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EVALUATION OF MILK YIELD TRAITS OF HOLSTEIN X JERSEY CROSSES

AVALIAÇÃO DE CARACTERÍSTICAS PRODUTIVAS E DE QUALIDADE DO LEITE EM VACAS DO CRUZAMENTO HOLANDÊS X JERSEY

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The crossbreeding practice between specialized dairy breeds is an usual method for dairy producers and recently the Holstein x Jersey crosses has continuously increased in some regions of Brazil. Motivating factors of this practice include an interest in improving the milk solids content, somatic cell count (SCC), fertility, longevity and calving ease, in addition to reduce the problems of consanguinity. The aim of this paper was to evaluate the milk components and milk yield of Holstein x Jersey crosses. Data set comprised 59,331 monthly records of 6,429 pure Holstein (H) and Jersey (J) and ½ H x ½ J crossed cows calving from 1992 to 2010. The traits analyzed were test-day milk yields (MT), somatic cell score (SCS) and percentages of fat (%F) and protein (%P). Since the SCC is not normal distributed it was converted to a logarithmic scale in SCS, using the following equation, SCS = log2 (SCC/100) + 3. The variables MT, SCS, %F and %P were analyzed as dependent variables by least square method using GLM procedure. There were considered linear models containing the effects of breed (H, J and ½ H x ½ J or F1), herd, year and month of test as classificatory variables. Age at calving (AC) and days in milk (DM) were included as covariates (linear and quadratic effects) for all traits. The test-day milk yield was included as covariate for SCS model, %F and %P. All variables included in the model showed significant effects for MT, SCS, %F and %P. The estimated least square means for milk yield (19.13 H; 16.27 JH and 13.39 J) showed statistically significant differences for the different genetic groups. The Holstein breed had higher test-day milk yields in comparison to Jersey breed that was an expected result since the frame of Holstein breed is greater and the selection has been practiced more intensively for production in this breed. When compared to F1 cows and Jersey, the mean of crossbreed animals was higher due to heterosis and due to difference of additive effects between Holstein and Jersey breeds. There was also a statistically significant difference in fat (3.42 H; 3.71 JH; 4.42 J) and protein (3.12 H; 3.25 JH; 3.49 J) percentages test-days for the different genetic groups. The Jersey breed had the highest estimated means for constituents due to the lower production levels, so there is a greater concentration of total solid contents and also due to selection emphasizing these traits. The SCS mean (3.36 H; 3.31 HJ; 2.78 J) was not statistically different between H and HJ genetic groups. It was expected that heterosis in F1 could have an important effect to decrease SCS. In this study we can observe that the crossbreeding between Holstein and Jersey breeds can bring benefits to the producer, mainly to the increase of milk solids content.

Key words: milk solids content, milk yield, somatic cell score