

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

LACTATION CURVES IN HOLSTEIN COWS IN THE PARANÁ STATE REGIONS

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The objective of this study was to estimate lactation curves of Holstein cows in the regions of the state of Paraná (Western Center, Eastern Center, South Center, Metropolitan, Central North, Pioneer North, West and Southwest). The data analyzed came from the Associação Paranaense de Criadores de Bovinos da Raça Holandesa (APCBRH) based in Curitiba, PR, for the years 2010 to 2017. The lactation curves were estimated according to the order of lactation (1st, 2nd and 3) and with the daily milk production at the first 305 days of lactation. The consistency of the data was based on the exclusion of herds with less than 10 animals, short lactations (below 70 days) and cow's age at calving (below 600 days and above 2500 days). For the adjustment of the lactation curves, the Wood model ($Y = (A \cdot DL^B) \cdot (\exp^{-C \cdot DL})$) was used, in which Y represents daily milk production; A, B and C are parameters estimated by the NLIN procedure of the SAS software, using the Gauss-Newton method, the "exp" is the exponential and DL is the time period (in days) after the birth in which the production was measured of milk. Milk yield at the peak of lactation was later in cows from the central North region, producing an average of 20,9; 25,1 and 26 liters of milk by day, respectively, 1st, 2nd and 3rd lactation. It has been found that the increase of the lactation order simultaneously increases production. The first lactation cows of the Eastern Central region were earlier to reach the peak (90 days), and in the 2nd and 3rd lactation the cows from the Metropolitan region showed to be earlier, reaching 57 and 56 days respectively after calving. As the order of calving increases, the day decreases for the cow to reach its peak. On the other hand, the cows of the Eastern Central region were more persistent in the 1st and 2nd lactation and those of the Metropolitan region in the 3rd lactation, since their curves presented a smaller decline in relation to the others. Therefore, the estimated lactations curves indicated that there are important differences among Holsteins from the different regions of the Paraná state. These results probably are mainly associated to environmental differences among the regions, thus these differences must be accounted for breeding programs.

Keywords: Dairy cattle, Mathematical models, Milk production

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