

THE EFFECT OF MATERNAL NUTRIENT RESTRICTION AND HIDROXITIROSOLO SUPPLEMENTATION IN LATE PREGNANCY ON BEEF COW-CALF BONDING BEHAVIORS

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Prepartum nutrition may affect maternal-young bonding through physiological and behavioral adaptations. This study evaluated the effects of prepartum maternal nutrition and hydroxytyrosol (HT) supplementation (a proven antioxidant compound) on beef cow-calf behavior during the last trimester of pregnancy. Forty-eight pairs from Parada de Montaña (n=25) and Pirenaica (n=23) breeds at 29±6.5 days postpartum were observed during afternoon nursing regrouping (15:00 h) after seven h of separation without fence contact (25 m apart). The prepartum cows received 100% or 60% of their energy requirements and 0 or 190 mg HT/kg of diet. The postpartum cows were loose-housed with a diet meeting 100% of their energy requirements but in separate pens depending on previous prepartum treatment (12 cows per pen, half of each breed). Each recording day, six observers controlled one cow-calf pair. The variables registered were 1) time from doors opening until rejoining and 2) the occurrence of maternal behaviors during the minute just after bonding. Most cows nursed their calves within the first 5 min after recoupling (89.6%, 43/48), regardless of the evaluated effects. The time until recoupling was not affected by prepartum feeding, HT supplementation, breed, or calf sex (0.18±0.071 log-min or 1.51 min, P>0.10). However, the cows that showed prepartum maternal tongue rolling occurrence (16.6%, 8/48) showed a longer time to meet their calves (0.35±0.14 vs. 0.01±0.06 log-min, or 2.24 vs. 1.02 min, P<0.05). Likewise, more Parada de Montaña cow-calf pairs took >2 min to rejoin than their Pirenaica counterparts (36.0%, 9/25 vs. 8.7%, 2/23, P<0.05). The proportion of calves moving their tail while suckling was similar between groups (75.0%, 36/48, P>0.10). The proportion of cows and calves vocalizing while recoupling did not differ across groups (31.3%, 15/48 in the case of cows and 10.4%, 5/48 in the case of calves, P>0.10). There were no differences across groups in the proportion of calves that attempted to suckle foster cows either (35.4%, 17/48, P>0.10). However, more undernourished cows during the prepartum licked their calves during nursing (25.0% or 6/24 vs. 66.7% or 16/24 in 100% and 60%, respectively), but any other effect influenced allogrooming activity (P>0.05). The proportion of cows sniffing their calf around nursing did not differ across groups (47.9%, 23/48, P>0.10). In conclusion, prepartum feeding level and antioxidant supplementation did not affect cow-calf bonding behaviors. However, a higher proportion of undernourished cows during the prepartum groomed their offspring during nursing.

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INTRODUCTION

Prepartum nutrition may affect maternal-young bonding through physiological and behavioral adaptations.



OBJECTIVE

To assess the effects of maternal nutrition before calving and hydroxytyrosol (HT) supplementation (a proven antioxidant compound) during the last trimester of pregnancy on cow and calf performance.

MATERIAL AND METHODS

48 pairs from Parda de Montaña (n=25) and Pirenaica (n=23).
At 29-36 days postpartum they were observed during afternoon nursing regrouping (15:00 h) after 7 h of separation without fence contact (25 m apart).
The prepartum cows received 100% or 60% of their energy requirements and 0 or 190 mg HT/kg of diet. The postpartum cows were loose-housed with a diet meeting 100% of their energy requirements.



RESULTS

Variables	Significant effect	Frequencies
Cows nursed their calves within the first 5 min after recoupling	None	89.6%, (43/48)
The time until recoupling	None	1.51 min
Cows that showed tongue rolling occurrence (16,6%) showed a longer time to meet their calves	Time	2.24 vs. 1.02 min
Parda de Montaña cow-calf pairs took >2 min to rejoin than their Pirenaica counterparts	Time	36.0%, (9/25) vs. 8.7%, (2/23)
Calves moving their tail while suckling	None	75.0% (36/48)
Cows and calves vocalizing while recoupling	None	31.3% (15/48) cows 10.4% (5/48) calves
Undernourished cows during the prepartum licked their calves during nursing	Behavior	25.0% (6/24) vs. 66.7% (16/24) (100% and 60%)
Differences across groups in the proportion of calves that attempted to suckle foster cows either	Behavior	35.4% (17/48)
Proportion of cows sniffing their calf around nursing	None	47.9% (23/48)

CONCLUSIONS

Prepartum feeding level and antioxidant supplementation did not affect cow-calf bonding behaviors. However, a higher proportion of undernourished cows during the prepartum groomed their offspring during nursing.

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