The objective of this study was to evaluate the effect of different nutritional strategies at backgrounding of Nellore calves during the dry-to-rainy season transition on the feeding behavior in the rainy season. A total of 120 Nellore calves (173 ± 23 kg; 9 months) were distributed in a randomized block design (blocked by initial body weight [BW]) with a 2 x 2 factorial arrangement of treatments, consisting of the nutritional strategy during the dry-to-rainy season transition (pasture vs. feedlot) and supplementation strategies in rainy season (mineral salt vs. supplementation at 3 g kg⁻¹ BW). Factor 1 corresponded to backgrounding in the dry-to-rainy season transition (63 days), in which 60 animals remained grazing in 6 paddocks (10 animals per paddock) and 60 animals were allocated in 6 pens (10 animals per pen). Feedlot diet was formulated for gains of 0.700 kg day⁻¹, 77% roughage and 23% concentrate. Animals kept on pasture received the same amount and concentrate fed in feedlot (5 g kg⁻¹ BW of protein-energy supplement). Factor 2 corresponded to backgrounding during the rainy season (168 days). At this phase, the animals were kept under continuous stocking with variable stocking rate receiving mineral salt ad libitum or protein-energy supplementation at 3 g kg⁻¹ BW. The feeding behavior (grazing, supplement intake, rest and rest around the trough) was evaluated for 24 hours on the fifth day of the first period in rainy season. These activities were evaluated every ten minutes by trained observers. The differences among the treatments were determined using the t test, considering 5% significance and trend was discussed (10%). All data were analyzed using the PROC MIXED of SAS, considering the pen/paddock as an experimental unit. There was a trend of interaction between factors on rest around the trough (P=0.09), in which animals that came from the feedlot and received supplementation spent 62.1 minutes, those from the feedlot receiving mineral salt spent 24.9 minutes, animals kept on pasture receiving supplement spent 30.4 minutes and those kept on pasture receiving mineral salt spent 17.7 minutes. There was no statistical difference for times in grazing (P=0.64), supplement intake (P=0.34) and rest (P=0.80) between factors. On average, calves spent 506 minutes grazing, 36.5 minutes consuming supplement and 855 minutes resting. Nutritional strategies at backgrounding during the
dry-to-rainy season transition do not influence the grazing time in the subsequent phase, but it influences the time in rest around the trough.

**Keywords:** backgrounding, feedlot of calves, grazing, rest, Nellore.