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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

BREED AND HETEROSIS EFFECTS IN COMPONENTS OF LACTATION CURVE OF GIROLANDO COWS

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Considering the importance of breed and components of the lactation curve for the Brazilian productive systems, it is fundamental to verify the effect of heterosis on the these components of the animals belonging to the several genetic groups of the Girolando breed. The objective of this study was to estimate the effects od breed and heterosis on test day milk yield (MY), 305-day milk yield (MY_{305}), lactation length (LL) and other components of lactation curve of Girolando cattle. Data consisted of 258,891 test-day milk yield records from the first lactation of Holstein (H), Gyr (G), and their crossbreedings (Holstein x Gyr), which were collected from 1221 dairy herds in the period between 1998 and 2014. Besides pure breeds, six crossbreedings (1/2H, 1/4H, 3/4H, 3/8H, 5/8H e 7/8H), of the Girolando cattle were used for the analyzes. The original dataset comprised MY, MY_{305} and LL records. Individual MY data were used to obtain the peak yield (PY) and time to peak (PT) of the lactations of each animal. Then Wood's and Wilmink's model were adjusted for estimating MY305 (MY_{305WD} and MY_{305WL}), peak yield (PY_{WD} and PY_{WL}), time to peak (PT_{WD} and PT_{WL}) and persistency (P_{WD} and P_{WL}), respectively. The breed effects were significant ($P<0.01$) for most traits and components of the lactation curve, except for PT_{WD}, P_{WD} and P_{WL}. The effects of breed were +8.67 kg (MY), +9.52 kg (PY), and +15.60 day (PT) larger for H than those in G cows. The heterosis effect was significant ($P<0.001$) for most of the traits, except LL, PT, PT_{WD}, P_{WD} and P_{WL}. The highest heterosis effects were observed for MY_{305} (897.69 kg), MY_{305WD} (877.41 kg) and MY_{305WL} (856.84 kg). The PY obtained from dataset and models presented values of heterosis of 3.60 ± 0.53 kg (PY), 4.43 ± 0.61 kg (PY_{WD}), and 3.44 ± 0.60 kg (PY_{WL}). The several genetic groups of Girolando showed heterosis effect for the test day milk yield and 305-day milk yield. Among the components of the lactation curve, the peak yield was the most associated with 305-day milk yield, which was reflected in the heterosis effect of those traits.

Keywords: crossbreeding, dairy cows, peak yield, persistency and time to peak