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Genetic studies on gestation period and It's influence on first lactation length in jersey (J) × Red Sindhi (RS) crosses

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Abstract
The present study was undertaken to find out the effect of gestation period on first lactation length in Jersey (J) × Red Sindhi (RS) crosses at SHIATS dairy farm, Allahabad. A total of 135 records of Jersey (J) × Red Sindhi (RS) were grouped into four genetic groups viz. ¼ J × ¾ RS (G_1), ½ J × ½ RS (G_2), 3/8 J × 5/8 RS (G_3), and 1/8 J × 7/8 RS (G_4). The records of cows having lactation length below 270 days were considered abnormal and hence not included in the study.
It was concluded that the gestation period has significant effect on first lactation length of Jersey (J) × Red Sindhi (RS) crosses. Similarly the cows of gestation period 270 to 280 days and 281 to 285 days had significant effect on first lactation length, hence due to consideration should be given at the time of selection or purchase of animals.

Keywords: gestation period, Jersey × Red Sindhi crosses, first lactation length

Introduction
Gestation period (GP) is a physiological trait which begins with conception and ends with termination of pregnancy. It means is the period from conception to parturition or the birth of calf. The duration of pregnancy depends on the species, breed and sex of the developing fetus. It ranges from 273 to 286 days with average of 281 days in cattle. Gestation period varies a few days among the animals within the breed and it also depends on sex of fetus and species of livestock. Milk production is considered to be one of the most important traits in selection of dairy cow. Causes of variation in milk yield may be due to genetic, environmental and managemental factors. Season of calving also has great effect on milk production especially in cross breed cattle as they contain certain percentage of exotic blood belonging to temperate region (Khedker, 1982).
Dairying contributes close to a third of gross income of rural households and in the case of those without land nearly half of their gross income (Bhasin, 2012). An estimated 70 million rural household are engaged in milk production, which has shown rapid growth between 4 to 5 times per annum during last two decades. It is encouraging to note that annual milk production in India has grown to anticipated level of 140.6 million tons in 2014, and per capita milk availability has reached to a level of 300 gm per day (Makwana, *et al*., 2011) [4].

Materials and methods
The present investigation was made to determine the influence of gestation length on first lactation butter fat yield of Jersey (J) × Red Sindhi (RS) crosses maintained at Allahabad Agricultural Institute, Dairy Farm. Agricultural Institute Dairy Farm was established in 1910 but the herd of Red Sindhi cows was introduced on this farm in 1923. The history sheets of the animals maintained during the period 1924 to 1985 at the agriculture institute, Dairy farm Naini, formed the basis of this study. A total of 135 records of Jersey (J) × Red Sindhi (RS) were grouped into four genetic groups viz. ¼ J × ¾ RS (G_1), ½ J × ½ RS (G_2), 3/8 J × 5/8 RS (G_3), and 1/8 J × 7/8 RS (G_4). The records of cows having lactation length below 270 days were considered abnormal and hence not included in the study. The records of animals selected were first calvers and completed at least their first lactation period. The following were the parameter of this study.

A) Genetic Groups
1. ¼ J × ¾ RS (G_1)
2. ½ J × ½ RS (G_2)
3. 3/8 J × 5/8 RS (G_3)
4. 1/8 J × 7/8 RS (G_4)

B) Reproductive trait

Gestation period viz. groups

1) GP_1 (270- 280 days)
2) GP_2 (281-285 days)
3) GP_3 (286-290 days) and
4) GP_4 (Above 290 days)

C) Productive trait

First lactation length (days)

Results and discussion

The data regarding gestation period in the cow of different genetic group Jersey (J) × Red Sindhi (RS) crosses are presented in the Table 1. The gestation period in Jersey (J) × Red Sindhi (RS) crosses irrespective of genetic group, ranged from 270 to 300 days. The gestation period in ¼ J × ¾ RS (G_1), 3/8 J × 5/8 RS (G_2), ½ J × ½ RS (G_3) and 1/8 J × 7/8 RS (G_4) ranged from 270 to 300, 270 to 288, 279 to 294 and 276 to 299 days, respectively. The mean gestation period in Jersey (J) × Red Sindhi (RS) crosses pertaining to genetic group namely G_1, G_2, G_3 and G_4 was 286.41, 280.54, 286 and 287.23 days, respectively. The differences in the gestation period of cows due to different genetic groups were significant.

The data on gestation period of Jersey (J) × Red Sindhi (RS) crosses of different genetic groups are furnished in the Table 1 and Fig.1, ranged from 270 to 300 days. However, the shortest mean gestation period 280.54 days was observed in cows of G_2 followed by 286.0 days gestation period in cows of G_3, 286.41 days in cows of G_1 and 287.23 days in cows of G_4. Since the differences in these were found significant, it indicated significant effect of genetic group of cows on their gestation period. G_3 group of cows registered significantly shortest gestation period but the differences between G_1 & G_4, G_1 & G_3, G_3 & G_4 and G_2 & G_4 were found non-significant, being at par.

Effect of gestation period on first lactation length (days) (FLL)

The data regarding first lactation length (days) of Jersey (J) × Red Sindhi (RS) crosses as in influenced by different gestation periods are presented in Table 2. In general first lactation length of Jersey (J) × Red Sindhi (RS) crosses ranged from 270 to 584 days. The first lactation length of Jersey (J) × Red Sindhi (RS) crosses pertaining to GP_1 (270 to 280 days), GP_2 (281 to 285 days), GP_3 (286 to 290 days) and GP_4 (above 290 days), ranged from 270 to 584, 285 to 517, 288 to 426 and 274 to 552 days, respectively. The mean first lactation length of Jersey (J) × Red Sindhi (RS) crosses pertaining to GP_1 (270 to 280 days), GP_2 (281 to 285 days), GP_3 (286 to 290 days) and GP_4 (above 290 days) was 384.86, 364.31, 321.43 and 379.63 days, respectively. The differences in first lactation length of Jersey (J) × Red Sindhi (RS) crosses due to different gestation period were significant.

The data on first lactation length of Jersey (J) × Red Sindhi (RS) crosses due to different gestation period furnished in the Table 2 and fig. 2 indicated that the longest mean lactation length 384.86 days was observed in cows of GP_1 followed by 379.63 days in cows of GP_4, 364.31 days in cows of GP_2 and 321.43 days in cows of GP_3. Since differences in these periods of first lactation length were found significant. It indicated a significant effect of gestation period on lactation length of cows. The cows of GP_3 (286-290 days) registered significantly shorter lactation length (321.43 days) than cows of GP_1 (270-280 days), GP_2 (281-285 days), and GP_4 (above 290 days). Similarly lactation length of cows of GP_2 was found at par with cows of GP_3 and GP_4 indicating a non-significant effect between the two. Banerjee and Banerjee (2003) [1] reported that the phenotypic correlation between gestation period and lactation length was estimated to be 0.10 + 0.02 while the correlation between first lactation length and gestation period was estimated to be 0.14 ± 0.021.

Table 1: Gestation period of different genetic groups (G) Jersey (J) × Red Sindhi (RS) crosses

Genetic group wise gestation period (days)				
Sr. No.	**G_1 ¼ J × ¾ RS**	**G_2 ½ J × ½ RS**	**G_3 3/8 J × 5/8 RS**	**G_4 1/8 J ×7/8 RS**
Minimum	270	270	279	276
Maximum	300	288	294	299
Mean	286.41	280.54	286.00	287.23

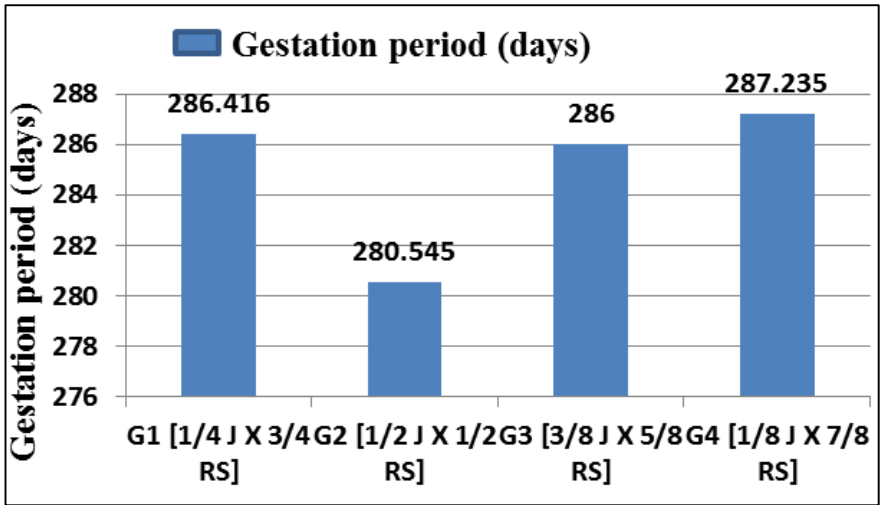

Fig 1: Gestation period of Jersey (J) × Red Sindhi (RS) crosses of different genetic groups (G)

Genetic groups	**G_4**	**G_1**	**G_3**	**G_2**
Mean gestation period (days)	287.23	286.41	286.00	280.54

Sr. No	Genetic groups	Difference	C.D	Results
1	G_1 and G_2	5.871	0.66	S
2	G_2 and G_3	5.455	0.9	S
3	G_3 and G_4	1.235	0.7	NS
4	G_1 and G_3	0.416	0.44	NS
5	G_1 and G_4	1.019	0.46	NS
6	G_2 and G_4	6.69	0.92	NS

Table 2: First lactation length (days) (FLL) of Jersey (J) × Red Sindhi (RS) crosses as influenced by their different gestation period

Sr. No	GP_1 (270 -280 days)	GP_2 (281-285 days)	GP_3 (286-290 days)	GP_4 (above 290 days)
Minimum	270	285	288	274
Maximum	584	517	426	552
Mean	384.86	364.31	321.43	379.63

Genetic groups	GP_1 (270-280 days)	GP_4 (Above 290 days)	GP_2 (281-285 days)	GP_3 (286-290 days)
Mean first lactation length (days)	384.86	379.63	364.61	321.63

Sr. No.	Gestation groups	Difference	C.D	Result
1	GP_1 and GP_2	20.25	6.04	S
2	GP_2 and GP_3	42.97	9.54	NS
3	GP_3 and GP_4	57.99	8.79	NS
4	GP_1 and GP_3	63.22	6.04	S
5	GP_1 and GP_4	5.23	5.29	NS
6	GP_2 and GP_4	15.01	8.79	S

*S = Significant *NS = Non Significant

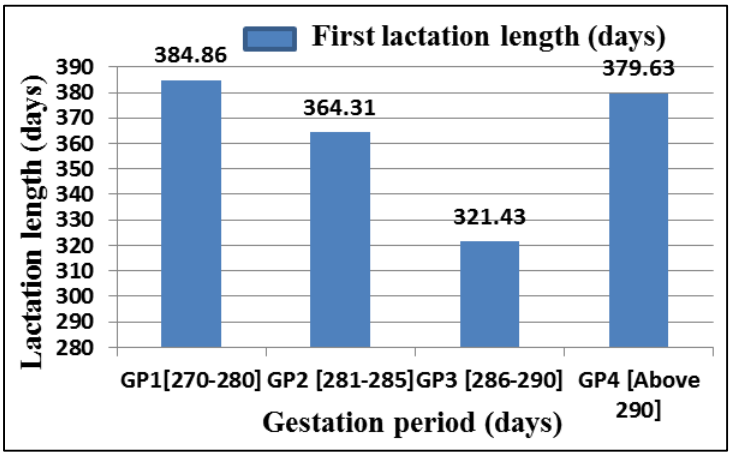

Fig 2: First lactation length (days) Jersey (J) × Red Sindhi (RS) crosses as influenced by their gestation periods

Conclusion

It was concluded that the gestation period has significant influence on first lactation length of Jersey (J) × Red Sindhi (RS) crosses. Similarly the cows of gestation period 270 to 280 days and 281 to 285 days had significant effect on first lactation length, due to consideration should be given at the time of selection or purchase of animals.

References

1. Banerjee, Banerjee. Genetic studies on gestation period and its influence on some economic traits in Holstein Friesian × Sahiwal cattle. Indian Veterinary Journal. 2003; 80:348-351.
2. Bhasin NR. Dairy vision Opportunities and challenges. Indian Dairyman. 2020; 56(10):24-28.
3. Khedkar PM. Cutaneous lesions and some other unusual findings in cases of theileriosis in graded calves. Indian Veterinary Journal, 1982, 188-190.
4. Makwana R. Comparison of the head response in blast insult with and without combat helmet. HFM-207: A Survey of Blast Injury Across the Full Landscape of Military Science (NATO Science and Technology Organization), 2011, 33-1-33-18.