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Oocyte quality in post-partum of 3/4 and 7/8 Holstein x Zebu primiparous crossbred cows

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Crossbred Holstein x Zebu cows are the basis of milk production in Brazil, representing about 75% of the milked cows. In post-partum these cows undergo a period of negative energy balance (NEB), as it occurs in Holstein cows, which causes delay in the return to ovarian activity, associated with decreased oocyte quality. The present study aimed to evaluate oocyte quality in first 57 days post-partum in crossbred cows. Holstein x Zebu primiparous cows 3/4 crossbred (n=13) and 7/8 crossbred (n=14) were used, which were fed a corn silage and concentrate based diet. Ovum pick-ups (OPU) were performed, in average, on 16, 32, 43 and 57 days post-partum, after follicular wave synchronization by puncture of follicles larger than 6 mm, 72 hours before OPU. Oocytes recovered in PBS medium (supplemented with 0.05% fetal calf serum and 20 IU/mL heparin) were classified as viable (grades I, II and III) or not viable and used for *in vitro* embryo production. The variables oocyte total number, viable oocytes and not viable oocytes were analyzed by ANOVA (PROC GLM), while oocyte rate was evaluated by logistic regression (PROC LOGISTIC). In both cases the effects of cross, post-partum days and their interaction were considered. Analyses were performed using SAS software, v.9.2. Crossbred 3/4 cows produced less ($P < 0.05$) total oocytes, viable and not viable oocytes than the crossbred 7/8 cows, that were respectively, 3.52 ± 0.39 , 2.44 ± 0.30 and 1.06 ± 0.20 in 3/4 crossbred cows, and 8.43 ± 0.94 , 6.48 ± 0.79 and 1.93 ± 0.27 in 7/8 crossbred cows. In contrast, there was no effect ($P > 0.05$) of post-partum day on the rate of viable oocytes, which was 74.89% (516/689). Also there was no effect ($P > 0.05$) of post-partum day on oocyte production. On average, 4.89 ± 0.87 , 4.36 ± 0.82 , 4.36 ± 0.86 and 4.82 ± 1.28 viable oocytes were produced after 16, 32, 43 and 57 days postpartum, respectively. No interaction between the cross and the post-partum days was detected. The lack of influence of days post-partum on the production of oocytes suggests a similar energy balance pattern between groups, which possibly indicates that differences observed between the cows groups is probably due more to individual variation of donors used than to a difference in the cross itself. The lower milk production of crossbred cows compared to Holstein cows, suggests that the intensity and duration of negative energy balance are reduced in crossbred animals, so that during early post-partum (57 days) variation in production and oocyte viability was not observed. However, further studies using a larger number of animals are necessary to establish the relationship between energy balance and oocyte quality in crossbred cows.