

Vol 3 Issue 3 Sept 2013

Impact Factor : 1.2018 (GIS)

ISSN No :2231-5063

Monthly Multidisciplinary
Research Journal

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RNI MAHMUL/2011/38595

ISSN No.2230-7850

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GRT STUDY OF PRODUCTIVE AND REPRODUCTIVE
TRAITS OF MURRAH BUFFALOES



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Abstract: The analysis of the data during the year 2011-12 conducted at Krishi Vigyan Kendra, Jalgaon. It was observed that the overall average daily milk yield based on 200 observations in Murrah buffaloes. The maximum milk production of 8.32 kg was recorded in group C, while the minimum milk production of 6.02 kg was noticed in group E. The average peak milk yield in all the age groups as 12.31 ± 0.38 , 13.35 ± 0.27 , 12.54 ± 0.28 , 11.13 ± 0.18 and 11.23 ± 0.22 kg in group A, B, C, D and E respectively. The overall average peak milk yield was observed to be 12.11 ± 0.27 kg with standard deviation of 1.66 and coefficient of variation of 13.59 per cent. The highest peak milk yield was observed in group B, while the lowest peak milk yield was observed in group D. It was observed that the overall average lactation milk yield based on all observations was 2134.39 ± 52.97 kg with standard deviation 328.54 and coefficient of variance as 15.64 per cent. The average lactation milk yield was increased subsequently from group A to group C and then decreased in group D and group E. The average age at first oestrous for Murrah buffaloes was 29.66 ± 0.21 months with standard deviation of 1.26 and coefficient of variation of 4.26 per cent and overall average age at first calving was 43.41 ± 0.30 months with a standard deviation of 1.87 and coefficient of variation of 4.31 per cent.

Key words: Productive Traits, Reproductive Traits, Murrah.

INTRODUCTION :

Animal husbandry is imparting a significant contribution to the national economy and socio-economic development in the country. In rural India, over 15 – 20 % families are landless and about 80 % of the land holders belongs to the category of small and marginal farmers to which livestock is the livelihood.

The 99 million buffalo population of the country accounts for 57 per cent of the total buffaloes in the world. Total buffalo population in Maharashtra during 2007 was 6.645 million, which is 6.27 per cent of India buffalo population. India rank first in population of buffalo in world (FAO, 2007).

The Murrah buffalo is the finest genetic material of milk producing buffalo in the world. This breed has beaten the best dairy cow in the world in performance. It is most important Indian breed of buffalo and is most efficient producer of milk not only in the India but probably in the world. Bull of this breed is used extensively for up-grading inferior stock.

The Murrah breed of buffalo is well adapted to their native tract but information on productive and reproductive traits in other than home tract for adaptability point of view is scanty. Thus, the present investigation entitled “Study of productive and reproductive traits of Murrah buffaloes” was undertaken.

MATERIALS AND METHODS:

The present study entitled “Productive and reproductive traits of Murrah buffalo” was conducted on the information provided by the buffalo owner of Jalgaon district of Maharashtra during the year 2011 -2012. The material and methods used for research was as under.

The data used for present investigation was collected from Jalgaon district (Fig.1) of Maharashtra state. 10 villages in Jalgaon district was selected by nth number of random sampling method. The information on productive and reproductive traits was obtained from the buffalo owners through personal interaction with the help of questionnaire from following villages in Jalgaon district. 1) Nashirabad 2) Bodwad 3) Kanalda 4) Chahardi 5) Wadala Wadali 6) Erandol 7) Aasoda 8) Satkheda 9) Pardhade 10) Anjanvhire, which represented whole district as per the geographical spread of district.

The data was collected by direct observation on 200 adult Murrah buffaloes belonging to different age groups from 10 selected villages in Jalgaon district. The data was categorized in the following age groups. 1) Gr.A: 4-5 yrs, 2) Gr B: 5-7 yrs, 3) Gr C: 7-9 yrs, 4) Gr.D: 9-11 yrs 5) Gr.E: Above 11 yrs.

The parameters were studied for the following productive and reproductive traits of Murrah buffaloes, by adapting the procedure as described below.

Productive traits : Daily milk yield (Kg.), Peak milk yield (Kg.), Lactation milk yield (Kg.) & Reproductive traits: Age at first oestrous (months), Age at first calving (months), Calving interval (days), Service period (days)

The data collected in respect of all above parameter was tabulated and subjected to statistical evaluation by adopting the standard technique prescribed by Snedecor and Cochran (1967) and result thus obtained are presented.

The present study was carried out at Krishi Vigyan Kendra, Jalgaon during Nov. 2011 to May.2012.

RESULTS AND DISCUSSION:

Table – 1: Average values of daily milk yield (Kg) in Murrah buffaloes according to age groups.

Sr. No.	Age Group (years)	No. Of observation	Daily milk yield (kg)	SE ±	SD	CV %
1	A (4-5)	26	7.46	0.24	1.25	16.72
2	B (5-7)	49	7.92	0.14	0.97	12.19
3	C (7-9)	41	8.32	0.24	1.52	18.29
4	D (9-11)	32	6.94	0.13	0.76	10.93
5	E (above-11)	52	6.02	0.18	1.31	21.73
Overall Average		200	7.33	0.19	1.16	15.97

Source: - Data Collected During the Field Work.

It was observed from table 1 that the overall average daily milk yield based on 200 observations was 7.33 ± 0.19 kg with a standard deviation of 1.16 and coefficient of variation of 15.97 per cent. The maximum milk production of 8.32 kg was recorded in group C, while the minimum milk production of 6.02 kg was noticed in group E. The milk yield per day in group A, B and D was recorded as 7.46 ± 0.24 , 7.92 ± 0.14 and 6.94 ± 0.13 kg respectively. Similar observations also recorded by Chakraborty et al. (2010) in Murrah buffaloes.

Table – 2: Average values of peak milk yield (Kg) in Murrah buffaloes according to age groups.

Sr. No.	Age Group (years)	No. of observations	Peak milk yield (kg)	SE ±	SD	CV %
1	A (4-5)	26	12.31	0.38	1.94	15.74
2	B (5-7)	49	13.35	0.27	1.90	14.24
3	C (7-9)	41	12.54	0.28	1.80	14.32
4	D (9-11)	32	11.13	0.18	1.05	9.40
5	E (above-11)	52	11.23	0.22	1.60	14.25
Overall Average		200	12.11	0.27	1.66	13.59

Source: - Data Collected During the Field Work.

The results in the Table – 2 revealed that the peak milk yield based on 200 observations of Murrah buffaloes, the average peak milk yield was observed to be 12.11 ± 0.27 kg with standard deviation of 1.66 and coefficient of variations as 13.59 per cent. Highest peak milk yield as 13.35 ± 0.27 kg was recorded in group B while the lowest peak milk yield as 11.13 ± 0.18 kg was recorded in group D. The average peak milk yield observed as 12.31 ± 0.38 , 12.54 ± 0.28 kg and 11.23 ± 0.22 kg in group A, C and E respectively.

Thus, average peak milk yield of Murrah buffaloes observed in present investigation was higher than previous findings in Murrah, Jaffrabadi, Surti, Mehsana, Nili – Ravi and Nagpuri buffaloes but it was less than one day peak milk yield recorded by Basu et al. (1979)

The similar findings were observed by Chakraborty et al. (2010) in Murrah buffaloes from Buffalo Research Centre of University. The similar findings were also observed in different breeds of buffaloes by Shukla and Gajbhiye (1986) in Jaffarabadi buffaloes, Panicker (2002) in Nagpuri buffalo under field condition, Singh et al. (2007) in Surti buffaloes.

Table – 3: Average values of lactation milk yield (Kg) in Murrah buffaloes according to age groups.

Sr. No.	Age Group (years)	No. of observations	Lactation milk yield (kg)	SE ±	SD	CV %
1	A (4-5)	26	2146.92	70.20	357.96	16.67
2	B (5-7)	49	2313.27	39.76	278.35	12.03
3	C (7-9)	41	2426.71	60.53	387.60	15.97
4	D (9-11)	32	2026.09	39.52	223.57	11.03
5	E (above-11)	52	1758.94	54.81	395.24	22.47
Overall Average		200	2134.39	52.97	328.54	15.64

Source: - Data Collected During the Field Work.

From table 3 it was observed that the overall average lactation milk yield based on all observations was 2134.39 ± 52.97 kg with standard deviation of 328.54 and coefficient of variance as 15.64 per cent. The maximum lactation milk yield was 2426.71 ± 60.53 kg in group C while the minimum lactation milk yield was 1758.94 ± 54.81 kg in group E. The average lactation milk yield was observed in group A, B and D as 2146.92 ± 70.20 , 2313.27 ± 39.76 and 2026.09 ± 39.52 kg respectively. The average lactation milk yield was increases subsequently from group A to group C and then decreases in group D and group E.

Similar findings were observed in Murrah buffaloes by Wable (2003), Gandhi et al. (2009). The similar findings

are also observed in different breeds of buffaloes by Patange et al. (2004) in Marathwadi buffaloes by survey in 15 villages in three districts of Marathwada region, Pundir and Ahalawat (2004) in Bhadawari buffaloes, Mandakmale et al. (2006) in Pandharpuri buffaloes, Lokhande (2010) in the Ellichpuri strain of Nagpuri buffalo.

Table – 4: Average values of age at first oestrous (Months) in Murrah buffaloes according to age groups.

Sr. No.	Age Group (years)	No. of observations	Age at first oestrous (Months)	SE ±	SD	CV %
1	A (4-5)	26	30.15	0.29	1.46	4.84
2	B (5-7)	49	29.84	0.20	1.38	4.61
3	C (7-9)	41	29.51	0.20	1.27	4.31
4	D (9-11)	32	29.31	0.17	0.97	3.31
5	E (above-11)	52	29.46	0.17	1.25	4.23
Overall Average		200	29.66	0.21	1.26	4.26

Source: - Data Collected During the Field Work.

From table 4 it was revealed that average age at first oestrous for Murrah buffaloes was 29.66 ± 0.21 months with standard deviation of 1.26 and coefficient of variation of 4.26 per cent. The maximum average age at first oestrous was observed in group A as 30.15 ± 0.29 months while minimum age at first oestrous was reported in group D as 29.31 ± 0.17 months. The average age at first oestrous were observed in group B, C and E as 29.84 ± 0.20 , 29.51 ± 0.20 and 29.46 ± 0.17 months respectively. Similar findings were observed by Amonge et al. (1997) in Swamp buffaloes from the different locations of Assam.

Table – 5: Average values of age at first calving (Months) in Murrah buffaloes according to age groups.

Sr. No.	Age Group (years)	No. of observation	Age at first calving (Months)	SE ±	SD	CV %
1	A (4-5)	26	44.50	0.40	2.04	4.59
2	B (5-7)	49	42.55	0.27	1.89	4.43
3	C (7-9)	41	42.24	0.32	2.03	4.81
4	D (9-11)	32	43.16	0.28	1.60	3.70
5	E (above-11)	52	44.60	0.25	1.79	4.01
Pooled Average		200	43.41	0.30	1.87	4.31

Source: - Data Collected During the Field Work.

From Table 5 it was observed that The overall average age at first calving based on 200 observations was 43.41 ± 0.30 months with a standard deviation of 1.87 and coefficient of variation of 4.31 per cent. The maximum age at first calving was 44.60 ± 0.25 months in group E followed by 44.50 ± 0.40 months in group A. While the minimum age at first calving as 42.24 ± 0.32 months was observed in group C. The average age at first calving was observed 42.55 ± 0.27 and 43.16 ± 0.28 months in group B and D respectively. Similar findings were reported by Sule et al. (2001) in Surti buffaloes, Gandhi et al. (2009) in Murrah buffaloes maintained at NDRI, Karnal.

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