

GENETIC TREND FOR LACTATION PERSISTENCY IN GYR COWS

TENDÊNCIA GENÉTICA PARA PERSISTÊNCIA DA LACTAÇÃO EM VACAS GIR LEITEIRO

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Persistency can be defined as the degree to which production is maintained after peak yield is reached. In Gyr cattle, persistency is an obstacle in milk production and profitability. So, persistency is an important trait that must be evaluated with total milk production in Brazilian Gyr cattle. The objective of this study was to calculate genetic tendency for persistency, accumulated 305-day milk yield and partial milk yields in first 100, 200 and 300 days in milk of Brazilian Gyr cows using breeding values predicted (EBV) by random regression models. Data was obtained from ABCZ and included 15052 first lactations from cows with calving year ranged from 1980 to 2006. Fixed effects was contemporary group (milking herd, year and season of milk control) and the days in milk were modeled using Legendre polynomials of order 4 for additive genetic and permanent environmental random effects and a heterogeneous residual variance structure using four classes. To estimate breeding values for 305-day milk yield, the daily EBV were added. To calculate the EBVs for partial periods was made the sum of EBVs daily in the first 100 days (P100), between 100 and 200 days (P200) and between 200 and 300 days (P300) in lactation. Persistency was obtained by the sum of the deviations of EBVs predicted between 30 and 270 days of production in relation to EBV predicted for peak production. The EBV for peak production was calculated using the average EBVs between days 30 and 60 of lactation. The regression for genetic trend lactation persistency, milk yield accumulated 305-day milk yield and for partial production was calculated by PROC REG of the SAS statistical package, using year of birth as independent variable. Genetic trend for persistency was positive, with a linear regression coefficient of 0.75 kg/year. For EBV305, the annual gain was 19.26 kg of milk/year. For partial productions, annual gains were positive, in 6.30, 7.07 and 5.62 kg per year, respectively, for P100, P200 and P300. Correlations between EBVs for accumulated yield in different periods of lactation were positive and high (Table 1). The correlations between persistency and accumulated yield were positive and small in magnitude, getting higher in the final third of lactation, as desired. The analysis show that, over 26 years, the Gyr breed got genetic gain for milk yield, for lactation persistency and effectively higher for P305. The selection for persistency in Gyr breed should be more intensively applied simultaneously to the selection for milk production in order to provide a better economic profitability.

Table 1. Simple correlations between predicted breeding values

| | Persistency | P 305 | P 100 | P 200 | P 300 |
|-------------|-------------|-------|-------|-------|-------|
| Persistency | 1 | 0.322 | 0.099 | 0.353 | 0.491 |
| P 305 | 0.322 | 1 | 0.974 | 0.998 | 0.980 |
| P 100 | 0.099 | 0.974 | 1 | 0.965 | 0.912 |
| P 200 | 0.353 | 0.998 | 0.965 | 1 | 0.981 |
| P 300 | 0.491 | 0.980 | 0.912 | 0.981 | 1 |

Keywords: milk yield, peak.

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