elanco Animal Health). After calving, all cow-calf pairs remained on their respective pastures and were offered molasses/urea supplementation until the end of the breeding season. Calves were weaned in July at approximately 8 to 9 months of age.

Table 1. Pregnancy rate (% of total cows) of cows provided: no precalving supplementation (NOSUP), or supplementation with 2.25 lb of DDG per cow daily added (SUP+MON) or not (SUP) with 200 mg of monensin per cow daily. ^{abc}*P* < 0.05

	NOSUP	SUP	SUP+MON	SEM	<i>P</i> -value
Pregnancy, % of total	82.1 ^a	94.9 ^b	92.1 ^b	5.16	0.08

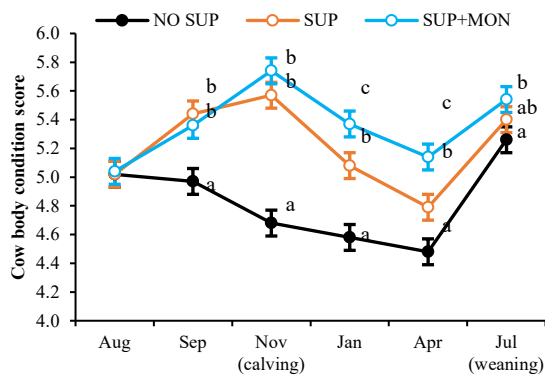


Figure 1. Body condition score of cows provided: no precalving supplementation (NOSUP), or supplementation with 2.25 lb of DDG per cow daily added (SUP+MON) or not (SUP) with 200 mg of monensin per cow daily. ^{abc}*P* < 0.05

Cow body condition score (BCS) at calving and start of the breeding season (Figure 1) were increased by precalving supplementation with DDG, which explains the greater pregnancy rates of SUP and

SUP+MON cows compared to cows that did not receive precalving supplementation (NOSUP; Table 1). In addition, precalving supplementation significantly boosted calf pre-weaning growth performance (Figure 2). Calves born from cows that received supplementation without monensin had similar birth body weight but were 28 lb heavier at weaning compared to calves born from cows that did not receive precalving supplementation (NOSUP). *These results confirmed previous data from our group demonstrating that a minimum investment on precalving supplementation can significantly boost cow BCS at calving and calf pre-weaning growth performance.*

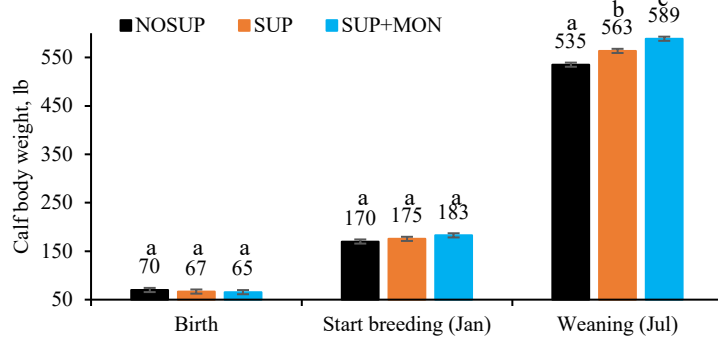


Figure 2. Body weight of calves born from cows provided: no precalving supplementation (NOSUP) or 2.25 lb of DDG per cow daily added (SUP+MON) or not (SUP) with 200 mg of monensin per cow daily. $abcP < 0.05$

Although the addition of monensin into the supplements did not increase cow BCS at at calving (Figure 1), cow BCS during

the breeding season was greatest for cows offered precalving supplementation added with monensin. This greater BCS was not sufficient to further increase cow pregnancy rate as cows offered monensin before calving had similar pregnancy rates compared to cows offered supplementation without monensin addition (SUP). However, calf body weight at weaning was significantly increased by adding monensin to cow precalving supplements. Calves born from cows offered precalving DDG with monensin were 54 lb heavier at weaning compared to calves born from cows offered no precalving supplement and 26 lb heavier compared to calves born from cows offered precalving supplementation without monensin (Figure 2). Monensin addition to supplements cost approximately 5 cents a day. Thus, with an additional total investment of \$3.5/cow, calf additional weaning body weight increased by 26 lb. We planned to repeat this study last year but due to COVID our research had to be postponed to 2021. We will seek additional funds to repeat this study but these preliminary data demonstrated that precalving nutrition of cows is an outstanding opportunity to increase net income of Florida beef cattle producers. *We are committed to develop additional nutritional strategies to further enhance the production of high-quality beef from Bos indicus-influenced cattle in Florida.*

References

- (1) Du et al., (2000) JAS 88:E51; (2) Larson (2009) JAS 87:1147; (3) Moriel (2016) JAS 94:2553
- (4) Moriel et al. (2019) Annual Meeting ASAS; July 9th, 2019; (5) Vendramini and Moriel (2018) Anim. Prod. Sci. 58:1399–1403.

Upcoming Events

Visit our calendar online to view all our upcoming events and their registration links:

April 13, 11:00 – 11:45 a.m., Ona Highlight featuring the South Florida Beef Forage Program (SFBFP). This highlight will feature guest presenters, Lauren Butler, County Extension Director/Livestock Agent II of Okeechobee County and Lindsey Wiggins, Multi-County Livestock Agent housed in Hendry County with the UF/IFAS Extension group. They will present, ‘South Florida Beef Forages Program Appetizer’ providing a brief summary of each of the programs they offer throughout the year.

Late April (date TBD), 1:00 – 2:00 PM, Become a Bluebird Watcher! Session 6 (webinar): Nest box check and the role of birds in rangeland systems.

June 29, 9:00 a.m. – 12:00 p.m., Youth Field Day. This event will be held at the Center for kids ages 8 to 18, their parents, and youth leaders. Save the date and watch for details coming soon! A virtual option will be offered on 7/6.

UF/IFAS Range Cattle REC - 3401 Experiment Station Rd., Ona - <http://rcrec-ona.ifas.ufl.edu/>