

Original Research Article

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## Effect of Year Wise on Incidence of Mastitis in crossbred, indigenous Cattle and Murrah Buffaloes

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### ABSTRACT

#### Keywords

Breed,  
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#### Article Info

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The data was collected for the twelve years period (2000 to 2011) to find out the effect of year wise incidence of mastitis. The year of calving had significant effect on incidence of clinical mastitis in Karan Fries cows ( $P < 0.01$ ) and in Sahiwal, Tharparkar cows and Murrah buffaloes ( $P < 0.05$ ) whereas the effect of year was non-significant in Karan Swiss cows. The year wise incidence of mastitis in Karan Fries, Karan Swiss, Sahiwal, Tharparkar cows and Murrah buffaloes in different periods varied from 31.94 to 50.47, 20.00 to 50.00, 25.60 to 47.83, 18.18 to 50.00 and 17.98 to 37.50 percent, respectively. Incidence of mastitis was also influenced by breed and was maximum in crossbred cows in comparison to indigenous cows and Murrah buffaloes.

### Introduction

Mastitis in dairy animals is considered one of the costly production diseases and it causes enormous loss to the dairy industry (Bardhan, 2013; Mathew and Menon, 2008). Mastitis, an inflammatory reaction of mammary gland is the most dreaded disease for dairy farmers because of reduced milk production, increased treatment costs, labour, milk discarding following treatment, death and premature culling (Radostits *et al.*, 2007 and Yang *et al.*, 2011).

### Materials and Methods

Data pertaining to 4520 lactations records of Karan Fries (2154), Karan Swiss (292)

Sahiwal (822), Tharparkar cows (160) and Murrah buffaloes (1092) were spread over twelve years (2000-2011) was collected from history sheets, stock registers and health record registers maintained in different sections of the institute (at NDRI Karnal). The climate of the farm is subtropical in nature. The lowest temperature falls to 2°C during the winter months, whereas highest temperature goes up to 45°C during the summer.

The annual rainfall is about 760 to 960 mm, out of which most of the rainfall is received during the months of July and August. The relative humidity ranges from 41% to 85%.

The data was classified as normal and mastitic animals. The incidence of mastitis, data was classified year wise along with codes (1-12), to assess the percent incidence and the effect of year wise incidence on mastitis used chi-square method (Snedecor and Cochran, 1994).

$$\text{Chi-square} = \sum (O - E)^2 / E$$

Where,

O = Observed frequencies; E = Expected frequencies,

Expected frequencies will be calculated as:  $E_{ij} = (R_i) (C_j) / GT$

Where,

$E_{ij}$  = Expected frequency belong to  $i^{\text{th}}$  row and  $j^{\text{th}}$  column

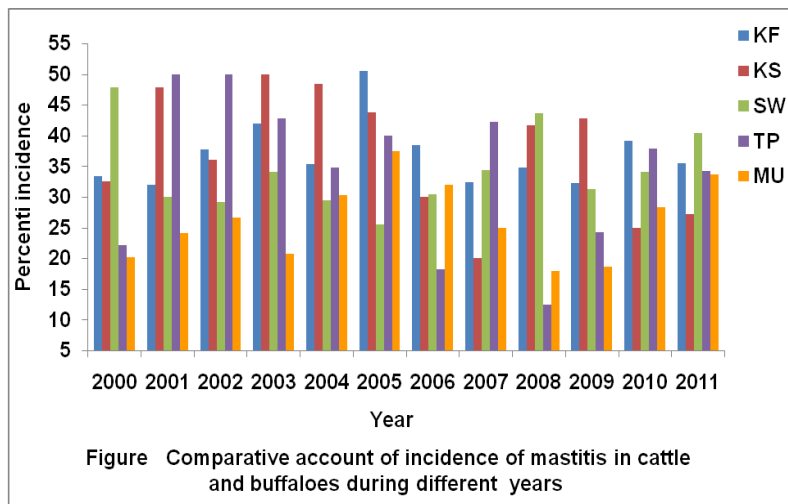
$R_i$  =  $i^{\text{th}}$  row total;  $C_j$  =  $j^{\text{th}}$  column total; GT = Grand total

The association between two variables will be studied using Chi-Square statistics.

### Results and Discussion

The year wise overall incidence of mastitis was higher in crossbred cows (37.68%)

followed by Indigenous cows (33.71%) and Murrah buffaloes (26.26%). The year wise incidence of mastitis in Karan Fries, Karan Swiss, Sahiwal, Tharparkar cows and Murrah buffaloes in different periods varied from 31.94 to 50.47, 20.00 to 50.00, 25.60 to 47.83, 18.18 to 50.00 and 17.98 to 37.50 percent, respectively. Though the incidence of mastitis varied across different years yet it could not reveal any consistent trend during the different years of study. The incidence of mastitis was higher in Karan Fries cows and 2005 (50.47%) and lower in 2001(31.94%), in Karan Swiss cows the incidence was low in 2007(20.00%) and was more in 2003 (50.00%) (Table & Figure). Contrary to this, Murrah buffaloes had lowest incidence of mastitis of 17.98% in 2008 and highest of 37.50% in 2005. Tharparkar and Sahiwal cows had lower incidence of mastitis of 12.50% and 25.00% in 2008 and 2010 while, higher incidence of 50% and 47.83% was observed in 2001&2002 and 2000. The year of calving had significant effect on incidence of clinical mastitis in Karan Fries cows ( $P < 0.01$ ) and in Sahiwal, Tharparkar cows and in Murrah buffaloes ( $P < 0.05$ ), whereas the effect of year was non- significant in Karan Swiss cows.



**Table.1** Incidence of clinical mastitis (%) in various breeds of cattle and buffaloes in different years

Effect	Breed									
	Karan Fries Cows		Karan Swiss Cows		Sahiwal Cows		Tharparkar Cows		Murrah Buffaloes	
	NO.	Mastitis	NO.	Mastitis	NO.	Mastitis	NO.	Mastitis	NO.	Mastitis
<b>Overall</b>	2553	36.90 (942)	351	38.46 (135)	1554	33.98 (528)	323	33.44(108)	1470	26.26(386)
Year										
<b>2000</b>	251	33.47 (84)	46	32.61 (15)	69	47.83 (33)	18	22.22 (04)	159	20.13 (32)
<b>2001</b>	191	31.94 (61)	46	47.83 (22)	113	30.01(34)	18	50.00 (09)	116	24.14 (28)
<b>2002</b>	191	37.70 (72)	36	36.11 (13)	120	29.17(35)	16	50.00 (08)	105	26.67 (28)
<b>2003</b>	181	41.99 (76)	40	50.00 (20)	138	34.05(47)	21	42.86 (09)	106	20.75 (22)
<b>2004</b>	212	35.38 (75)	33	48.48 (16)	122	29.51(36)	23	34.78 (08)	122	30.33 (37)
<b>2005</b>	214	50.47(108)	32	43.75 (14)	125	25.60(32)	25	40.00 (10)	120	37.50 (45)
<b>2006</b>	242	38.43 (93)	30	30.00 (09)	148	30.41(46)	33	18.18 (06)	153	32.03 (49)
<b>2007</b>	216	32.41 (70)	20	20.00 (04)	128	34.37(44)	45	42.22 (19)	136	25.00 (34)
<b>2008</b>	198	34.85 (69)	12	41.67 (05)	126	43.65(55)	24	12.50 (03)	89	17.98 (16)
<b>2009</b>	229	32.31 (74)	14	42.86 (06)	144	31.25(45)	33	24.24 (08)	134	18.66 (25)
<b>2010</b>	217	39.17 (85)	20	25.00 (05)	158	34.081(55)	29	37.93 (11)	141	28.37 (40)
<b>2011</b>	211	35.55 (75)	22	27.27 (06)	163	40.49(66)	38	34.21 (13)	89	33.71 (30)

NO. =Number of observation; Figures in parentheses indicate the number of observation of mastitic animals

There was a significant effect of year on mastitis incidence which corroborates the earlier report by who reported a significant effect of year of calving on incidence of clinical mastitis was reported by Chand and Behra (1995) in Karan Fries, Karan Swiss, Sahiwal cows and Murrah buffaloes. However, in this study the effect of year incidence in Karan Swiss cows was non- significant.

On the other hand, Mukherjee, (1993) and Sharma (2010) found a significant effect of year of calving in clinical mastitis in Karan Fries cows whereas, significant effect of year of calving on incidence of mastitis was in Murrah buffaloes (Tomar, 1984; Tomar and Tripathi, 1984). Contrary to the result of present study, Pal (2003), Taraphder (2006), Joshi and Shrestha (1995) and Patil *et al.*, (1995) reported non-significant effect of period of calving in cattle and buffaloes. Climatic variable was not uniform during the different years of study which led to a significant difference in incidence of mastitis during different year of study. From the study it was concluded that buffaloes were more resistance to mastitis as compared to cows. Further, Incidence of mastitis was also influenced was maximum in crossbred cows in comparison to indigenous cows and Murrah buffaloes.

## References

Bardhan, D. 2013. Estimates of economic losses due to clinical mastitis in organized dairy farms, *Indian J. Dairy Science*. 2(66): 168-172.

Chand, P. and Behra, G.D. 1993. Factors influencing occurrence of mastitis genetic and environmental factors. *Indian. J. Dairy Sci.*, 48: 271-273.

Joshi, H.D. and Shrestha, K.H. 1995. Study on the prevalence of clinical mastitis in cattle and buffalo under different management system in the western hills of Nepal. *Working Lumle Regional Agric. Res. Centre*, 4: 64-95.

Mathew, L. and Menon, D. G. 2008. Economic

impact of FMD in Chazhoor Panchayath. *Veterinary World* 1 (1): 5–6.

Mukherjee, K., Tomar, S. S. and Sadana, D. K. 1993. Genetic studies on udder problems in Karan Fries herd. *Indian vet. J.*, 70 (2): 121-124.

Pal, 2003. Investigation on health disorders in dairy cattle and buffaloes during pre and post-partum period. Ph.D Thesis submitted to NDRI, Karnal.

Patil, N. A., Harapanahalli M. D., Mulia J. A., Hosmani S. V. and Pugashetti B. K. 1995. Comparative study on prevalence and diagnosis of sub-clinical mastitis in cows and buffaloes. *Indian Journal of Dairy Science* 48: 478-79.

Radostits, O.M., Gay, C.C., Blood, D.C. and Hinchkliff, K.W. 2000. *Veterinary Medicine*. 9th edn. ELBS & Baillier Tindall. 563-618

Sharma P.C., 2010 Genetic evaluation of Karan Fries cows for functional traits. Ph.D. Thesis submitted to N.D.R.I., Karnal, Haryana-132001.

Snedecor, G. W. and Cochran, W. G. 1994. *Statistical methods*. 8th Ed. Iowa State University Press, Ames, USA

Taraphder, S., Tomar, S.S. and Gupta, A.K. 2006. Incidence, inheritance and economics of mastitis in an organized herd of Murrah buffaloes. *Indian J. Anim. Sci.*, 76 (10): 838-842.

Tomar S S. 1984. Inheritance of certain threshold characters in buffaloes. Ph.D. Thesis. Submitted to Kurukshetra University, Kurukshetra, Haryana.

Tomar, S. S. and Tripathi, V.N. 1984. Inheritance of udder disorders in Murrah buffaloes. *Ind. J. Anim. Genet. And Breed.* 6(1-2):19-21.

Yang, F.L, Yang, B.B and Huang, Q.H. 2011. Bovine Mastitis in Subtropical Dairy Farms, 2005-2009. *Asian Journal of Animal and Veterinary Advances*. (10): 68-72.

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