CORRELATION ESTIMATES BETWEEN SOME PERFORMANCE TRAITS OF HOLSTEIN FRIESIAN CATTLE

Asad Ulla, Hubdar Ali Kaleri, Rameez Raja Kaleri*, Asma Kaleri, Mushtq Ahmed Jalbani, Azhar Hussain Kaleri, Ali Ghulam Bugti and Abdul Karim

Department of Animal Breeding and Genetics, Sindh Agriculture University, Tandojam

Corresponding author: E-mail: rameezkaleri@gmail.com

ABSTRACT : *In this way the estimation of correlation between some performance traits of Holstein Friesian cattle at Government dairy farm, Pishin, Baluchistan. The data about some performance traits including (BW) birth weight, (MY) milk yield and (LL) lactation length was collected for the period of 2004 to 2013. It was found that higher birth weight was observed in 5th lactation length followed by 4th and 3rd lactation, while the lowest birth weight was recorded during first lactation length. The highest lactation length was observed in 3rd lactation followed by 4th lactation length, while the lowest (LL) was observed in first lactation. Highest (MY) was found in 3rd lactation followed by 4th and 5th lactation length, whereas the lowest milk yield was observed in second lactation after first lactation length. Result for simple correlation was observed low to high and positive for lactation length x milk yield, milk yield x birth weight and birth weight vs lactation length, while the genetic correlation was observed moderate to low between milk yield and lactation length and birth weight x lactation length, whereas the genetic correlation was found negative between birth weight x milk yield. The phenotypic correlation was found moderate and low between lactation length vs birth weight, lactation length x milk yield and milk yield x birth weight. Environmental correlation was found high and low among lactation length vs milk yield, birth weight vs milk yield and lactation length vs birth weight of Holstein Friesian.*

Keywords: Holstein Friesian, birth weight , milk yield, lactation length, correlation.

INTRODUCTION

Livestock sector of Pakistan is back bone of agriculture sector that contribute 56.3% to total agriculture values with 11.8% to the total GDP. Holstein-Friesian is a major dairy cattle, kept for milk production commonly found in various Districts of Baluchistan province like Pishin, Zhob, Loralai, Mustang, Quetta and other European countries. Holsteins Friesian are easy to identify with their separate marking colors and higher production of milk. A healthy cow can produce an average milk yield of 3740 liters of
milk in 315 days of lactation length in good management and environmental conditions of Pakistan [1]. Correlation is important genetic parameter which play major role in the formation of breeding plans and policies. The genetic improvement of a trait depend on its genetic and phenotypic correlation with different traits. If correlation between two traits is positively high the selection for one traits will result in the improvement of other traits [2].

MATERIALS AND METHOD

The complete data of 50 animals from 1st to 5th lactation was collected for the period 2004 to 2013, on specially designed proforma. Correlation among birth weights, milk yield and lactation length was estimated using the formula of [3].

Statistical analysis

Preliminary statistical analyses were performed with the help of (GLM) General Linear Model SAS procedure of 2006 to observe fixed significant effects, which was included in last model. The model of statistical procedure include 1 month to 12 years 2004 to 2013.

RESULT

The results for birth weight, lactation length and milk yield

The result revealed that higher birth weight was observed in 5th lactation, while lower in 1st lactation length, whereas higher milk yield and lactation length was found in 3rd lactation length, and lower milk yield and lactation length was found in 1st lactation length details are given in Table-1.

The results for correlation estimates between some performance traits of Holstein Friesian

The results for simple, genetic, environmental and phenotypic correlation estimates among lactation length vs milk yield, milk yield vs lactation length and birth weight vs lactation were low moderate to high and positive except genetic correlation was observed negative between birth weight vs milk yield.

DISCUSSION

The result revealed that higher birth weight was found in 5th lactation length in the offspring of cows (3305.±7.31 kg), while highest (LL) was observed in 3rd lactation length (32.91±13.40 days), with highest milk yield in the 3rd lactation (4102.45±119.34 liters). The results of present study are in agreement with the results of [4], who has been stated that milk yield and lactation length was found higher in 3rd lactation length, respectively. The findings of current study are supported by findings of [5,6,7], who reported higher birth weight was observed 5th and 4th lactation and lower in 1st lactation length. Results of [8], supported the present study, who reported 3rd lactation length and milk yield were significantly high in Red Sindhi cattle, same statement repeated by [9], who reported higher milk yield and lactation length was observed in 3rd lactation and lower in 1st lactation period in Holstein Friesian cattle. Results for correlation estimation in the present study showed positive, moderate, low and high among simple, phenotypic and environmental correlation between milk yield x lactation length, milk yield x birth weight and lactation length x birth weight. The negative genetic correlation was observed between milk yield x birth weight (-16. 0.355). The findings of present study are partially supported by [10], [11], [12] and [4], they stated moderate to high simple, environmental and phenotypic correlation among lactation length vs milk yield and birth

weight vs lactation length. The results of [13] and [14], are also in agreement, with the current study, who reported that correlation was found negative among milk yield vs birth weight that may be due to inbreeding within the herd. The findings of current study are partially supported by [15] and [16], who observed positively high simple, environmental and phenotypic correlation among milk yield vs lactation length and birth weight vs lactation length. Another study conducted by Sandip and Banerjee [17], they also reported high and positive correlation between milk yield vs lactation length, difference among the results may because of due to management nutritional and inbreeding factors.

CONCLUSIONS

The study showed that highest birth weight (33.05±7.31kg) was observed in 5th lactation of cows, and higher milk yield (4102.45±11934 liters) was found in 3rd lactation. The results for correlation estimates between some performance traits were low to moderate and positively high, while the genetic correlation between birth weight and milk yield was found negative, which may because of inbreeding or additive gene effect within herd.

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