

STUDIES ON BUFFALO CALVES MORTALITY WITH SPECIAL REFERENCE TO GASTRO-INTESTINAL TRACT DISORDERS

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SUMMARY

Data pertaining to mortality in buffalo calves between January 2005 and December 2010 was collected and was correlated with gastro-intestinal disorders. Analysis of the data revealed that mortality was maximum in age group of below one month of age (42.78%) and affections of digestive system accounted for the highest mortality (53.60%). The main gastro-intestinal affections observed were gastritis, enteritis, pneumo-enteritis and hepatitis.

Key words: Mortality, gastro-intestinal tract, buffalo calf

India accounts for 57% of the world's buffalo population (Kundu *et al.*, 2004) and 15% of the cattle population. Out of 170 million buffaloes of the world, 165 million (97%) are in Asia, which is concentrated in South Asia (71%) followed by Central Asia (14%) and South East Asia (9%). Haryana breed of cattle and Murrah breed of buffalo are the most important dairy animals in Haryana. Though, total buffalo population is less than half of cattle yet they contribute 55% of total milk produced in the country (Kundu *et al.*, 2004). So, to exploit dairy industry for maximum gains, a greater attention needs to be given to the health related problems of bovines. The effective development of any livestock industry depends upon the prevention and control of diseases among the animals. Diseases in these animals lead to losses in milk yield and lower the return on the investments.

There are many bacterial, viral and parasitic diseases which cause mortality among animals there by leading to loss of production in terms of milk, meat and draft power. However, mortality among young ones is more due to bacterial (salmonellosis, colibacillosis), viral (rotavirus infection, coronavirus infection etc.) and parasitic (ascariasis, amphistomiasis, toxocariasis etc.) diseases.

Calf mortality leads to losses in milk yield and also reduces the overall output of livestock production. So,

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it is very important to determine the causes of calf mortality. One of the most important disease conditions, colibacillosis causes heavy mortality and losses in buffalo calves. *Escherichia coli* cause two common diseases of newborn calves i.e. colisepticaemia in which the bacteria invade the systemic circulation and internal organs and enteric colibacillosis in which the bacteria are localized to the lumen and mucosal surface of small intestine (Logan *et al.*, 1977). To better define the cause of the death and combat rising mortality, clearer definitions regarding the reasons of mortality in buffalo calves need to be acquired through necropsy based postmortem evaluation.

In order to determine the prevalence of gastro-intestinal disorders in buffalo calves, records pertaining to the postmortem examination conducted at the Department of Veterinary Pathology, College of Veterinary Sciences, Hisar, for the last six years between January 2005 and December 2010 were examined and tabulated. The data with regards to age, sex, month, cause of death determined on the basis of necropsy findings were collected.

Data pertaining to 194 or 195 cases of buffalo calves upto one year of age were analyzed. Based on the postmortem records, it was found that maximum mortality was in the year 2005 (51) followed by 2007 (36), 2008 and 2010 (31) each, 2009 (27) and 2006 (18). The difference in mortality over the years may be due

Table 1
Age and sex-wise mortality distribution among buffalo calves in different age groups from 2005-2010

Year	Male Age group				Female Age group			
	Upto 1 month	1-3 month	3-6 month	6-12 month	Upto 1 month	1-3 month	3-6 month	6-12 month
2005	12	6	3	3	11	11	2	3
2006	6	1	4	1	4	1	0	1
2007	10	4	1	0	7	8	2	4
2008	6	3	5	2	5	4	3	3
2009	7	0	1	4	3	2	4	6
2010	8	4	5	3	4	1	4	2
Total	49	18	19	13	34	27	15	19
%	51.03%				48.96%			

to variation in number of buffalo calves in the farm or occurrence of some disease outbreak.

Age-wise distribution of mortality in buffalo calves for this period revealed that maximum mortality was in calves of upto 1 month of age (42.78%), followed by 1-3 months of age (23.19%), 3-6 months of age (17.52%) and 6-12 months of age (16.49%) (Table 1). A relatively high mortality in young to very young calves may be due to their improper management and inadequate colostrum feeding. The mortality in 1-3 months age group may be due to improper feeding regimen after withdrawal of milk.

Sex-wise distribution of mortality in buffalo calves for the period 2005-2010 revealed no significant difference in mortality rate in male and female calves, though it was slightly higher in males (51.03%) than in

females (48.96%) (Table 1). Most of the reports in literature reveal higher mortality in male calves (Rathore, 1998; Kumar *et al.*, 2001) which may be due to their less care and management and higher susceptibility to infectious diseases.

Month-wise mortality in buffalo calves for the period 2005-2010 revealed highest mortality in the month of February (12.88%) followed by March and September (11.34%), November (10.82%) and October (10.30%) months (Table 2). However, the lowest mortality was recorded in the months of May and June (4.63%). The seasonal effect on mortality in buffalo calves can be explained in relation to the calving season as it starts with the beginning of rainy season. The young calves particularly newborn are exposed to cold weather which may make them prone to certain

Table 2
Month-wise distribution of mortality among buffalo calves (2005-2010)

Months	2005	2006	2007	2008	2009	2010	Total
January	7	1	0	4	1	2	15 (8.24)
February	8	4	3	5	2	3	25 (12.88)
March	5	0	6	5	4	2	22 (11.34)
April	5	1	0	2	0	3	11 (5.67)
May	0	2	4	1	0	2	9 (4.63)
June	3	1	0	2	1	2	9 (4.63)
July	3	0	6	1	0	0	10 (5.15)
August	7	1	2	1	1	4	16 (8.24)
September	6	2	2	2	6	4	22 (11.34)
October	2	0	10	2	3	3	20 (10.30)
November	3	5	1	4	4	4	21 (10.82)
December	2	1	2	2	5	2	14 (7.21)
Total	51	18	36	31	27	31	194

Table 3
Mortality in buffalo calves due to affections of various systems (2005-2010)

System involved	Year						Total (%)
	2005	2006	2007	2008	2009	2010	
Digestive	31	10	23	11	14	15	104 (53.60)
Respiratory	10	4	5	7	3	8	37 (19.07)
Others	10	4	8	13	10	8	53 (27.31)
Total	51	18	36	31	27	31	194

infectious conditions like pneumonia, enteritis etc. In buffalo calves, mortality was higher in the month of February. It may be because of greater susceptibility to opportunistic bacterial infections due to their exposure to cold inclement weather. The findings are in conformity with those of Verma and Kalra (1975).

System-wise mortality in buffalo calves for the period 2005-2010 revealed the involvement of digestive system in 53.60% cases. Respiratory system accounted for 19.07% mortality and other systems accounted for 27.31% in buffalo calves (Table 3). Main gastro-intestinal affections encountered in buffalo calves were gastritis, enteritis, pneumo-enteritis and hepatitis. These findings are supported by the observations of Verma and Kalra (1975), Sastry and Verma (1988) and Roy *et al.* (1997).

High mortality in very young buffalo calves particularly in February, March and September months due to digestive disorders observed in the present study suggests taking extra care in these months to avoid gastro-intestinal disorders in young buffalo calves.

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