

## Effect of season of calving and parity on dry period and intercalving period in interse progeny of HF X Deoni

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### Abstract

The data on 122 calvings from 58 interse progeny of Holstein Friesian (HF) and Deoni (D) breed for a period of 12 years were considered for the study. The data were collected from Cattle Cross Breeding Project (CCBP), Marathwada Agricultural University, Parbhani for season of calving and parity. The effect of season of calving and parity on dry period and intercalving period was studied. The least square means (LSM) for dry period and intercalving period were  $185.62 \pm 17.23$  days and  $470.13 \pm 18.28$  days, respectively. The effect of season of calving and parity on dry period and intercalving period were non-significant.

**Keywords:** Season of calving, parity, dry period and intercalving period.

### Introduction

Milk is the main component of dairy enterprise on which the economics of dairy business is dependant. It is called nearly a 'perfect food' as it contains all essential nutrients like water, protein, fat, carbohydrates and mineral matter needed for growth and maintenance of human body. The sources of milk for human consumption are cows, buffaloes, goat and sheep, but the main sources are cows and buffaloes.

Deoni cattle is important breed of Marathwada region of Maharashtra state and found in Udgir, Ahmadpur, Latur, Nilanga and Ausa Talukas of Latur District of Maharashtra state. Also found in Narayankhed and Zahirabad talukas of Andhra Pradesh. Aurad, Bhalki and Baswakalyan Talukas of Bidar district and Aland Tahsil in Karnataka State.

Holstein Friesian is the exotic elite milch purpose breed. It is originated in two Northern provinces Netherland i.e. West Friesland and North Holland. Later on it has spread almost all over the European countries as well as all over the world.

We are well aware about the potential of our available genetic material. It has encouraged and the Marathwada Agricultural University, Parbhani (Maharashtra) has launched a project for improvement of local Deoni breed of cattle by crossing with elite exotic material i.e. Holstein Friesian.

The performance of  $F_1$  halfbred (HF x D) progeny was studied but the performance of interse progeny was not studied so far. Dry period and intercalving period are economically important characters of a dairy cow. Hence present investigation was undertaken to see the effects of season of calving and parity on dry period and intercalving period in interse progeny of HF and Deoni.

### Materials and Methods

The data of 122 calving from 58 interse halfbred cows HF x Deoni were collected from pedigree sheets and daily milk yield records for a period of 12 years (1990-2001). The data collected from Cattle Cross Breeding Project (CCBP), Marathwada Agricultural University, Parbhani to study the effect of season of calving and parity on dry period and intercalving period. Non genetic factors such as season of calving and parity directly affect the economics of dairy farming. The data thus obtained were classified according to season of calving and parity.

### Season of calving

The year was divided into three seasons based on climatic conditions of the area.

Sl. No.	Month	Season
1.	February-May	Summer ( $S_1$ )
2.	June-September	Monsoon ( $S_2$ )
3.	October-January	Winter ( $S_3$ )

**Table-1. Least square means (LSM) and SE for Dry period**

Sources	Code	N	LSM (Mean±SE)
Mean	-	122	185.62±17.23
Season of calving	S <sub>1</sub>	38	194.38±25.78
	S <sub>2</sub>	49	156.25±22.29
	S <sub>3</sub>	35	209.23±24.83
Parity	P <sub>1</sub>	51	204.87±18.28
	P <sub>2</sub>	34	179.57±22.64
	P <sub>3</sub>	14	203.18±36.16
	P <sub>4</sub>	11	182.98±39.54
	P <sub>5</sub>	07	185.32±49.42
	P <sub>6</sub>	05	157.79±60.73

### Parity

The parity was divided into six class viz., first (P<sub>1</sub>), second (P<sub>2</sub>), third (P<sub>3</sub>), fourth (P<sub>4</sub>), fifth (P<sub>5</sub>) and sixth (P<sub>6</sub>).

The effect of season of calving and parity evaluated by least square method (Harvey, 1991).

### Results and Discussion

#### Effect of season of calving and parity on Dry period.

The overall Least Square Means (LSM) for dry period in halfbred interse cows (HF x D) was 185.62±17.23 days (Table 1).

The LSM for dry period in respect of halfbred interse cows affected by season of calving i.e. S<sub>1</sub>, S<sub>2</sub> and S<sub>3</sub> were 194.38±25.78, 156.25±22.29 and 209.23±24.83 days respectively (Table 1). The higher dry period recorded in S<sub>3</sub> followed by S<sub>1</sub> and S<sub>2</sub>. The differences among the LSM for dry period due to season effect was non-significant (Table 2). The similar effects were also reported by Navale (1991) in Jersey x Gir and Friesian x Gir, Thakur and Singh (2000 b) in Jersey and Tharparkar and Kamble (2003) in various cattle breeds.

The LSM for dry period in interse cows for parity P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, P<sub>5</sub> and P<sub>6</sub> were 204.87±18.28, 179.57±22.64, 203.18±36.16, 182.98±39.54, 185.32±49.42 and 157.79±60.73 days respectively (Table 1). The differences among LSM due to parity effect were non significant (Table 2). The LSM for dry period recorded in 3<sup>rd</sup> parity is highest and lowest in 6<sup>th</sup> parity.

Similar non-significant effects were also shown

by Dalal *etal* (1991) in halfbred cattle, Dalal *etal* (1993) in Friesian x Haryana and Kamble (2003) in various crossbred cattle.

#### Effect of season of calving and parity and on Intercalving period.

The reproductive trait like intercalving period is influenced by non genetic factors like season of calving and parity. The overall LSM for Intercalving period in halfbred interse cows (HF x D) was 470.13±18.28 days (Table 3).

The LSM for intercalving period in respect of halfbred interse cows affected by season of calving viz., S<sub>1</sub>, S<sub>2</sub> and S<sub>3</sub> were 479.71±27.37, 442.55±23.65 and 489.02±26.34 days, respectively (Table 3). The higher intercalving period recorded in S<sub>3</sub> followed by S<sub>1</sub> and S<sub>2</sub>. The differences among the LSM for intercalving period due to season effect were non-significant (Table 4).

The similar effects also shown by Nagare and Patel (1997) in Gir crosses, Thakur and Singh (2000a) in Jersey x Haryana, Thakur and Singh (2000b) in Jersey x Tharparkar and Kamble (2003) in various crossbreeds cattle.

The LSM for intercalving period in interse cows for parity P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, P<sub>5</sub> and P<sub>6</sub> were 498.49±19.40, 478.82±24.02, 476.18±38.36, 478.86±41.75, 464.62±52.44 and 432.61±64.44 days respectively (Table 3). The differences among LSM for intercalving period due to parity effect were non-significant (Table 4).

The LSM for intercalving period recorded for first parity is highest and decreased upto sixth parity. Similar non-significant variations are also shown by Nagarcenkar and Rao (1982) in Tharparkar exotic crosses and Dalal

**Table-2. Analysis of variance (ANOVA) for Dry period**

Sources	DF	MSS	F value
Season	2	27400.0	1.7
Parity	5	3969.0	0.24
Error	114	39000.0	-
Total	121	70369.0	-

**Table-3. Least square means (LSM) and SE for Intercalving period**

Sources	Code	N	LSM (Mean±Se)
Mean	-	122	470.13±18.28
Season of calving	S <sub>1</sub>	38	479.71 ± 27.37
	S <sub>2</sub>	49	442.55 ±23.65
	S <sub>3</sub>	35	489.02 ±26.34
Parity	P <sub>1</sub>	51	498.49 ±19.40
	P <sub>2</sub>	34	478.82 ±24.02
	P <sub>3</sub>	14	476.18 ±38.36
	P <sub>4</sub>	11	478.86 ±41.75
	P <sub>5</sub>	07	464.62± 52.44
	P <sub>6</sub>	05	432.61 ±64.44

**Table-4. Analysis of variance (ANOVA) for Intercalving period**

Sources	DF	MSS	F value
Season	2	29100.0	1.6
Parity	5	6576.0	0.36
Error	114	21688.0	-
Total	121	57364.0	-

etal (1993) in Friesian x Haryana. They stated that inter-calving period decreased with advancement of parity.

**Acknowledgement**

Authors are thankful to The Head, Department of Animal Husbandry & Dairy Science, Marathwada Agricultural University, Parbhani (MS) and The Senior Scientist, Cattle Cross Breeding Project (CCBP), Marathwada Agricultural University, Parbhani (MS) for the facilities provided.

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