Animal Reproduction

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The first lactation milk performance is higher in offspring delivered from beef recipients than in offspring delivered from lactating Holstein recipients

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Resumo

The objective was to evaluate the effect of lactating Holstein recipient (milk; Bos taurus; 33.0 kg/cow/day) or non-lactating crossbred beef recipient (beef; with a predominance of Zebu breeds; Bos indicus) on first lactation milk production of Holstein offspring generated after the transfer of an in vitro embryo. The study was carried out at Fazenda Santa Rita (Agrindus) in Descalvado, São Paulo, Brazil. The lactating Holstein recipients were kept in sheds with sand-bedded freestall, with adequate ventilation and sprinklers in the trough line during pregnancy. Crossbreed beef recipients were kept on pasture with protein supplementation and water ad libitum during pregnancy. In the statistical model the fixed factors were the breed of the recipient (milk = 483; beef = 472) and the year of birth of the calves (2013 to 2019), as well as the interactions breed recipient*year. The random factors were adjusted milk production for 305 days (MP305) and peak milk production (PMP) in the first lactation of offspring. The Holstein offspring (according to the recipient group) was used as experimental unit and the donor (dam) and bull (father) was used as co-variable. At the moment of the calving, all progenies have the same breeding system until the first lactation. All analyzes were performed using the Statistical Analysis System software (SAS, Version 9.4 for Windows; SAS Inst., Cary, NC) and examined for outliers and missing values using statistics descriptive and box-plot graphics. There was no interaction (P = 0.22) recipient*year for MP305, however there was an increase (P = 0.04) in MP305 for offspring delivered from beef recipients [milk: 10,014.46±168.89kg (199/483); beef: 10,617.40±96.51kg (322/472). Furthermore, there was interaction recipient*year for PMP (P=0.01). Observed that in most years the offspring delivered from beef recipients has higher PMP, between the years 2014 to 2019. Thus, just 2013 offspring delivered from milk recipients has higher PMP. Recent studies report that the epigenetic effect during pregnancy affects the performance of milk production in dairy cattle. The data from the present study support the increase in adjusted milk production for 305 days in the first lactation for Holsteins offspring delivered from beef recipients than Holstein offspring delivered from milk recipients. However, further studies are needed to clarify the effects of breed and management of embryo recipients on potential long-term consequences on offspring performance.