

Reproductive performance traits of Holstein Friesian cows on large-scale farms in Vietnam

Vu Ngoc Hieu^{1,2*}, Dao Duc Tha²

¹Department of Animal Reproductive and Behavior, National Institute of Animal Science (NIAS), Thuy Phuong, Tu Liem, Hanoi, Vietnam

²International Master Program. Agricultural Science and Resource Management in the Tropics and Subtropics (ARTS). University of Bonn, Nussallee 1, 53115 Bonn, Germany.

Authors:

Vu Ngoc Hieu: vungochieu@yahoo.com
Dao Duc Tha: bacsitha@yahoo.com

Abstract

The Holstein Friesian (HF) cow is one of the most common breed in the world. Their reproductive potentials are excellent in temperate countries. In Vietnam, milk production is relatively low compared to many tropical countries. Therefore, the Vietnamese government has imported large number of HF cows from Australia, and USA to improve the local milk production.

The objective of the present study is to evaluate reproductive performance traits of HF cows in Vietnam. The study was based on the analyses of 3242 HF cows between 2000 and 2009, including imported and farm born (breed groups). The performance of these cows was tested in covering the parameters like age at first service (AFS), age at first calving (AFC), service period (SP), gestation period (GP), calving interval (CI), dry period (DP), and number of service per conception (NSC). The statistical model comprises the fixed effects of breed group, season, parity and random effect of sire using Mixed Procedure of SAS 9.2. Covariance components were estimated through the restricted maximum likelihood (REML) procedure.

The overall least squares means for AFS, AFC, SP, GP, CI, DP, and NSC were 663, 943.9, 125.7, 274.3, 429, 99.4 days and 1.54, respectively. The reproductive performance traits of farm born cows were significantly shorter than imported HF cows. These differences could be explained by various genetic and physiological factors. However, the superiority of the farm born cows indicates the high adaptability of the HF breed also under tropical conditions. The main effects of season and parity were significant. Along with the main effects, the interactions between breed groups with seasons and parity were also significant but the farm born cows showed shorter reproductive performance traits than imported cows in each season and parity. The pooled estimates of heritability for the investigated reproduction traits ranged from 0.01 to 0.39.

In conclusion, these results demonstrated that farm born cattle in general performed better than imported HF on reproductive traits and that the dairy HF cows were adapted to the feeding and management systems as well as the environmental conditions in Vietnam.

Keywords: HF cows, reproductive traits, breed group, season of calving, parity.

*Corresponding author: Vu Ngoc Hieu; Department of Animal Reproductive and Behavior; National Institute of Animal Science (NIAS); Thuy Phuong, Tu Liem, Hanoi, Vietnam; e-mail: vungochieu@yahoo.com