FACTORS AFFECTING THE REPRODUCTIVE TRAITS OF HOLSTEIN COWS

FATORES QUE AFETAM AS CARACTERÍSTICAS REPRODUTIVAS DE VACAS DA RAÇA HOLANDESA

Daniella Flavia Vilas Boas[1], Elisa Junqueira Oliveira[2], Diego Augusto Campos da Cruz[1], Suelen Corrêa da Silva[1], Tássia Sant'Ana Samóra[1], Patrícia Seixas Pires[3], Lenira El Faro[4]

[1]Pós-Graduação em Produção Animal Sustentável, Instituto de Zootecnia (IZ), Agência Paulista de Tecnologia dos Agronegócios (APTA), Secretaria de Agricultura e Abastecimento do Estado de São Paulo (SAA), Rua Heitor Penteado, 56, Centro, CEP 13460-000, Nova Odessa, SP, Brasil. E-mail: daniellaflavia@hotmail.com
[2]Universidade de São Paulo (USP). Avenida Bandeirantes, 3900, CEP 14040-900, Ribeirão Preto, SP, Brasil.
[3]Universidade Estadual Paulista "Julio de Mesquita Filho" (UNESP)- Câmpus Jaboticabal, Via de Acesso Prof. Paulo Donato Castellane, s/n, CEP 14884-900, Jaboticabal, SP, Brasil.
[4]Polo Regional de Desenvolvimento Tecnológico do Centro Leste (PRDTA – Centro Leste), APTA, SAA, Ribeirão Preto, SP, Brasil.

For dairy cattle breeds, mainly the taurine ones, the selection emphasized for many years the increase in milk yields and, as a consequence, the adaptive and reproductive traits were negatively affected. The aim of this study was to verify the influence of genetic and environmental effects on the reproductive traits in a dairy herd selected for high milk production levels. The data set comprised 1,737 first lactations Holsteins cows of Agrindus Farm, located at Southeastern region of Brazil. The records of the following reproductive traits: calving to first heat interval (CFHI), calving to conception interval (CCI) and first to second calving interval (FCI) were analyzed as dependent variables by least squares method using GLM procedure (SAS). Linear models were considered including two production levels (1= less than 9,500 kg and 2= more than 9,501 kg of total milk yield), contemporary group (year and months calving), management group, sire of cow, and the sire used to breeding cows, as classificatory variables. As covariates were included for all traits the peak milk yield in lactation (linear effect), age at calving only for CFHI (linear and quadratic effects) since this effect was not significant for other traits, and CFHI (linear effect) only for FCI. The coefficients of determination represented 24%, 74% and 75%, respectively for CFHI, FCI and CCI models. Production level, peak milk yield and sire effects were significant ($P<0.05$) for all traits. The average estimated for high and low milk production level were 73 and 79 days, 500 and 601 days, 227 and 330 days for CFHI, FCI and CCI, respectively, suggesting that cows with higher genetic potential for milk had worse reproductive performance. Similarly, lactation peak showed significant effect ($P<0.05$) for all traits, suggesting higher peaks cows showed also poorer reproductive rates. Sire effect also was a variable that showed significant effect ($P<0.01$) for all traits, which means that there was additive genetic variability transmitted from one to the other generation. The bull used to mate cows by artificial insemination or by controlled mating and the contemporary group had a significant effect ($P<0.01$) for FCI and CCI. Bull effect can be explained by semen quality and this effect showed an important variation source in the model and may help the farm to identify causes of reproductive problems. The important genetic association between production and reproduction traits in dairy cattle justifies to include reproductive traits in the breeding goals of dairy cattle breeding programs. There was an important effect of genetic potential of cows to produce milk for IPPC, causing the higher intervals, represented by sire and production level effects on this trait. Although the cow had shown estrus, the conception occurred late.

Key words: calving interval, milk yield, production level.