RESEARCH NOTE

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Effect of non- genetic factors on 305 days milk yield in jersey cattle

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ABSTRACT : The average least squares mean of 305 days milk yield in Jersey cattle was 1997.88 ± 79.43 kg. Effect of period of calving on 305 days milk yield was significant. Effect of season of calving, lactation order and age at first calving on 305 days milk yield were non-significant.

KEY WORDS : Non-genetic factors, 305 days milk yield, Jersey cattle

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India ranks 1st in milk production at present. Before decades of 1960-70 milk production in country was very low. Indian government imported exotic cattle breeds like Holstein Friesian, Jersey, Brown Swiss, Red Dane from different countries to overcome that problem. It was found that Jersey cattle breed withstand better in Indian climate than any other exotic cattle breed. Performance of pure breed Jersey cattle in temperate region was documented to the great extent but in tropical countries, particularly in India scanty study was carried out. Therefore, keeping this view in mind the work entitled effect of non-genetic factors on 305 days milk yield in Jersey cattle was carried out.

Source of data:

The present investigation was carried out on jersey cattle maintained at 'Bull Mother Farm' Tathawade, Pune (India). The data pertaining to milk production traits of Jersey cattle were collected from history cum-pedigree sheets spread over a period of 10 years (1996 to 2005). The data used in the study were classified according to the period of calving, season of calving, lactation order.

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Period of calving:

Period of calving was divided into 2 groups of 5 years equally. P_1 - 1996 to 2000 and P_2 - 2001 to 2005.

Season of calving:

The year was sub-divided into three seasons based on the climatic conditions and coded as:

Month	Season	Code
June to September	Rainy	S_1
October to January	Winter	S_2
February to May	Summer	S_3

Lactation order:

The order of lactation was taken into consideration upto 4th lactation and grouped as:

Lactation order	First	Second	Third	Fourth
Code	L_1	L_2	L_3	L_4

Least squares analysis:

In order to overcome non- orthogonal data resulting from unequal number of observations and disproportionate sub-class frequencies and to study the various non-genetic factors, the least squares technique suggested by Harvey

Table 1: Least squares means for lactation milk yield and 305 days milk yield in Jersey cattle

Source of variation	Code	No. of observations	305 days milk yield (kg)
Overall	μ	526	1997.88±79.43
Period of calving			
1996–2000	P_1	289	1772.80±167.86a
2001–2005	P_2	237	2222.95±99.87b
Season of calving			
Rainy	S_1	170	1917.30±142.07
Winter	S_2	182	2095.72±114.03
Summer	S_3	174	1980.60±115.54
Lactation order			
1st Lactation	L_1	191	1796.94±167.72
2nd Lactation	L_2	125	2005.68±132.93
3rd Lactation	L_3	106	2154.96±142.41
4th Lactation	L_4	104	2033.92±145.00

Means under each class in the column with different superscript differed significantly.

(1991) by fitting constants was used.

The effect of different non- genetic factors on 305 days milk yield is presented in Table 1. The overall least squares mean for 305 days milk yield was 1997.88 ± 79.43 kg in the present investigation, whereas, lower means of 305 days milk yield were reported by Subramanian and Ulaganathan (1990) and Rahumathulla *et al.* (1994) in J x Red Sindhi and J x Tharparkar cattle, respectively.

Effect of period of calving:

The variation in 305 days milk yield due to period of calving was found to be significant. These results were supported by Subramanian and Ulganathan (1990) and Rahumathulla *et al.* (1994) in J x Red Sindhi and J x Tharparkar cattle, respectively. On the contrary, non-significant results were reported by Chawla and Mishra (1982) in sahiwal cattle.

The highest least squares mean of 305 days milk yield was observed in P_2 (2222.95 +99.87) and lower in P_1 (1772.80 +167.86) period. This could be due to deterioration in management and other environmental conditions over different period of calving.

Effect of season of calving:

The effect of season of calving on 305 days milk yield was found to be non significant in Jersey cattle. These results were supported by Subramaian and Ulaganthan (1990) in J x Red Sindhi cattle. However, contradictory findings were recorded in J x Tharparkar (Rahumathulla *et al.*, 1994) and J x Hariana (Agasti *et al.*, 1988).

Effect of lactation order:

Non - significant effect of lactation order on 305 days milk was observed in Jersey cattle. Gupta and Tripathi (1994a) observed similar results in Red Sindhi cattle. However, contrary results were reported by Palia and Arora (1983) in Jersey cattle.

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