Persistency of Milk Production of Jersey Cows

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ABSTRACT

Persistency of milk yield of Jersey cattle was studied using 103 lactation milk yield records of 66 cows of the Jersey Cattle Breeding Farm, Anand.

Average of the first and second lactation yield was 3004·24 ± 72·82 and 3625·35 ± 143·83 kg, respectively in 318·04 ± 6·11 and 315·73 ± 8·88 days of lactation with 64·96 ± 5·73 aud 68·27 ± 0·72 dry days, respectively.

On an average Jersey cows reached their maximum weekly production of 94·4 kg by sixth week after calving. The production was maintained more or less at this level upto nine weeks, declining thereafter almost in a straight line fashion to 63·25 kg by 35th week.

The mean persistency value was observed to be 98·81 ± 0·1847 per cent. Parity exerted highly significant effect on persistency. Season of freshening had no appreciable influence.

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INTRODUCTION

PERSISTENCY denotes the extent of capacity of the cow to maintain the level of milk production after attaining the peak throughout her lactation.

Considerable amount of work has been done in the western countries on the lactation performance of various breeds of the dairy cattle. Little work has been done in this economically important aspect on pure Jersey cattle in India. It was, therefore, thought desirable to study this aspect of Jersey cows under Indian conditions.

MATERIALS AND METHODS

Data for this study were collected from milk yield records of 103 lactations of 66 Jersey cows maintained at the Jersey Cattle Breeding Farm, Anand. This included 66 first lactation records, 19 second and 18 third lactation records. There was a little variation in the feeding and management of the herd during the period of study. The herd was completely stallfed. The records of the third lactation were running and hence were taken for compilation upto 35th week of the lactation period.

Out of the total records 57·4 per cent reached the peak by 9th week after calving, after which the yield declined. Hence for the purpose of calculating the persistency value, the weekly records from 9th week to 40th week were utilized. The persistency values were calculated

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by utilizing the method of Sturtevant as modified and described by Pradhan and Dave (1973).

Persistency values obtained for 103 lactations were utilized to study (a) the effect of parity on persistency and (b) the effect of season of freshening on persistency.

RESULTS AND DISCUSSION

(a) *Average lactation yield:*

Average lactation yield in Jersey cows for the first and second lactation is presented in Table 1.

TABLE 1

Average lactation yield in Jersey cows

Lactation	*Yield (kg)*	*Days in milk*	*Dry period*
First	3004·24 ± 72·82 (CV% = 16·63)	318·04 6·11	64·96 ± 5·73
Second	3625·35 ± 143·83 (CV% = 17·06)	315·73 ± 8·88	68·27 ± 0·72

The first lactation milk yield of the Jersey cows varied from 1240·6 to 4792·6 kg with an average of 3004·24±72·82 kg (CV=16·63%) and that of the second lactation from 2743·0 to 4610·4 kg with an average of 3625·35±143·83 kg (CV= 17·06%). The average milk yield of these cows thus increased by nearly 20·6 per cent from the first to second lactation.

This production level of the Jersey herd is much higher than that reported by Eckles and Anthony (1956) for exotic Jersey cows and by Kapur and Sharma (1971) for pure-bred Jersey cows in India. It is almost equal to that reported by Reaves and Henderson (1969) for Jersey herd in U.S. and Anderson (1969) for the Danish Jersey cows; but lower than that reported by Ensminger (1969) in the American Jersey cows.

(b) *Peak yield and average persistency value:*

An average weekly peak yield (99·4 kg) was reached by the animals by

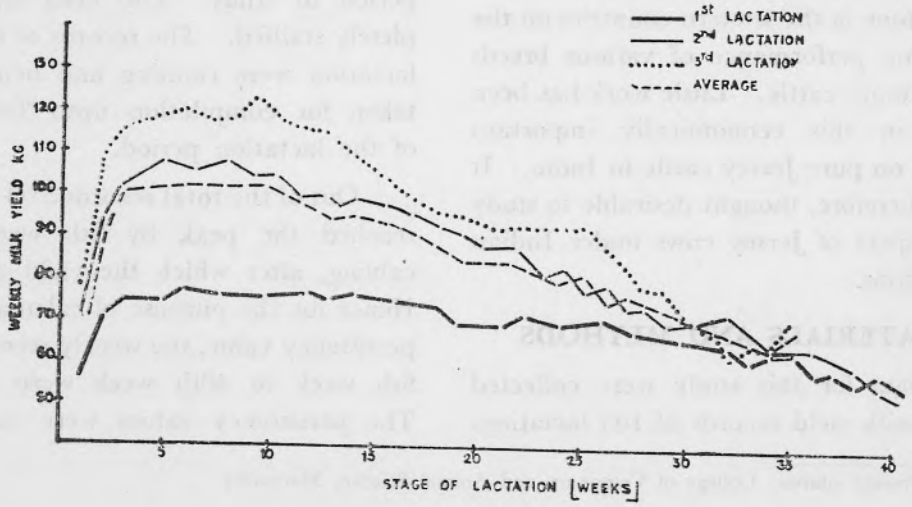

Fig. 1. Lactation curves of Jersey cows

sixth week. When lactation was taken separately the maximum yield in the first lactation (74·73 kg) was reached by sixth week, in second lactation (106·6 kg) by 7th week and in third (120·1 kg) by 9th week (Fig. 1).

After attaining the peak production the weekly milk yield on an average declined gradually at the rate of 1·7 per cent per week. This is in agreement with Brody (1927) who observed that the milk yield declined at the rate of 5·5 per cent per month. Pradhan and Dave (1973) also observed that the rate of decline of milk yield in Kankrej cattle was 1·7 per cent per week.

(c) *Effect of parity on persistency:*

Persistency values of cows for different lactations are presented in Table 2.

TABLE 2

Parity and persistency.

Lactation	*No. of records*	*Persistency value %*	*S.E.*	*C.V.%*
1.	66	99·31	0·1256	1·0270
2.	19	97·91	0·3571	1·5830
3.	18	97·67	0·2924	1·2695
Overall	103	98·81	0·1847	1·8975

A. V. Table

Source	*DF*	*SS*	*M.S.*	*F. Value*
Between Parity	2	59·89	29·94	10·0133**
Within Parity	100	299·56		2·99
Total	102	359·45		3·5

** Significant at 1%

The overall mean persistency value obtained in this study (98·81±0·1847) in Jersey cattle is higher than that reported by Pradhan and Dave (1973) in Kankrej cows (97·907±0·74).

The persistency value was observed to decrease with the advance in number of lactation. The effect of parity on persistency was highly significant ($P < 0.01$). This is in agreement with the findings of Kartha (1934), Wood (1969) and Pradhan and Dave (1973). Dave and Patel (1971), however, observed that the second calvers were less persistent than the first and that the old calvers showed better persistency.

(d) *Effect of season of calving on persistency:*

Persistency values of Jersey cows calving in different seasons are presented in Table 3.

TABLE 3

Season and persistency.

Season	*Records*	*Value*	*S.E*	*CV%*
Summer	19	99·60	0·2790	1·204
Monsoon	74	98·69	0·2441	4·569
Winter	10	98·12	0·3259	1·049

A. V. Table

Source	*DF*	*SS*	*M.S.*	*F. Value*
Between Season	2	9·60	4·80	0·0804 N.S
Within Season	63	3759·17	59·66	—
Total	65	3768·77		

Summer calvers were found to be more persistent than the monsoon and winter calvers. This effect of season of freshening on persistency was, however, statistically nonsignificant. Little effect of season of freshening on persistency value of cows observed in this study may principally be ascribed to the uniform availability of good quality fodder in

sufficient quantity throughout the year. Paucity of data may also be the reason for this results.

Johonsson (1937), Mahadevan (1951), Branton and Miller (1959) and Pradhan and Dave (1973) have reported significant effect of season of freshening on persistency. Dave and Patel (1971) observed that summer and autumn calvers were more persistent than others. Singh *et al.*, (1965) observed that summer calvers were more persistent than others.

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