

## CAUSES OF DISPOSAL OF MURRAH BUFFALO FROM AN ORGANISED HERD

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**ABSTRACT :** The present study comprised of 602 disposal records of adult Murrah buffaloes , spread over a period of 16 years from 1985 to 2000 at NDRI, Karnal, Haryana. Analysed data showed that the reproductive problems (38.62), low milk production (24.01) and udder problems (22.76) were the three major reasons of culling in adult Murrah buffaloes . The culling of cows due to involuntary reason (reproductive problems, udder problems and locomotive disorders) accounted for nearly 63.68 percent of total culling in Murrah buffaloes in the NDRI herd. The data revealed that maximum mortality occurred due to digestive problems accounting for 30.89 percent followed by cardio-vascular problems (26.02 percent), respiratory problems (21.14 percent), parasitic problems (8.13 percent) and uro-genital problems (5.69 percent). The results showed that there is a scope for further improvement in production and reproductive efficiency through better monitoring of reproduction and udder health status of the buffaloes. The high involuntary culling rate not only makes the dairy enterprises economically less profitable but also reduces the genetic improvement by lowering the selection differential for milk production.

**Key word :** Buffalo, Murrah, Disposal, Culling , Mortality, Reproductive problems, Low milk production , Udder problems, Locomotive disorders , Digestive problems , Cardio-vascular problems ,Uro-genital problems ,Parasitic disease

### INTRODUCTION:

Knowledge of reasons of removal of adult buffalo cows from a herd is important because it aids in making more rapid improvement dairy animals through effective selection. Several

research workers have concluded studies on this aspect in cattle. But for Murrah breed of buffalo such information is scanty. Therefore, the present work was taken up to summaries causes and as parity trend of disposal of adult Murrah Buffalo cows from an organized Indian herd .

### MATERIALS AND METHODS:

The data studied were from Livestock farm attached with National Dairy Research Institute, Karnal Haryana, India and included a total of 602 adult she buffaloes disposed of during the period of 16 years from 1985 to 2000. The causes or reasons of disposal of adult buffaloes were classified into following categories. For culled buffaloes :  
1.Reproductive problems.2.Low milk production. 3 Udder problems 4.General debility 5. Locomotive

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disorders 6. Miscellaneous. For mortality :  
 1. Digestive problems. 2. Respiratory problems 3.  
 Cardio-vascular problems 4. Uro-genital problems  
 5. Parasitic disease 6. Miscellaneous (Mentioned in  
 table no. 1 & 2). The data were classified into 4  
 periods of 4 years. The parity of lactation was taken  
 from first 6 by grouping sixth and above parity as  
 sixth parity due to less number of buffaloes in higher  
 parities. The percent of animal disposed from the  
 herd due to particular reason was calculated by  
 proportion.

**RESULTS AND DISCUSSION :**

The reasons for disposal (culling and mortality)  
 of 602 adult Murrah buffalo cows during the period  
 of 16 years due to various causes have been  
 presented in table no. 1 and 4.

**REASONS OF CULLING**

Reproductive problems were found to be one  
 of the major reasons of culling in adult Murrah  
 buffaloes accounting for 38.62 percent of total  
 culling reasons from the year 1985 to 2000 in this  
 herd (Table 1). Among the reproductive problems,  
 repeat breeding was the principal reason constituting  
 14.20 percent culling alone. Anoestrous and irregular  
 cycles causes 11.69 percent culling followed by  
 abortion (3.55), prolapse (3.13) and metritis (3.55)  
 percent. Adhesion of uterus, Salpingitis and still-  
 birth causes 2.52 percent of culling. Chhikara et  
 al. (1978) and Rao (1982) observed on Murrah  
 buffaloes that 6.18 percent and 10.4 percent were  
 culled for reproductive disorders. Cady et al. (1983)  
 studied on Nili-Ravi buffaloes and reported that the  
 second main reasons for culling was reproductive  
 disorders in the herd. Ahmad et al. (1992) worked  
 on Nili-Ravi buffaloes and reported that  
 reproductive failure was the main reason for cow  
 removal (44.0 percent). The probability of culling  
 for reproductive problems increased with age from  
 0.006 at 3 year to 0.282 at 14 years. Sasidhar et al.  
 (2000) studied the reason of culling of Murrah  
 buffaloes and reported that reproductive disorder  
 was the third major reason accounting for 13.60  
 percent of the disposals.

The findings of present investigation revealed  
 that low milk production was second most important  
 reason of culling in adult cows accounting for 24.01  
 percent of total culling reasons in the herd. Those  
 animals left the herd due to below farm standard  
 out of total low performance reason accounting for  
 18.37 percent, followed by poor performance (4.81  
 percent) and decline performance (0.84 percent).  
 Chhikara et al. (1978), Rao (1982) and Sasidhar  
 et al. (2000) observed on Murrah buffaloes that  
 26.50 percent, 31.3 percent and 31.14 percent were  
 culled for low milk yield. Ahmad (1992) worked  
 on Nili-Ravi buffaloes and reported that low milk  
 yield accounted for 27 percent of all cows removed.

Udder problems comprising poor udder  
 development, milk let down problem, mastitis and  
 teat defective were found to be third major causes  
 of culling accounting for 22.76 percent of total  
 reason of culling in herd. Teat defective was  
 major reason of culling under this subclass  
 accounting for 17.33 percent of culling. Other three  
 reason namely mastitis, poor udder development and  
 milk let down problem causes 4.18, 0.84 and 0.42  
 percent culling of cows from the herd. Cady et al.  
 (1983) studied on Nili-Ravi buffaloes and reported  
 that the main reasons for culling were mastitis and  
 failure to let down milk. Sasidhar et al. (2000)  
 studied the reason of culling of Murrah buffaloes  
 and reported that chronic mastitis accounting for  
 9.65 percent of the disposal.

General debility comprising of poor health and  
 weakness causes 9.60 percent of total culling reason  
 in the herd of Murrah buffaloes from the year 1985  
 to 2000. 5.43 and 4.18 percent of total disposed  
 Murrah buffaloes left the herd due to poor health  
 and weakness. Chhikara et al. (1978) observed on  
 Murrah buffaloes that 8.19 percent were culled for  
 health reasons. Ahmad et al. (1992) worked on Nili-  
 Ravi buffaloes and reported that 22 percent of the  
 cows were culled for health-related problems. The  
 percentage of cows culled for old age was 7 .  
 Sasidhar et al. (2000) studied the reason of culling

**Table No. 1 : Reasons of Culling in Adult Murrah Buffaloes**

<b>SL No.</b>	<b>Reasons</b>	<b>Numbers Culled</b>	<b>Percent</b>
<b>1.</b>	<b>Reproductive problems</b>	<b>185</b>	<b>38.62</b>
	1. Anoestrous	26	5.43
	2. Repeat breeding	68	14.20
	3. Irregular cycle	30	6.26
	4. Adhesion of uterus	4	0.84
	5. Salpingitis	4	0.84
	6. Still birth	4	0.84
	6. Abortion	17	3.55
	8. Prolapse	15	3.13
	9. Metritis	17	3.55
<b>2.</b>	<b>Low milk production</b>	<b>115</b>	<b>24.01</b>
	1. Below farm standard	88	18.37
	2. Decline performance	4	0.84
	3. Poor performance	23	4.81
<b>3.</b>	<b>Udder problems</b>	<b>109</b>	<b>22.76</b>
	1. Poor udder development	4	0.84
	2. Milk let down problem	2	0.42
	3. Mastitis	20	4.18
	4. Teat defective	83	17.33
<b>4.</b>	<b>General debility</b>	<b>46</b>	<b>9.60</b>
	1. Poor health	26	5.43
	2. Weakness	20	4.18
<b>5.</b>	<b>Locomotive disorders</b>	<b>11</b>	<b>2.30</b>
	1. Fet lock joint defective	1	0.21
	2. Hind leg defective	1	0.21
	3. Hip joint dislocation	3	0.63
	4. Joint fracture	1	0.21
	5. Lameness	3	0.63
	6. Nervous problem	2	0.42
<b>6.</b>	<b>Miscellaneous</b>	<b>13</b>	<b>2.72</b>
	1. Old age	9	1.88
	2. Leg wound	2	0.42
	3. Blindness	1	0.21
	4. Respiratory problem	1	0.21

**Table No. 2 : Parity and Period Specific Culling Reasons (%) in Murrah Buffaloes.**

Effects	Total no. of Adult buffaloes	Reproductive problems	Low milk production	Udder Disorders	General disability	Locomotive disorders	Miscellaneous	Overall
<b>Overall</b>	<b>2306</b>	<b>8.02(185)</b>	<b>4.99(115)</b>	<b>4.73(109)</b>	<b>1.99(46)</b>	<b>0.46(11)</b>	<b>0.56(13)</b>	<b>20.77(479)</b>
<b>Parity</b>								
First	651	7.99(52)	3.23(21)	3.38(22)	1.54(10)	0.77(5)	0.46(3)	17.36(113)
Second	503	8.75(44)	5.76(29)	3.18(16)	0.99(5)	0.59(3)	0.19(1)	19.48(96)
Third	381	9.19(35)	4.73(18)	4.20(16)	1.31(5)	0.00(0)	0.26(1)	19.69(75)
Fourth	269	6.32(17)	5.95(16)	7.06(19)	2.23(6)	0.37(1)	0.37(1)	22.31(60)
Fifth	189	7.94(15)	6.88(13)	5.29(10)	1.59(3)	0.00(0)	0.53(1)	22.22(42)
Sixth and above	313	7.03(22)	5.75(18)	8.31(26)	5.43(17)	0.64(2)	1.92(6)	29.07(91)
<b>Periods</b>								
1985-88	599	11.69(70)	8.18(49)	6.84(41)	1.67(10)	0.50(3)	0.67(4)	29.55(177)
1989-92	532	9.39(50)	4.89(26)	4.51(24)	1.50(8)	0.18(1)	0.18(1)	20.68(110)
1993-96	569	7.58(43)	4.04(23)	4.57(26)	2.64(15)	0.18(1)	0.70(4)	19.68(112)
1997-00	606	3.67(22)	2.80(17)	2.97(18)	2.14(13)	0.99(6)	0.67(4)	13.20(80)

Figures in parenthesis indicate the number of cases

of Murrah buffaloes and reported that debility and senility accounting for 20.18 and 12.72 percent of the disposals

Locomotive disorders accounted for 2.30 percent culling out of total culling reason over the period under the study. The incidence of locomotive disorders ranged from 0.21 percent to 0.63 percent in Murrah buffaloes. The hip joint dislocation and lameness were diagnosed to be the major causes of locomotor disorders of Murrah buffaloes in the herd.

The culling rate of cows due to old age was found to be negligible accounting for 1.88 percent culling rate of total herd strength. The estimate obtained in the present study were much lower than those reported by Kulkarni and Sethi (1990) in

crossbred cows who reported 5-17 percent culling due to old age. Ahmad et al. (1992) worked on Nili-Ravi buffaloes and reported that the percentage of cows culled for old age was 7.

The other miscellaneous reasons of culling were leg wound, blindness and respiratory problem accounting for culling rate of 0.42, 0.21 and 0.21 percent, respectively.

It can be concluded from the above results that reproductive problems, low milk production and udder problems were the three major reasons of culling in adult Murrah buffaloes. The culling of cows due to involuntary reason (reproductive problems, udder problems and locomotive disorders) accounted for nearly 63.68 percent of total culling in Murrah buffaloes in the NDRI herd. The high

**Table No. 3 : Reasons of Mortality in Adult Murrah Buffaloes.**

Sl. No.	Reasons	Numbers Died	Percent
<b>1.</b>	<b>Digestive problems</b>	<b>38</b>	<b>30.89</b>
	1. Enteritis	8	6.50
	2. Peritonitis	11	8.94
	3. Liver disorders	19	15.45
<b>2.</b>	<b>Cardio-vascular problems</b>	<b>32</b>	<b>26.02</b>
	1. Traumatic reticulopericarditis	8	6.50
	2. Pericarditis	8	6.50
	3. Cardiac failure	3	2.44
	4. Hydropericarditis	2	1.63
	5. Hypovolaemic shock	1	1.63
	6. Haemorrhage	9	7.32
<b>3.</b>	<b>Respiratory problems</b>	<b>26</b>	<b>21.14</b>
	1. Rupture of diaphragm	1	0.81
	2. Tuberculosis	5	4.07
	3. Pneumonia	15	12.20
	4. Lung abscess	4	3.25
	5. Hemia(diaphragmatic)	1	0.81
<b>4.</b>	<b>Parasitic diseases</b>	<b>10</b>	<b>8.13</b>
	1. Theileriosis	3	2.44
	2. Trypanosomiasis	7	5.69
<b>5.</b>	<b>Uro-genital problems</b>	<b>7</b>	<b>5.69</b>
	1. Hydronephritis	4	3.25
	2. Prolapse	3	2.44
<b>6.</b>	<b>Miscellaneous</b>	<b>10</b>	<b>8.13</b>
	1. Snake bite	3	2.44
	2. Tumour(brain)	1	0.81
	3. Old age	3	2.44
	4. Debility	1	0.81
	5. Dislocation	1	0.81
	6. Unknown	1	0.81

involuntary culling rate not only makes the dairy enterprises economically less profitable but also reduces the genetic improvement by lowering the selection differential for milk production.

The regular intensive examination of animal health status particularly udder and teat, genital tract and for general disease could perhaps reduce the involuntary culling to a large extent. The incidence

of locomotive disorders could be brought down by improving the standing place of cows and by regular trimming of hoofs. The surface should be well corrugated and should not be slippery. However, precise and elaborate investigation on these aspects is needed by considering the actual cost of improved management and expected economic returns.

The Table No. 1 revealed that involuntary culling

accounted for 74.09 percent of total culling in Murrah buffaloes. The highest incidence of culling due to reproductive problems was observed upto third parity (Table No. 2). Culling rates remained more or less same for general debility (health disorders) over all the lactations except sixth and above parity. Locomotive disorders varied from 0.00 to 0.77 over the parity (Table No. 2).

Data on reasons of culling were also subjected to analysis to study the trends in culling rate over the periods. The results were presented in Table No. 2. Perusal of results showed a declining trend in percent culling due to reproductive problems, low milk production and udder disorders. Culling rate was the lowest in the last period thereby indicating an improvement in production, reproduction and herd health management over the years. From the overall culling rate, it could be concluded that production, reproduction, health and managerial practices and other environment factors prevailing in the last period were optimum because minimum number of buffaloes were culled during those years.

**REASONS OF MORTALITY**

The causes for mortality in adult Murrah

buffaloes were examined for the period 1985 to 2000 in NDRI herd, Karnal. The incidence of mortality due to various reasons have been presented in Table No. 3.

The data revealed that maximum mortality occurred due to digestive problems accounting for 30.89 percent followed by cardio-vascular problems (26.02 percent), respiratory problems (21.14 percent), parasitic problems (8.13 percent) and uro-genital problems(5.69 percent). The miscellaneous causes of death include snake bite(2.44 percent), brain tumour (0.81 percent), old age(2.44 percent), debility(0.81 percent), dislocation (0.81 percent) and unknown (0.81 percent). Among digestive problems, liver disorders was the main reason for adult mortality accounting for 15.45 percent adult death. Whereas pneumonia under respiratory problems, haemorrhage under cardio-vascular problems, Hydronephritis under uro-genital problems and trypanosomiasis under parasitic disease were the main causes of adult Murrah buffaloes mortality in the herd accounting for 12.20,7.32, 3.25 and 5.69 percent .

Rathore (1998) reported that the causes of

**Table No. 4 : Parity and Period Specific Mortality Reasons (%) in Murrah Buffaloes.**

Parity Order	Total no. of Adult buffaloes in the herd	Digestive problems	Respiratory problems	Cardiovascular problems	Urogenital disorders	Parasitic diseases	Miscellaneous	Overall
Overall	2306	1.65(36)	1.13(26)	1.39(32)	0.30(7)	0.43(10)	0.43(10)	5.34(123)
<b>Parity</b>								
First	451	1.54(10)	1.03(7)	1.22(8)	0.44(3)	0.44(3)	0.31(2)	5.07(33)
Second	503	1.59(8)	0.99(5)	0.40(3)	0.29(2)	0.40(2)	0.19(1)	4.13(21)
Third	381	1.31(5)	0.79(3)	2.10(8)	0.00(0)	0.52(2)	0.52(2)	5.23(20)
Fourth	249	1.12(3)	0.74(2)	1.49(4)	0.00(0)	0.74(2)	0.74(2)	4.83(13)
Fifth	189	1.59(3)	1.59(3)	1.59(3)	0.00(0)	0.00(0)	0.53(1)	5.29(10)
Sixth and above	313	2.88(9)	1.92(4)	1.92(4)	0.44(2)	0.32(1)	0.44(2)	8.31(24)
<b>Period</b>								
1985-1988	599	1.17(7)	2.00(12)	2.34(14)	0.17(1)	0.47(4)	0.30(3)	4.84(41)
1989-1992	532	1.13(4)	0.94(5)	1.13(4)	0.54(3)	0.38(2)	0.54(3)	4.70(25)
1993-1994	549	2.11(12)	0.33(2)	0.88(5)	0.35(2)	0.17(1)	1.28(9)	5.43(31)
1997-2000	404	0.44(4)	1.14(7)	1.14(7)	0.14(1)	0.49(3)	0.44(4)	4.29(24)

Figure in parenthesis indicate the number of cases

mortality of adult buffaloes were as follows . 33.62 percent due to digestive disorders, 29.28 percent due to respiratory disease and 17.48 percent due to various diseases.

The results in this study indicated that digestive, respiratory and cardiovascular problems were the three main reasons of mortality in adult Murrah buffalos in the herd from 1985 to 2000.

Perusal of results revealed that overall mortality rate due to various reasons in buffaloes was 5.34 percent. Overall incidence of mortality due to digestive problem was 1.65 percent with a range varied from 1.12 to 2.88 percent over the parities( table no. 4). Overall incidence of mortality due to respiratory, cardiovascular, urogenital and parasitic diseases were accounted 1.13, 1.39, 0.07 and 0.43 percent. Percent mortality due to various reasons was maximum in buffaloes in the later parities(i.e. more than five parity). However, no specific trend could be detected in the remaining parities.

Percent mortality across the periods indicated that digestive problems was the principle reason of mortality in third period whereas respiratory, cardiovascular and parasitic diseases were the main reasons of mortality in first period . Urogenital problems causes maximum numbers of death in second period. Overall percent mortality was minimum in the last period thereby indicating herd health management practices during those years.

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