

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## ESTIMATION OF LACTATION CURVES FOR HOLSTEIN COWS IN PARANÁ STATE

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The objective of this study was to estimate lactation curves for Holstein cow herds in the state of Paraná. The information's analyzed came from 2010 to 2017 lactations controlled by Associação Paranaense de Criadores de Bovinos da Raça Holandesa (APCBRH) based in Curitiba - PR. The lactation curves were estimated according to the calving order and the daily milk production during the first 305 days of lactation, three orders of calving were adopted: (1st) first (2nd) second and (3rd) third lactation. The consistency of the data was based on the exclusion of herds with less than 10 animals, short lactation (less than 70 days) and cow's age at calving (below 600 days and above 2500 days). After sorting, there were 202,199 reports from 25,353 cows in the first lactation, 152,897 information's from 19,433 cows in the second lactation and 98,712 information's from 12,861 animals in the third lactation in this study. In order to adjust the lactation curves, the Wood model ( $Y = (A \cdot DL^B) \cdot (\exp^{-C \cdot DL})$ ) was employed using the NLIN procedure of the SAS software using the Gauss-Newton method, in which Y represents daily milk production; A, B and C are estimated parameters, exponential "exp" and DL is the time period (in days) after calving in which milk production was measured. The lactation curves estimated in this study presented the three distinct phases, in the first phase occurred the increase of milk production until reaching the peak of lactation, second stage, production remained at the peak of lactation for a short period, and in the third stage the milk production began to fall until reaching the dry period of the animals. In this study cows from the state of Paraná of 1st lactation had lower production at the peak (30,6 kg) presented a later peak of lactation (88 days) in comparison with second and third lactation cows, respectively, obtained production at the peak of 36,5 and 38,2 kg, reaching the peak at 54 and 51 days. In turn, they presented greater persistence (3,17), in relation to second (2,93) and third lactation (2,90) cows, showing that cows from the first lactation had a smaller decline in their curve. Therefore, the estimated lactation curves in the state of Paraná indicate that it is an important tool for producers to correct faults in herd management. These results contribute to producers' decision making, with the purpose of increasing production and achieving desirable results.

**Keywords:** Dairy cattle, Lactation peak, Persistence

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