

## Production and reproduction performance of Red Sindhi cow

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### ABSTRACT

The overall least square means for lactation length (LL), dry period (DP), calving interval (CI), lactation milk yield (LMY) and 300 days milk yield (300 DMY) in Red Sindhi cow were  $310.876 \pm 6.07$  days,  $81.99 \pm 4.78$  days,  $392.86 \pm 7.92$  days,  $1816.66 \pm 38.95$  kg and  $1820.56 \pm 34.18$  kg respectively. The lactation length had significant effect over lactation milk yield, whereas, period of calving had significant effect over lactation milk yield and 300 days milk yield. The effect of age at first calving, season of calving, period of calving and lactation order over all the other traits under study was non significant.

**Key words:** Red Sindhi, Productive traits, Reproductive traits

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### INTRODUCTION

Red Sindhi cow, also known as Sindhi Cow, Red Karachi Cow is one of the most popular of all Zebu dairy breeds. The breed originated in the Sindh province of Pakistan and is widely kept for milk production across India, Pakistan, Bangladesh, Sri Lanka and other countries. They have been used for crossbreeding with temperate (European) origin dairy breeds in many countries to combine their tropical adaptations (heat tolerance, tick resistance, disease resistance, fertility at higher temperatures, etc.) with the higher milk production found in temperate regions.

### MATERIAL AND METHODS

The data pertaining to milk production of purebred Red Sindhi cows maintained at College of Agriculture, Dhule spread over a period of 20 years (1991 - 2010) was used for the present investigation. Effect of age at first calving, season of calving, period of calving and lactation order over production and reproduction traits were studied by adopting the least square technique (Harvey 1990). Duncan's multiple range test (DMRT) as modified by Kramer (1957) was used for comparison between pairs of means. Interrelationships between economically important traits were studied.

### RESULT AND DISCUSSION

The overall least square means for LL, DP, CI, LMY and 300 DMY were  $310.876 \pm 6.07$  days,  $81.99 \pm$

$4.78$  days,  $392.86 \pm 7.92$  days,  $1816.66 \pm 38.95$  kg and  $1820.56 \pm 34.18$  kg respectively.

The value of LL was higher than that reported by Pundir *et al* (2007) in Red Sindhi cow. Lactation order had highly significant effect over LL. Supportive result was reported by Bhoite and Kale (1996) in BFG groups. Effect of age at first calving, period of calving and season of calving was found to be non significant. In DMRT it was found that lactation length gradually increased with advances in lactation order. Cows in fourth lactation order had significantly higher lactation length of  $341.34 \pm 9.94$  days than cows in first and second lactation order having  $287.69 \pm 12.53$  and  $293.35 \pm 11.09$  days of lactation length respectively. Further the lactation length of cows in third and fourth lactation was at par.

The overall least square mean of dry period and calving interval was  $81.99 \pm 4.78$  and  $392.86 \pm 7.92$  days. Higher duration of dry period and calving interval has been reported by Pundir *et al.* (2007). Effect of age at first calving, season of calving, period of calving and lactation order on both the traits was found to be non significant.

The overall least square means for LMY and 300 DMY were  $1816.66 \pm 38.95$  kg and  $1820.56 \pm 34.18$  kg respectively. Lower LMY and 300 DMY than the current investigation have been reported by Rehman and Khan (2012) in Sahiwal cattle, however higher

**Table 1.** Analysis of variance for production and reproduction traits in Red Sindhi cow

Source of variation	DF	LL		DP		CI		LMY		300 DMY	
		MSS	P	MSS	P	MSS	P	MSS	P	MSS	P
Age at 1 <sup>st</sup> calving	2	3740.31	0.37 <sup>NS</sup>	1479.27	0.53 <sup>NS</sup>	9880.01	0.22 <sup>NS</sup>	189234.51	0.30 <sup>NS</sup>	44110.97	0.69 <sup>NS</sup>
Season of calving	2	3418.55	0.41 <sup>NS</sup>	1320.73	0.57 <sup>NS</sup>	5995.90	0.40 <sup>NS</sup>	143471.89	0.40 <sup>NS</sup>	172250.96	0.24 <sup>NS</sup>
Period of calving	3	2122.66	0.64 <sup>NS</sup>	2120.04	0.44 <sup>NS</sup>	5967.22	0.43 <sup>NS</sup>	1291202.58	0.00005**	1222805.70	0.00001**
Lactation order	3	19545.88	0.00228**	3020.39	0.28 <sup>NS</sup>	16462.37	0.06 <sup>NS</sup>	349257.83	0.08 <sup>NS</sup>	111270.24	0.43 <sup>NS</sup>
Error	127	3829.71		2377.53		6503.36		157316.97		121137.26	

\*P<0.05, \*\*P<0.01, NS Non significant

**Table 2.** Least squares means for milk production and reproduction traits of Red Sindhi cow

Source of variation	N	LL (days)		DP (days)		CI (days)		LMY (kg)		300 DMY (kg)	
		Mean	± SE	Mean	± SE	Mean	± SE	Mean	± SE	Mean	± SE
Mean(μ)	138	310.876	6.07	310.876	6.07	392.86	7.92	1816.66	38.95	1820.56	34.18
Age at 1 <sup>st</sup> calving											
A1	46	306.03	10.23	79.83	8.06	385.87	13.33	1764.97	65.58	1786.29	57.55
A2	44	304.16	9.65	77.03	7.60	381.19	12.58	1787.28	61.88	1821.93	54.30
A3	48	322.42	10.37	89.10	8.17	411.53	13.52	1897.72	66.50	1853.47	58.36
Season of calving											
S1	49	321.10	9.79	83.61	7.71	404.71	12.75	1864.23	62.75	1813.05	55.06
S2	52	306.45	9.44	75.90	7.44	382.36	12.30	1756.98	60.53	1759.62	53.11
S3	37	305.07	10.33	86.44	8.14	391.52	13.47	1828.77	66.25	1889.03	58.13
Period of calving											
P1	14	324.31	17.57	84.56	13.85	408.87	22.90	1574.59 <sup>b</sup>	112.66	1562.65 <sup>b</sup>	98.86
P2	51	305.46	9.25	71.20	7.29	376.66	12.05	1935.81 <sup>a</sup>	59.30	1939.30 <sup>a</sup>	52.04
P3	43	314.02	9.83	87.02	7.75	401.05	12.82	2083.09 <sup>a</sup>	63.05	2079.92 <sup>a</sup>	55.33
P4	30	299.70	12.41	85.17	9.78	384.87	16.18	1673.16 <sup>b</sup>	79.59	1700.38 <sup>b</sup>	69.84
Lactation order											
L1	43	287.69 <sup>b</sup>	12.53	71.25	7.83	366.98	16.33	1709.50	80.35	1739.88	62.40
L2	35	293.35 <sup>b</sup>	11.09	79.29	8.74	377.93	15.06	1793.75	74.10	1831.18	55.92
L3	31	321.10 <sup>ab</sup>	11.56	84.58	9.11	413.94	14.45	1806.80	71.11	1829.11	70.50
L4	29	341.34 <sup>a</sup>	9.94	85.26	9.87	412.60	12.95	1956.59	63.73	1882.09	65.02

Means in the same column with different superscript differed significantly

values for LMY and 300 DMY have been reported by Kale (1984) in HF X G crosses. LMY and 300 DMY were significantly affected by period of calving. The DMRT table revealed that there was gradual increase in LMY and 300 DMY with advance in period of calving. Significantly higher LMY and 300 DMY were recorded against P3 ( $2083.09 \pm 63.05$  and  $2079.92 \pm 55.33$  kg resp.) than P1 ( $1574.59 \pm 112.66$  and  $1562.65 \pm 98.86$  resp.) and P4 ( $1673.16 \pm 79.59$  and  $1700.38 \pm 69.84$  kg resp.). Subsequently, values of LMY and 300 DMY for group of cows that calved in period P2 and P3 were at par, whereas cows calving in period P1 and P4 were at par.

The correlation of lactation length with calving interval and lactation milk yield was positive and highly significant. The correlation between dry period and calving interval was found to be highly significant and positive. The correlation of calving interval with LMY was positive and highly significant.

#### REFERENCES

- Bhoite, U.Y., Kale, K.M. 1996. Production performance of three breed Gir crosses. *Indian Vet. J.* 73(4):473-474.
- Harvey, W.R. 1990. Least squares analysis of data with unequal subclasses number. *USD. ARS.* 20:8.
- Kale, K.M. 1984. Growth, reproduction and production Performance of Gir cows and its exotic crosses. Ph.D.Thesis, MPKV, Rahuri.
- Krammer C. Y. (1957) Extension of multiple range test to group correlated adjusted mean. *Biometrics*, 13:13-20
- Pundir, R.K., Singh, P.K., Upadhaya, S.N. and Ahlawat S P S (2007). Status, characteristics and performance of Red Sindhi cattle. *Indian J. Anim. Sci.*, 77(8): 755-758.
- Rehman Z. and Khan M.S., 2012. Environmental factors affecting performance traits of Sahiwal cattle in Pakistan. *Pak Vet J*, 32(2): 229-233.