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Research Article

STUDY ON MANAGEMENTAL PRACTICES AND MORTALITY PATTERN OF BUFFALOCALVES IN TAMIL NADU

***Balusami C.**
Department of Livestock Production Management, College of Veterinary Science and Animal Science, Pookode, Wayanad District-673 576 Kerala, India
**Author for Correspondence*

ABSTRACT
A study was conducted to assess the management practices and mortality pattern of buffalo calves from 250 large, marginal small and landless buffalo farmers of north east zone of Tamil Nadu. Over two third of the buffalo farmers (72 per cent) fed colostrum to the calf one hour after birth, while 22.8 per cent of farmers fed colostrum within two hours and rest (5.2 per cent) after expulsion of placenta. Deworming was not practiced by 13.20 per cent of the farmers, whereas 86.80 per cent deworm their animals, out of which only 8.4 per cent did once in every three month interval, almost one third (37.2 per cent) at six month interval and two fifth (41.2 per cent) once in a year. Almost three fourth (77.2 per cent) of the buffalo farmers practiced the prophylactic vaccinations for the diseases like Food and Mouth, Haemorrhagic septicemia and Black Quarter. The age wise mortality from birth to 3 months, 4-6 months and 7-9 months in buffalo calves was 45.0, 37.5, and 17.5 per cent, respectively. The highest mortality (per cent) was observed from birth to 3 months in landless labourers category. The highest mortality was observed in male calves (60 per cent) than female calves (40.0 per cent) especially in landless laborers category. Disease wise mortality in buffalo calves due to enteritis, pneumonia and others causes was found to be 45 per cent, 13 per cent, 13 per cent and 22.5 per cent, respectively. From the results of the study it was concluded that the farmers need to be trained on various aspects of scientific calf rearing practices for increasing the economic profitability. Further they also need to be taught about the importance of fattening of male buffalo calves which can be sold to the butchers for their meat value.

Keywords: *Buffalo Calf, Colostrum Feeding, Health Care, Calf Mortality*

INTRODUCTION
Calf management plays an important role in the development of the dairy sector of the country. The success of any dairy enterprise depends on the production of sufficient calves to act as the replacement stock. Calf care is not only essential for sustainance of the dairy industry but also for preserving and maintaining our good quality germplasm. Important aspects in the calf rearing are the health and nutrition management (Tiwari *et al.,* 2007). Calf mortality was associated with the type of housing, feeding, managemental practices, weather conditions, external and internal parasitic problems and bacterial infections especially those causing septicaemia and enteritis (Blood *et al*., 1994). Mortality of calf is an important trait both for breeding and economic point of view in dairy enterprise. The first month of the Buffalo calf's life is very crucial and it is found that the calf mortality is as high as 19.5% (Sreedhar *et al.*, 2010). The reports available on buffalo calf rearing and mortality are mainly based on data obtained from organized farms and institutional herds but data on field level is scanty. Keeping in view of above fact the study was conducted on buffalo calf rearing practices and mortality pattern at field level.

MATERIALS AND METHODS
The study was conducted in north east zone of Tamil Nadu, India comprising Chennai, Kancheepuram, Thiruvallur, Thiruvannamalai and Villupuram district. Selection of the respondents was made using stratified random sampling technique according to the land holding viz, landless, marginal (<2.5 acres), small (2.6-5.0 acres) and large (>5.0 acres) farmers. Atotal of 250 respondents comprising 45 large, 51 small, 54 marginal and 100 landless farmers were selected from villages of the above districts. The total households were post stratified (Maheswaran, 1993) to study the various health management practices,

viz., time of colostrum feeding, deworming, vaccination under different socio economic situations. While deciding population for selection from each village, only those buffalo farmers having at least one milch buffalo at the time of survey were considered.A total of 100 buffalo calf mortality wererecorded during study period and the pattern buffalo calf mortality classified intoage wise, sex wise anddisease wise and chi-square test was used to analyze the data.

RESULTS AND DISCUSSION

Managemental Practices of Buffalo Calves

The calf management practices followed in study area is presented in table-1. Chi-square test showed that there was no significant association between colostrum feeding, deworming and vaccination and farmer's category. Over two third of the buffalo farmers (72 per cent) fed colostrum to the calf one hour after birth. Over one-fifth of the farmers (22.8 per cent) fed colostrum within two hours and rest (13 per cent) after expulsion of placenta (Sah *et al*., 2003). In contrast, Kokate and Tyagi (1991) observed that 94 per cent of farmers were not providing colostrum to new born calf in Thane district of Bihar. The study also revealed that no farmer adopted the practice of cutting the umbilical card aseptically, weaning of calves and provide calf pen.

Table I: Calf management practices followed in the study area

Parameters	**Farmers category**				
	Large farmer	**Small farmer**	**Marginal farmers**	**Landless labourers**	**Total**
No.of observation	45	51	54	100	250
(Per cent)	(18)	(20.4)	(21.6)	(40)	(100)
Time of colostrum feeding					
Within one hours	38	37	36	75	180
	(12.8)	(14.8)	(14.4)	(30.0)	(72)
Within two hour	13	11	14	19	57
	(5.2)	(4.4)	(5.6)	(7.6)	(22.8)
After expulsion of placenta	0	3	4	6	13
	(0)	(0.8)	(1.6)	(2.4)	(5.2)
Deworming					
Not followed	3	7	9	14	33
	(1.2)	(2.8)	(3.6)	(5.6)	(13.2)
Once in three month	7	6	6	2	21
	(2.8)	(2.4)	(2.4)	(0.8)	(8.4)
One in six month	19	19	17	38	93
	(7.6)	(7.6)	(6.8)	(15.2)	(37.2)
Once in a year	16	19	22	46	103
	(7.6)	(8.8)	(18.4)	(40)	(100)
Vaccination					
FMD,HS&BQ	35	40	38	80	193
	(14.0)	(16.0)	(15.2)	(32.0)	(77.2)
Not followed	10	11	16	20	57
	(4.0)	(4.4)	(6.6)	(8.0)	(22.8)

(Figures in parentheses indicate per cent to total)
X^2(Chi square value):4.621 ^{NS} (between time of colostrum feeding and farmers category)
X^2(Chi square value):12.865 ^{NS} (between time of deworming and farmers category)
X^2(Chi square value):1.929 ^{NS} (between vaccination and farmers category)
NS Non significant

All the farmers followed the practice the removing mucous from the nostrils and assisting the weak calves to suckle. Nearly 13.2 per cent of the farmers did not deworm their calves, whereas 86.80 per cent deworm their animals, out of which only 8.4 per cent did once in every three month interval, almost one third (37.2 per cent) at six month interval and two fifth (41.2 per cent) once in a year. Similar observations were made by Kumar *et al.*(2013).Almost three fourth (77.2 per cent) of the buffalo farmers practiced the prophylactic vaccinations for the diseases like Food and Mouth, Haemorrhagic septicemia and Black Quarter. Similar to the present findings Kalitha *et al.*, (2000) also reported that 92.86 per cent of the respondents following similar vaccination.

Buffalo Calf Mortality

The category wise mortality pattern of buffalo calves is presented in table-2.The age wise mortality from birth to 3 months, 4-6 months and 7-9 months in buffalo calves was 45.0, 37.5, and 17.5 per cent, respectively. The highest mortality (per cent) was observed from birth to 3 months in landless labourers category which confirm the results reported by Rao and Murthy (1981). Birth to one month period might be considered the most vulnerable period in the life of a calf and as such it demands utmost care and attention. Sex wise mortality in buffalo calves for male and female was 60.0 and 40 per cent, respectively and the highest mortality was observed especially in landless laborers category. This may be due to less attention given to the calves. Disease wise mortality in buffalo calves due to enteritis, pneumonia and others was 45, 13, 13 and 22.5 per cent, respectively. Similar findings were reported by Banerjee (1998). The higher incidence of mortality due to enteritis might be associated with the higher milk consumption by calves, coupled with infections. The exposure of young calves in cold months would have caused respiratory problems resulting in pneumonia. Similarly, Patil *et al.*, (1991) and Pradhan and Panda (1994) reported high mortality rate of 33 and 36.8 per cent in Surti and Murrah buffalo calves, respectively during the first month of age.

Table II: Mortality pattern of buffalo calves in study area

Parameters	**Farmers category**				
	Large farmer	**Small**	**Marginal**	**Landless labourers**	**Total**
Number of observation (Per cent)	4 (10.0)	6 (15.0)	9 (22.5)	21 (52.5)	40 (100)
Age wise					
0-3 months	1 (2.5)	3 (7.5)	4 (10.0)	10 (25.0)	18 (45.0)
4-6 months	2 (5.0)	3 (7.5)	2 (5.0)	8 (20.0)	15 (37.5)
7-9 months	1 (2.5)	0	3 (7.5	3 (7.5)	7 (17.5)
Sex wise					
Male	3 (7.5)	4 (10.0)	5 (12.5	12 (30.0)	24 (60.0)
Female	1 (2.5)	2 (5.0)	4 (10.0)	9 (22.5)	16 (40.0)
Disease wise					
Enteritis	2 (5.0)	3 (7.5)	3 (7.5)	10 (25.0)	18 (45.0)
Pneumonia	1 (2.5)	2 (5.0)	4 (10.0)	6 (15.0)	13 (32.5)
Others	1 (2.5)	1 (2.5)	2 (5.0)	5 (12.5)	9 (22.5)

(Figures in parentheses indicate per cent to total)

In early age immune system of a young calf is under development and poor hygienic conditions may expose young calves to pathogens like E. Coli, Salmonella, Pasteurella and parasites, which are responsible for neonatal mortality (Blood *et al.,* 1994).This finding also corroborated by Vorster *et al.,* (1994) who reported outbreaks of diarrhea in 3-28 days old calves in South Africa.

Conclusion

The results of the present study revealed that most of farmers provide colostrum to the newborn calf within one hour its' birth. The study also revealed that no farmer adopted the practice of cutting the umbilical card aseptically, weaning of calves and providing calf pen. Nearly 86.80 per cent of farmers deworm the calves and almost three fourth of the buffalo farmers practiced the prophylactic vaccinations for the diseases like Food and Mouth, Haemorrhagic septicemia and Black Quarter etc. Incidence of calf mortality was higher in male calves maintained by landless farmers due to enteritis and pneumonia. Based on the results it was concluded that the farmers need to be trained on various aspects of scientific buffalo calf rearing practices for increasing the profitability.

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