

A Study on Breeding and Calf Management Practices in Bidar District of Karnataka - An Exploratory Study

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ABSTRACT

The study on breeding and calf management practices of buffaloes was purposively conducted in Bidar district of Karnataka adopting exploratory research design. A total of 180 buffalo farmers were selected randomly for the study. The study revealed that most of the farmers experienced problems in heat detection at right time in buffaloes (51.12 %). Majority of farmers preferred artificial insemination (51.22 %), bred their buffaloes 3 or more than 3 times for successful conception (71.67 %) and encountered repeat breeding in the buffaloes (56.12 %). Among the farmers who had encountered repeat breeding problem in the herd, about 37.23 per cent of farmers found that animals did not responded positively towards the treatment of repeat breeding and most of them did not maintain proper breeding record (96.67 %). Most of the farmers provided adequate floor space to the calves (70.55 %) but did not provide bedding material to protect from extreme weather (71.67 %) and also did not provide manger for feeding their calves (94.45 %). Majority of the farmers experienced calf mortality problem (54.44 %) caused due to diarrhoea (35.55 %). Repeat breeding problem in the buffaloes (70.00 %) and poor conception rate through artificial insemination (58.88 %) were the major breeding constraints faced by farmers.

Keywords : Breeding, calf management, artificial insemination, conception, mortality

ANIMAL Husbandry is helpful in generating gainful employment in the rural sector, particularly among the landless labourers, small and marginal farmers by supplementing their family incomes, hence animal husbandry is carried out by all farmers regardless of their economic status. Buffalo has inherent ability to produce milk with high milk fat content ranging from 6 to 8.5 per cent. Because of its higher milk fat contents, buffalo milk is preferred over cow milk and it fetches better price in the market (Khan *et al.*, 2010). The Murrah, Bhadawari, Jaffarabadi, Surti, Mehsana, Nagpuri and Nili Ravi are the important breeds of buffalo. Although the economic contribution of livestock seems to be quite substantial in the agricultural economy as well as in the national economy, the farmers who raise buffalo are ignorant of scientific management practices. Genetic potentiality of the livestock and its production depends mostly on the managerial practices (Gupta *et al.*, 2008). Productivity and health starts when the cow is born as calf. The effect of nurture is many a times greater

and pre-weaning period is a phase of development where the productivity of the calf can be modified to enhance the animal's genetic potential. Hence, proper management helps the calf to get a good start for a productive life. In this backdrop, the present study is undertaken to explore the breeding and calf management practices of buffalo followed by farmers.

METHODOLOGY

The study on calf management practices was conducted in the state of Karnataka which is having high density of livestock population. Bidar district was purposively selected for the study since it has got predominantly buffalo based dairy production system. Two taluks viz., Bidar and Humnabad were randomly selected for the study. Ninety buffalo farmers were selected randomly from each of the two taluks under study, thus a total of 180 buffalo farmers were selected. Data was collected through informal and friendly visits to the farmers' homes and farms in the early hours of the day.

RESULTS AND DISCUSSION

Breeding management practices for buffaloes

The distribution of buffalo farmers based on breeding management practices is depicted in Table I. The results in table revealed that, majority of the buffaloes belongs to small (68.33 %), medium (73.33 %), large (70.00 %) and pooled sample farmers (70.56 %) attained the maturity age between three to four years. The results of the present study are similar to the findings of Tiwari *et al.* (2007). About 36.37, 41.67, 30.00 and 36.11 per cent of the small, medium, large and pooled sample farmers respectively detected heat in buffaloes based on the symptom of mucous discharge and bellowing. Similar findings were reported by Sabapara *et al.* (2010). The data revealed that significant per cent of the small (41.67 %), medium (50.00 %), large (56.67 %) and pooled sample farmers (46.12 %) bred their buffaloes between 12 - 24 hours after heat detection in buffaloes. It confirms the awareness among farmers regarding the stages of breeding for successful conception and also due to better extension work by the artificial insemination workers regarding breeding stages in the buffaloes. Sabapara *et al.* (2010) in their study identified similar findings, where majority of the farmers bred their animals between 12 - 18 hours after heat detection.

A glance at Table I also found that, majority of the small (55.00 %), medium (58.33 %), large (53.33 %) and pooled sample farmers (51.12 %) had problem in detection of heat in buffaloes. As there are no external symptoms exhibited during heat, it becomes difficult for the farmers to detect heat symptoms in buffaloes. The results are in agreement with the findings of Vijay *et al.* (2008). Artificial insemination was preferred by majority of the small (55.00 %), medium (60.00 %) and pooled sample farmers (51.22 %), whereas, natural method was preferred by large farmers (61.67 %). The reason for the above findings might be due to non availability of graded buffalo bull for natural service, high cost offered by the buffalo bull owners and also due to the availability of artificial insemination service facility. The results are in consonance with the findings of Sabapara *et al.* (2010) and differ with the findings of Rathore *et al.* (2010), who reported that, majority of the farmers preferred natural service for breeding in their animals.

Seventy, 80, 65 and 71.67 per cent of the small, medium, large and pooled sample farmers, respectively, bred their buffaloes for 3 or more than 3 times for successful conception. The time of breeding, quality of semen and physiological stage of buffaloes plays a major role in early conception. Gupta *et al.* (2008), reported similar findings in their study, where majority of the buffaloes conceived by three services only.

Majority of small (51.67 %), medium (53.33 %), large (63.33 %) and pooled sample famers (56.12 %) had problem of repeat breeding in their herd. Among those who had repeat breeding problem in their herd, 41.67, 46.67, 63.33 and 50.56 per cent of the small, medium, large and pooled sample farmers respectively, offered treatment for repeat breeder buffaloes from the Veterinarians. Among them, substantial number of buffaloes belonging to small (30.00 %), medium (33.33 %), large (48.33 %) and pooled sample farmers (37.23 %) did not respond to the treatment offered from Veterinarians.

With respect to age at first calving, majority of the buffaloes belong to small (55.00 %), medium (66.67 %), large (58.33 %) and pooled sample farmers (60.00 %) calved between 3 - 4 years of age. The perusal of Table I also found that, 55.00, 46.66 and 44.45 per cent of the small, medium and pooled sample farmers, respectively, carried breeding after 5 months of parturition in buffaloes, whereas, 43.33 per cent of the large farmers carried breeding within 3-5 months after parturition. The post partum breeding interval can be considered as a good indicator of reproduction efficiency in animal. It might be due to the fact that, majority of the farmers thought that breeding at early stage in buffaloes decrease the milk production and further may be lack of knowledge among the farmers to rebreed their buffaloes after 3 months of parturition.

It is evident from the results that, 50 per cent each of the small and medium farmers and 43.88 per cent of the pooled sample farmers had calving interval for more than 18 months, whereas, in case of large farmers (46.67 %) had calving interval between 12-18 months. The long inter-calving period puts the dairy farmer into economic loss and increases the cost of maintenance; this might be due to lack of knowledge among the farmers regarding rebreeding leading to

TABLE I
Distribution of buffalo farmers based on breeding management practices

Breeding management practices	Farmers							
	Small (n=60)		Medium (n=60)		Large (n=60)		Pooled sample (N=180)	
	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9
Maturity age of buffaloes								
a. Below three years	3	5.00	5	8.33	8	13.33	16	8.88
b. Three to four years	41	68.33	44	73.33	42	70.00	127	70.56
c. Four to five years	16	26.67	11	18.34	10	16.67	37	20.56
Heat detection method								
a. Bellowing	2	3.33	5	8.33	3	5.00	10	5.55
b. Mucous discharge	6	10.00	6	10.00	9	15.00	21	11.67
c. Attempt to mount on other animal	1	1.67	2	3.33	3	5.00	6	3.33
d. Mucousdischarge + Attempt to mount on other animal	6	10.00	5	8.33	9	15.00	20	11.11
e. Mucous discharge + Bellowing	22	36.67	25	41.67	18	30.00	65	36.11
f. Mucous discharge + Bellowing + Attempt to mount on other animal	16	26.67	11	18.34	12	20.00	39	21.67
g. Others: Sticking of the mucous below the tail	7	11.66	6	10.00	6	10.00	19	10.56
Stages of heat period for breeding								
a. Within 12 hours	16	26.66	21	35.00	27	45.00	64	35.55
b. Between 12 - 24 hours	25	41.67	30	50.00	28	56.67	83	46.12
c. More than 24 hours	19	31.67	9	15.00	5	8.33	33	18.33
Problem in detecting silent heat								
a. Yes	33	55.00	35	58.33	32	53.33	92	51.12
b. No	27	45.00	25	41.67	28	46.67	88	48.88
Preference for breeding method								
a. Artificial insemination	33	55.00	36	60.00	23	38.33	92	51.22
b. Natural method	27	45.00	24	40.00	37	61.67	88	48.88
Number of breeding for successful conception								
a. 1 or 2 times	18	30.00	12	20.00	21	35.00	51	28.33
b. 3 or more than 3 times	42	70.00	48	80.00	39	65.00	129	71.67
Repeat breeding problem, treatment and response of treatment								
A. Yes								
i. Treated from Veterinarians and responded positively	7	11.67	8	13.34	9	15.00	24	13.33

	1	2	3	4	5	6	7	8	9
ii. Treated from Veterinarians and not responded positively		18	30.00	20	33.33	29	48.33	67	37.23
iii. Not treated		6	10.00	4	6.66	0	0.00	10	5.56
B. No		29	48.33	28	46.67	22	36.67	79	43.88
Age at first calving									
a. Below 3 years		1	1.67	9	15.00	6	10.00	16	8.88
b. Between 3 - 4 years		33	55.00	40	66.67	35	58.33	108	60.00
c. More than 4 years		26	43.33	11	18.33	19	31.67	56	31.12
Post partum breeding									
a. 2 - 3 months		6	10.00	16	26.67	15	25.00	37	20.55
b. 3 - 5 months		21	35.00	16	26.67	26	43.33	63	35.00
c. After 5 months		33	55.00	28	46.66	19	31.67	80	44.45
Inter-calving period									
a. Within 12 months		3	5.00	16	26.67	13	21.67	32	17.78
b. 12 - 18 months		27	45.00	14	23.33	28	46.67	69	38.34
c. More than 18 months		30	50.00	30	50.00	19	31.66	79	43.88
Maintenance of breeding record									
a. Yes		0	0.00	1	1.66	5	8.33	6	3.33
b. No		60	100.0	59	98.33	55	91.67	174	96.67

long calving interval period. Regarding maintenance of breeding record, cent per cent of small farmers and majority of the medium (98.33 %), large (91.67 %) and pooled sample farmers (96.67 %) did not maintain breeding record. This shows lack of awareness among the farmers regarding the importance of breeding record.

Calf management practices for buffaloes

The distribution of buffalo farmers based on calf management practices are depicted in Table II. The results revealed that, all the small farmers (100.00 %) and majority of the medium (90.00 %), large (81.67 %) and pooled sample farmers (90.56 %) tied their buffalo calves along with their mother. The results were in accordance with the findings of Tiwari *et al.* (2007). Significant number of the small (75.00 %), medium (70.00 %), large (78.33 %) and pooled sample farmers (74.44 %) were practicing to feed colostrum immediately after the birth of calves. This indicated that farmers were aware on timely colostrum feeding. The results of the present study are in contrary with

the findings of Tiwari *et al.* (2007) and Sinha *et al.* (2010) who reported that, majority of farmers were feeding colostrum after the expulsion of placenta. Majority of the small (80.00 %), medium (55.00 %), large (76.67 %) and pooled sample farmers (70.55 %) provided adequate floor space to the calves. The findings of Tiwari *et al.* (2007) were contrary with the findings of present study, who reported that, calves were housed in a crowded way due to lack of space.

The data presented in Table II reveals that, majority of the small (73.33 %), medium (60.00 %), large (56.67 %) and pooled sample of farmers (63.33 %) left the navel cord as it is, for natural fall out, which indicates the lack of knowledge among farmers regarding the navel cord disinfection. Tiwari *et al.* (2007), Rathore *et al.* (2010), Sabapara *et al.* (2010) and Sinha *et al.* (2010), observed similar findings. Majority of the small (63.33 %), medium (76.67 %), large (75.00 %) and pooled sample of farmers (71.67 %) did not provide any bedding material to the calves to protect from extreme heat

TABLE II
Distribution of buffalo farmers based on calf management practices

Breeding management practices	Farmers							
	Small (n=60)		Medium (n=60)		Large (n=60)		Pooled sample (N=180)	
	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9
Housing system								
a. Separate shed	0	0.00	1	1.67	2	3.33	3	1.67
b. Created space in the shed in shed	0	0.00	5	8.33	9	15.00	14	7.77
c. Tied calf with mother	60	100.0	54	90.00	49	81.67	163	90.56
First colostrum feeding								
a. Immediately after birth	45	75.00	42	70.00	47	78.33	134	74.44
b. After expulsion of placenta	7	11.67	9	15.00	5	8.33	21	11.67
c. Never feed	8	13.33	9	15.00	8	13.34	25	13.89
Floor space provided								
a. Adequate	48	80.00	33	55.00	46	76.67	127	70.55
b. Inadequate	12	20.00	27	45.00	14	23.33	53	29.45
Practice of navel cord separation								
a. Cutting and disinfecting the navel cord.	16	26.67	24	40.00	26	43.33	66	36.67
b. Left as it is, for natural fall out	44	73.33	36	60.00	34	56.67	114	63.33
Bedding materials provided to calves								
a. Gunny bag	3	5.00	3	5.00	2	3.33	8	4.44
b. Straw	13	21.67	9	15.00	8	13.34	30	16.67
c. Gunny bag + Straw	38	63.33	46	76.67	45	75.00	129	71.67
d. Nil								
Milk suckling time by the calves								
a. Before milking	33	55.00	36	60.00	39	65.00	108	60.00
b. After milking	27	45.00	24	40.00	21	35.00	72	40.00
Practice of weaning								
a. Yes	0	0.00	0	0.00	0	0.00	0	0.00
b. No	60	100.0	60	100.0	60	100.0	180	100.0
Deworming practice								
a. Regularly	28	46.66	39	65.00	34	56.67	101	56.12
b. Occasionally	16	26.67	12	20.00	15	25.00	43	23.88
c. Never practice	16	26.67	9	15.00	11	18.33	36	20.00

	1	2	3	4	5	6	7	8	9
Age of feeding fodder									
a. Less than 1 week		9	15.00	6	10.00	8	13.33	23	12.77
b. Between 1 – 2 week		51	85.00	54	90.00	52	86.67	157	87.23
Calf mortality problem and major causes									
a. Yes									
I. Diarrhoea		24	40.00	19	31.66	21	35.01	64	35.55
II. Endoparasitic infestation		5	8.34	4	6.67	3	5.00	12	6.67
III. Navel ill		5	8.33	0	0.00	3	5.00	8	4.44
IV. Pneumonia		2	3.33	3	5.00	2	3.33	7	3.89
V. Bloat		2	3.33	3	5.00	2	3.33	7	3.89
Calf mortality problem total		38	63.33	29	48.33	31	51.67	98	54.44
b. No		22	36.67	31	51.67	29	48.33	28	15.56
11 Manger provided for calves									
a. Yes		0	0.00	5	8.33	5	8.33	10	5.55
b. No		60	100.0	55	91.67	55	91.67	170	94.45

and cold. The exposure of calves to extreme heat and cold leads to physical stress and the body of calves is not adapted to bear such stress and the calves may collapse. The results of the present study were in agreement with the findings of Tiwari *et al.* (2007) but not in agreement with the findings of Vijay *et al.* (2008), who reported that, majority of the farmers were providing bedding material to the calves.

Majority of the small (55.00 %) and large farmers (65.00 %) and an equal percentage (60.00 % each) of the medium and pooled sample farmers allowed their calves to suckle milk before milking, but not after milking. Most of the farmers are using calf for letting down of milk only but not feeding sufficient quantity of milk to the calves which indicated the improper feeding of milk in the calves. Vijay *et al.* (2008), observed similar findings in their study. The findings of Tiwari *et al.* (2007) were contrary with the present findings, who reported that, majority of the farmers allowed their calves to suckle milk both before and after milking.

It was observed from the results that, none of the farmers from all the categories, i.e., small, medium and large did not practice weaning in calves. The

findings are in partial agreement with the findings of Sinha *et al.* (2010) and Aulakh and Rajbir (2012) who reported that, low percentage of farmers practiced weaning in the calves. Significant per cent of small farmers (46.66 %) and majority among the medium (65.00 %), large (56.67 %) and pooled sample farmers (56.12 %) were practicing regular deworming in the calves. This confirmed the awareness among the farmers regarding the importance of deworming in the calves. The findings of Tiwari *et al.* (2007), Gupta *et al.* (2008), Vijay *et al.* (2008) and Sabapara *et al.* (2010) were not in agreement with the findings of the present study, who reported that, majority of the farmers did not practice deworming in calves. Majority of the small (85.00 %), medium (90.00 %), large (86.67 %) and pooled sample of farmers (87.23 %) started to feed fodder to the calves at the age of 1 - 2 weeks. The results are contrary with the findings of Sinha *et al.* (2010), who reported that, in rural and semi-rural areas, farmers started feeding fodder from 3 months of age and in urban areas, within 2 months of age.

Majority of the small (63.33 %), large (51.67 %) and pooled sample farmers (54.44 %) had problem of calf mortality, whereas, majority (51.67 %) of the

TABLE III
Distribution of buffalo farmers based on the breeding constraints

Breeding management practices	Farmers								Ranking
	Small (n=60)		Medium (n=60)		Large (n=60)		Pooled sample (n=180)		
	No.	%	No.	%	No.	%	No.	%	
Insufficient information about of heat detection signs in animals	0	0.00	1	1.66	0	0.00	1	0.55	X
Insufficient information about timing of artificial insemination /Natural service	14	23.33	7	11.66	9	15.00	30	16.66	VII
Inability to detect heat symptoms in buffaloes due to silent heat	15	25.00	15	25.00	18	30.00	48	26.66	VI
Poor conception rate through artificial insemination	32	53.33	35	58.33	39	65.00	106	58.88	II
Non availability of artificial s insemination facilitie	6	10z.00	2	3.33	0	0.00	8	4.44	IX
Repeat breeding problem in buffaloes	39	65.00	41	68.33	46	76.66	126	70.00	I
Delayed maturity age in heifers	29	48.33	28	46.66	26	43.33	83	46.11	III
Lack of high quality pedigree bull for Natural service	25	41.66	20	33.33	10	16.66	55	30.55	IV
Low productivity of non -desc ript animals	19	31.66	15	25.00	20	33.33	54	30.00	V
Long inter-calving period	6	10.00	5	8.33	15	25.00	26	14.44	VIII

medium farmers, did not have the problem of calf mortality. The calf mortality among the small (40.00 %), medium (31.66 %), large (35.01 %) and pooled sample farmers (35.55 %) was due to diarrhea, indicating the lack of knowledge regarding proper deworming schedule in calves. The results are similar with the findings reported by Tiwari *et al.* (2007) and Shrivastava *et al.* (2013). None of the small farmers and an equal percentage (91.67 %) each of the medium and large farmers and 94.45 per cent of the pooled sample of farmers did not provide manger for feeding their calves. The findings were in partial agreement with the findings of Tiwari *et al.* (2007), who reported that, none of the farmers provided manger to the calves.

The data in Table III reveals that, repeat breeding problem in the buffaloes as the major constraint faced by majority of the pooled sample farmers (70.00 %) followed by poor conception rate through artificial

insemination (58.88 %), delayed maturity age in heifers (46.11 %), lack of high quality pedigree bull for Natural service (30.55 %) and low productivity of non-descript animals (30.00 %). The other constraints are inability to detect heat symptoms in buffaloes due to silent heat (26.66 %), insufficient information about timing of artificial insemination / Natural service (16.66 %), long inter-calving period (14.44 %) and non availability of artificial insemination facilities (4.44 %). The findings are similar with the findings of Rathore *et al.* (2010).

The present study has revealed that there is a considerable gap existing between recommended scientific management practices and the adopted management practices. Young farmers have to take interest in dairy activity, for which suitable extension strategies should be developed. Training programmes on improved breeding and calf management practices will help the farmers to overcome the certain

management problems like repeat breeding, long calving interval, navel infections, etc. Adoption of suitable and scientific management strategies in buffalo farming will substantially help in increase of production as well as income generation.

REFERENCES

- AULAKH, G. S. AND RAJBIR. S., 2012, Adoption of recommended management practices by buffalo owners. *Indian J. Dairy Sci.*, **65** (5) : 431 - 43.
- GUPTA, D. C., SURESH, A. AND MANN, J. S., 2008, Management practices and productivity status of cattle and buffalo in Rajasthan. *Ind. J. Anim. Sci.*, **78** (7) : 769 - 774
- KHAN, A. M., BASET, M. K. AND FOUDER, S. K., 2010, Study on management and production system of small scale dairy farm in a selective rural areas of Bangladesh. *J. Sci. Foundation.*, **8** (1 & 2) : 13 - 23.
- RATHORE, R. S., RAJBIR SINGH, KACHWAHA, R. N. AND RAVINDER KUMAR., 2010, Existing management practices followed by the cattle keepers in churu district of Rajasthan. *Ind. J. Anim. Sci.*, **80** (8) : 798 - 805
- SABAPARA, G. P., DESAI, P. M., RANA RANJEET SINGH AND KHARADI, V. B., 2010, Breeding and health care management status of dairy animals in the tribal area of south Gujarat. *Ind. J. Anim. Sci.*, **80** (11) : 1148 - 1151.
- SHRINIVASTAVA, M., NANAVATI, S. AND YADAV, D. S., 2013, Management practices to minimise calf mortality in Buffaloes (*Bubalus Bubalis*). *Indian J. Field Vet.*, **9** (1) : 22 - 24.
- SINHA, R. K., TRIVENI DUTT, BHARAT BHUSHAN, MUKESH SINGH AND SANJAY KUMAR. 2010, Feeding and housing management practices of dairy animals in Uttar Pradesh. *Ind. J. Anim. Sci.*, **79** (8) : 829 - 833.
- TIWARI, R., SHARMA, M. C. AND SINGH. B. P., 2007, Buffalo calf health care in commercial dairy farms: a field study in Uttar Pradesh (India). *Livestock Research for Rural Development.*, **19**(3).<http://www.lrrd.org/lrrd19/3/tiwa19038.htm>
- VIJAY, A., UPAYANA AND RAM KUMAR, 2008, Existing dairy farming practices of six major dairy tribes of Nilgiris District of Tamil Nadu. *Indian J. Dairy Sci.*, **61** (1) : 80 - 87.

(Received : February, 2017 Accepted : June, 2017)