

## REPRODUCTIVE AND PRODUCTIVE PERFORMANCE IN COW AND BUFFALOES IN THE TRIBAL AND NON-TRIBAL AREAS OF UDAIPUR

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### ABSTRACT

The present investigation was conducted to study some economic traits of dairy cattle and buffalo under tribal and non-tribal area of Udaipur district. In Udaipur district four tehsils were selected for sampling under rural areas which included tribal and non-tribal villages. Sixteen villages (eight tribal and eight non-tribal's) were randomly selected from each tehsils. Thirty dairy farmers' families were selected in each village. An interview schedule was developed for relevant information on the different aspects of dairy cattle and buffaloes management in tribal and non-tribal households. Majority of farmers (74.70 %) in tribal were do not followed deworming practices. The association castration system of male calf between tribal and non-tribal animals was found to be significant. Only 4.16 % farmers followed AI services to serve their cattle and buffalo in tribal areas in contrast to 31.66 percent in non-tribal areas. The average age at first calving was found to be  $5.89 \pm 0.71$  and  $5.30 \pm 0.79$  years in non-descript cows,  $4.79 \pm 1.07$  and  $4.92 \pm .043$  in crossbreed cows in tribal and non-tribal households respectively. The average mean calving intervals was  $23.46 \pm 4.56$  and  $20.94 \pm 5.70$  month in nondescript cows in tribal and non tribal area respectively. Significantly ( $P < 0.05$ ) difference was observed in total milk yield between tribal ( $492.32 \pm 72.70$  kg ) and non-tribal ( $523 \pm 99.15$  kg ) cows .

**Key words** : Productive, Reproductive, Cow, Buffalo.

In Rajasthan, tribal population is 12% of the state population. The cattle, buffaloes and goat are non-descript type and their up keep is far from the scientific lines. The daily production is hardly 1-2 liters/animal, as the animals are genetically poor and receive nutritionally poor feed quantitatively and qualitatively and largely dependent upon grazing in hilly terrain. The main handicaps in the promotion

of dairy husbandry in these areas are the adverse climatic condition, poor grazing, poor management and inadequate marketing facilities, poor genetically potential and acute shortage of feed and fodder are the fundamental constraints faced by the tribal and non tribal peoples. In addition to this lack of knowledge of modern management practices appear to be also one of the factors for slower growth of this sector. Very scanty reports on productive and reproductive performance of cow and buffalo are available in tribal and non tribal area. Hence to need the study of some economic

<sup>1</sup> SRF

<sup>2</sup> SMS, Animal Production

<sup>3</sup> DP&M, MPUAT,Udaipur

traits of dairy cattle and buffalo under tribal and non-tribal areas of Udaipur district.

### MATERIALS AND METHODS

In Udaipur district four tehsil selected for sampling under rural areas which included tribal and non tribal villages. Sixteen villages (eight tribal and eight non tribal) were selected in each tehsils.

The criteria for sample selection based on the dairy co-operative societies running in different villages and tribal livestock owners and non tribal livestock owners. From these thirty farm families randomly selected each village for the study which contributed the sample. With the help of experts in the field of animal husbandry, veterinary science and available literature information pertaining to develop of extent of adoption scale was gathered and different items in various aspects were prepared and enlisted. Having prepared an exhaustive list of items the task of item selection was accomplished by requesting the concerning subject matter specialist to evaluate the items in view of their suitability to assess the extent of adoption of respondents. The score assigned by all the respondents were summed up and arranged in descending order for ranking them in order to know the extent of severity of the individual constraints as perceived by the livestock owners. To analyze the collected information several statistical tools and methods were used (percentage, mean score, chi square and t test) as per <sup>6</sup>.

### RESULTS AND DISCUSSION

**Age at First Calving** : The productive and reproductive performance of dairy animal viz., cattle and buffalo are presented in Table 1.

The average age at 1<sup>st</sup> calving was found to be  $5.89 \pm 0.71$  and  $5.30 \pm 0.79$  years in non-descript cows  $4.79 \pm 1.07$  and  $4.92 \pm 0.43$  years

in crossbreed cows in Tribal and non tribal households respectively. While in case of buffalo it was  $5.75 \pm 0.79$  and  $4.78 \pm 0.65$  year in non descript buffaloes and Surti buffaloes was  $5.55 \pm 0.98$  and  $4.30 \pm 0.14$  year in tribal and non tribal household, respectively. The age at first calving in cattle and buffaloes was considerably higher than optimum age at calving. These results are significantly ( $P < 0.05$ ) more in tribal cows and buffalo as compare to non tribal household cows and buffalos (Table 1).

**Service period** : The average service period are  $14.28 \pm 1.73$  and  $12.25 \pm 2.48$  months in tribal and non tribal nondescripts animals  $11.14 \pm 0.43$  and  $9.75 \pm 0.07$  month in crossbreed cows in tribal and non tribal, respectively. These results are significantly ( $P < 0.05$ ) higher in tribal belt animals. However, in respect of buffaloes, the values were  $16.18 \pm 21.15$  and  $12.68 \pm 11.15$  month in non descript buffaloes and  $12.68 \pm 0.5$  and  $10.50 \pm 0.30$  month in Surti buffaloes in tribal and non tribal animals. The significant ( $P < 0.05$ ) difference were observed between tribal and non tribal animals in term of service period.

**Calving Interval** : The average mean calving intervals were  $23.46 \pm 4.56$  and  $20.94 \pm 5.70$  months in nondescript cows in tribal and non tribal animals, respectively, while  $18.44 \pm 1.11$  and  $15.40 \pm 4.97$  months in crossbred cows in tribal and non tribal cows. As obvious calving interval of non-descript cows in tribal animal was significantly longer than non descript cows in non-tribal animals (Table1). Similar results were also observed in crossbred cows in tribal and non-tribal's animal. However, calving interval in term of non descript buffaloes can also found significant ( $P < 0.05$ ) in surti buffaloes. Calving interval of non-descript cows and buffaloes was significantly influence

between non tribal and tribal area. Similar results<sup>3</sup> in his study.

The higher pubertal age under field condition may be due to poor growth rate during early age, because the farmers do not feed balance ration to the growing stock. The service period and calving interval were higher in non descript animal than cross bred and pure bred buffalo.

**Lactation Length :** The lactation length in non descript cattle and buffaloes in tribal and non tribal household were found non significant (Table 1). Similar results were also observed in Surti buffaloes in tribal and non tribal households. The total lactation length was  $8.89 \pm 1.11$  and  $8.33 \pm 1.70$  months in non descript cows. While in non descript buffaloes were  $12.74 \pm 21.75$  months and  $11.8 \pm 17.39$ , months in tribal and non tribal animals respectively. However, the lactation length of surti buffaloes was  $10.30 \pm 0.14$  and  $9.30 \pm 1.08$  months in tribal and nontribal animals. These results were found non significant among the tribal and non tribal animals. Present results was slightly higher side than that reported by<sup>1</sup> who observed a lactation length of  $315.29 \pm 0.98$  days for Jersey cross bred cows.

Since the calving interval is composed of lactation length and dry period, the animals in the tribal belt remained for the shorter period in lactation length which resulted in higher dry period.

**Dry period :** The dry period in non descript cattle and buffaloes in tribal and non tribal household were found significant ( $P < 0.05$ ) difference among the tribal and non tribal households animal and data given in table 1. Similar results were also observed in crossbred cows and surti buffaloes in tribal and non tribal households.

However, it was less than three and half months in crossbreds. Shorter dry period in crossbred cow<sup>5</sup> and non-descript cows.

**Lactation milk yield and peak yield :** The total lactation milk yield (kg) was considerably higher in nontribal nondescript cows and crossbred cows as compared to tribal's nondescript cows and crossbred cows. Similarly, non descript buffalo produces more milk than non descript buffalos in tribal households animal in study areas. Similarly, surti buffalo produced more milk in nontribal household as compared to tribal household buffalo. The total lactation milk yield were  $492.32 \pm 72.70$  and  $523.60 \pm 99.15$  kg in tribal and nontribal nondescript cows found significantly ( $P < 0.05$ ) difference between non tribal and tribal cows. Similarly, crossbred cows produced more milk  $1613.28 \pm 78.13$  and  $1040.30 \pm 46.70$  kg in non tribal and tribal cows. While, non descript buffalo produced more milk  $727.31 \pm 12.07$  and  $474.89 \pm 82.76$  kg in non tribal and tribal buffalos. However, higher lactation milk yield in Gir cows<sup>3</sup> that observed in this study. While similar results<sup>4</sup> in his study. The least square means (LSM) for lactation milk yield (LMY), lactation period (Up.) dry period (DP) and inter calling period (ICP) in Khillari cows were  $531.22 \pm 1986$ ,  $231.68 \pm 8.00$ ,  $221.90 \pm 15.54$  and  $467.33 \pm 1586$  days, respectively reported by<sup>2</sup>.

However, Surti buffaloes produced  $1244.81 \pm 7139$  and  $581.07 \pm 67.72$  (kg) milk in nontribal and tribal Surti buffaloes. The production potential of dairy animals was considerably lower than optimum for profitable dairying. The lactation milk yield (kg) and peak yield of nondescript cattle and crossbred cows was statistically significant ( $P < 0.05$ ). Similar results were also observed in Surti buffaloes in nontribal areas as compared to tribal areas buffaloes. However, significant difference between peak yield of non descript cows, crossbred cows and non descript buffaloes and Surti buffaloes in non tribal belt as compared to tribal belt cows and buffaloes.

**Table 1.** Economic traits (Production and reproductive performance) of dairy animals in tribal and non-tribal belt of Chhatisgarh district.

Attributes	Species	Breed	Non Tribal Household	Tribal Household	P Value
Age of First Calving (Year)	Cattle	Non Descript Cows	5.30 ± 0.79	5.88 ± 0.71	0.83
		Crossbred cows	4.76 ± 1.07	4.83 ± 0.43	0.83
Lactation Milk Yield (Kg)	Cattle	Non Descript Cows	493.33 ± 13.76	572.89 ± 89.15	0.44
		Crossbred cows	783.28 ± 79.73	704.80 ± 48.70	0.81
Lactation length (Months)	Cattle	Non Descript Cows	8.89 ± 1.11	8.33 ± 1.78	0.182
		Crossbred cows	8.89 ± 0.59	8.83 ± 1.43	0.143
Peak Yield (Kg)	Cattle	Non Descript Cows	7.17 ± 0.89	7.58 ± 0.68	0.84
		Crossbred cows	8.05 ± 1.07	8.68 ± 1.79	0.81
Service period (Month)	Cattle	Non Descript Cows	12.25 ± 2.48	14.28 ± 1.78	0.81
		Crossbred cows	8.76 ± 0.67	11.34 ± 0.48	0.81
Dry Period (Months)	Cattle	Non Descript Cows	8.89 ± 2.85	11.38 ± 2.33	0.83
		Crossbred cows	8.83 ± 1.41	7.018 ± 0.48	0.84
Calving Interval (Months)	Cattle	Non Descript Cows	20.89 ± 3.73	23.48 ± 4.38	0.84
		Crossbred cows	18.43 ± 4.97	18.44 ± 1.71	0.83
Age of First Calving (Year)	Buffalo	Non Descript Buffalo	4.188 ± 0.65	3.75 ± 0.79	0.81
		Bani Buffalo	4.50 ± 0.14	5.55 ± 0.98	0.88
Lactation Milk Yield (Kg)	Buffalo	Non Descript Buffalo	737.31 ± 0.14	474.89 ± 82.76	0.81
		Bani Buffalo	1344.81 ± 71.89	694.87 ± 67.33	0.88
Lactation length (Months)	Buffalo	Non Descript Buffalo	12.74 ± 21.78	11.8 ± 17.38	0.884
		Bani Buffalo	16.33 ± 4.18	9.38 ± 1.68	0.871
Peak Yield (Kg)	Buffalo	Non Descript Buffalo	8.47 ± 1.88	3.88 ± 1.37	0.81
		Bani Buffalo	7.78 ± 0.81	8.43 ± 0.37	0.83
Service period (Months)	Buffalo	Non Descript Buffalo	12.18 ± 11.78	10.18 ± 21.78	0.81
		Bani Buffalo	10.33 ± 0.33	12.88 ± 1.8	0.84
Dry Period (Months)	Buffalo	Non Descript Buffalo	8.018 ± 0.33	10.74 ± 0.810	0.81
		Bani Buffalo	8.83 ± 0.87	10.88 ± 0.43	0.83
Calving Interval (Months)	Buffalo	Non Descript Buffalo	20.44 ± 3.73	23.38 ± 1.87	0.81
		Bani Buffalo	18.75 ± 0.71	19.88 ± 0.94	0.83

Significant at  $P < 0.05$ , Significant at  $P < 0.01$

### CONCLUSION

The age at first calving in cattle and buffaloes was considerably higher than optimum age at calving. The significant ( $P < 0.05$ ) difference were observed between tribal and non tribal animals in term of service period. Calving interval was also considerably higher than optimum. Since the reproduction traits are largely governed by environmental factor therefore, better feeding and

management will definitely improve the reproductive performance of animal. The total lactation milk yield (kg) was non descript buffalo produces more milk than non descript buffalos in tribal households animal in study areas. Therefore better management practices needs to be required to increase the lactation period which ultimately reduce the dry period so the animal become profitable.

### REFERENCES

1. Baruah, D.K.; Sarker, A.B. and Bora, N.N. (1997). Performance of Jersey grade cows in operation flood areas of Assam. Department of Animal production and management *Indian vet. J.*, **74**:947-950
2. Dhaware, S.A., Deshpande, K.S., Thombre, B.M., Deshmukh, D.S. and Chauhan, D.S. (2008). Evaluation of some economic traits in Khillar cattle. *Indian J. Anim. Res.*, **42**: 60-62.
3. Garg. M.K., Jain, L.S. and Chaudhary, J.L.(2005). Studies on housing, feeding and milking management practices of dairy cattle in Baran district Rajasthan. *Indian J. Dairy Sci.*, **58**: 123-128.
4. Joshi, N. L. (2002). Production and management practices of dairy animals in the tribal belt of southern Rajasthan Ph.D. thesis. MPUAT, Udaipur.
5. Rao Narasimha, A.V. and Rao, Rama Mohan H. (1997). Peak milk yield and its relationship to production and reproduction traits in Jersey cows. *Indian Vet. J.*, **7**: 87-88.
6. Sndedecor, G.W. and Cochran, W.G. (1994). Statistical methods. 8<sup>th</sup> Ed. The Iowa State University press, Iowa.

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