

Factors Affecting the Recurrence of Diarrhea in Purebred Sindi and ½ Sindi ½ Montbéliard Calves

F. L. Rodrigues^{1,2}, C. F. Martins², J. C. Melo^{2,3}, A. Q. Mesquita², I. C. Ferreira²

¹ ICESP, Águas Claras, 71.961-540 Brasília, Brazil, ² Embrapa Cerrados, CTZL, Recanto das Emas, 72668-900 DF, Brazil, ³ UnB, FAV, Asa Norte, 70910-900 Brasília, Brazil

Diarrhea represents a serious challenge in calf rearing, as it generates morbidity and mortality in young animals, and its recurrence—defined as the occurrence of diarrhea in the same animal two or more times—is frequently observed during the cow–calf phase. In this context, resistance to disease is an important trait for selecting animals with greater hardiness and adaptability. This study, conducted at the Brazilian Agricultural Research Corporation (Embrapa), Cerrados unit – CTZL, aimed to identify factors that influence the recurrence of diarrhea in purebred Sindi calves and ½ Sindi ½ Montbéliard calves. Recurrence in 114 observations was analyzed as a binary variable (presence/absence) using a generalized linear model with binomial distribution and logistic link, including the following fixed effects: calf breed (Sindi and ½ Sindi ½ Montbéliard), season of birth (rainy or dry), dam genetic group (Sindi, crossbred, or Gir), sex, and the interaction between calf breed and season of birth. The random effect of the animal was included to account for repeated measures within individuals. Adjusted means (LSMeans) and differences between categories were estimated, with multiple-comparison adjustments performed using the Tukey–Kramer method. The results indicated that all evaluated factors significantly affected the probability of diarrhea recurrence ($p < 0.01$). The breed \times season interaction was highly significant ($p < 0.0001$): ½ Sindi ½ Montbéliard calves born during the rainy season showed the highest probability of recurrence (LSMean = 1), whereas pure Sindi calves born during the dry season showed the lowest (LSMean = 0). This extreme difference was confirmed by the Tukey–Kramer contrast analysis ($p < 0.0001$), demonstrating that the effect of calf breed depends on the season of birth. These findings suggest that both genetic and environmental factors influence diarrhea recurrence, highlighting the importance of implementing management strategies tailored to each risk group, especially during the rainy season. Acknowledgment: FAP-DF, CNPq, and the AgroIntegra Innovation Program.

Session 3

Poster 39

Incidence of Diarrhea in Purebred Sindi and ½ Sindi ½ Montbéliard Calves

F. L. Rodrigues^{1,3}, J. C. Melo^{2,3}, S. A. S. oliveira⁴, A. Q. Mesquita³, C. F. Martins³, I. C. Ferreira³

¹ ICESP, Águas Claras, 71.961-540 Brasília, Brazil, ² UnB, FAV, Asa Norte, 70.910-900 Brasília, Brazil, ³ Embrapa Cerrados, CTZL, Recanto das Emas, 72668-900 DF, Brazil, ⁴ UFU, Uberaba, 38.408-100 MG, Brazil

Diarrhea is a major health challenge in livestock, causing economic and productivity losses during the cow–calf phase. Because it is a multifactorial condition, the evaluation of genetic, environmental, and management components is crucial for identifying more resistant animals and supporting selection programs. This study aimed to assess the incidence of diarrhea in Purebred Sindi and ½ Sindi ½ Montbéliard calves and to identify factors influencing disease risk. The study was carried out at Embrapa Cerrados (CTZL) with 88 calves (59 Purebred Sindi and 29 crossbred ½ Sindi ½ Montbéliard). Diarrhea incidence (binary: 1 = presence, 0 = absence) was analyzed using a binary logistic regression model (PROC LOGISTIC, SAS) with Fisher's scoring. Fixed effects included calf breed, season of birth, calf sex, and dam/recipient breed. The Likelihood Ratio, Score, and Wald tests indicated that, overall, the factors included were not statistically significant ($p > 0.10$). However, Type 3 Wald Chi-Square revealed a significant effect of dam breed on diarrhea probability (estimate = 0.76; $p = 0.0411$). Other variables showed no meaningful influence. Odds ratios confirmed this result: calves from crossbred dams were about 4.5 times more likely to develop diarrhea than those from Sindi dams (95% CI: 1.013–21.392). Model discrimination was moderate ($c = 0.678$; 64.4% concordance), suggesting that additional aspects—such as colostrum quality, hygiene, or nutritional stress—may also contribute to disease occurrence. Dam breed thus appears to be a relevant risk factor in this herd. Implementing targeted management strategies for crossbred dams and their calves may help reduce susceptibility and improve health during the early rearing phase. Acknowledgment: FAP-DF, CNPq, and the AgroIntegra Innovation Program.