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RESEARCH ARTICLE

Study of linear body measurement and body weight of Marathwadi buffalo

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Abstract : The study was conducted in Hingoli districts of Marathwada region in Maharashtra. Data was collected on 1008 Marathwadi buffalo animals of different age groups, where 990 were female buffalo and 18 were breeding bull. The linear body measurement and body weight of buffalo in five age groups (0-3, 4-12, 12-24, 24-36 and above 36 months) were recorded. The LSM of chest girth of five age groups of female buffalo were 76.06 ± 0.60, 96.52 ± 0.88, 119.07 ± 0.94, 141.51 ± 1.46 and 171.64 ± 0.56 and that of breeding bull were noted as 175.27 ± 0.56 cm. The LSM of body length of five age groups of female buffalo were 64.72 ± 0.42, 76.09 ± 0.65, 98.56 ± 0.44, 107.67 ± 0.84 and 126.07 ± 0.29 and that of breeding bull were noted as 129.83 ± 0.71 cm. The LSM of height at wither of five age groups of female buffalo were 71.04 ± 0.54, 85.26 ± 0.72, 104.24 ± 0.59, 113.35 ± 0.82 and 122.93 ± 0.26 and that of breeding bull were noted as 126.43 ± 0.60 cm. The LSM of body weight of five age groups of female buffalo were as 34.43 ± 0.78, 67.07 ± 1.63, 130.10 ± 2.52, 202.03 ± 5.58 and 345.15 ± 2.73 and that of breeding bull were noted as 367.19 ± 3.72 cm.

Key words : Marathwadi , Buffalo, Measurement and body weight

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INTRODUCTION

The Marathwadi buffalo breed has been located in the valley of the rivers Purna, Dudhna and North banks of Godavari. It is located in the districts of Beed, Parbhani, Jalna, parts of Nanded, Latur, Hingoli and Osmanabad districts of Marathwada region. The animals of Marathwadi buffalo breed are reared by virtue of its potentialities, consistency and adaptabilities to varied circumstances prevailing. This peculiar animal dominates the small sized herds in rural area being a regular breeder and is mainly reared for milk production. Characterization of any breed is important for its development and improvement which will benefit the farming community. In India the recognized breeds constitute only 35% of the total buffaloes, while test non- descript or regarded once. So far no efforts have been made to characterize the breeds taking into account the population variability in morphological, reproductive and prevailing management practices and utilities (Kalyankar, 2001). An attempt was made to study the phenotypic characteristics of Marathwadi buffaloes in their breeding tract. The animals belonging to this breed were commonly bred in the area comprising Marathwada region of Maharashtra state. The body measurement traits play an important role in judging the animals. The chest girth was indicative of development of various body cavities, thus giving sufficient areas for development of vital organs. Body measurements was as per the age of animals. They have bearing on the sexual maturity and draught ability of the animal. For estimating the balanced ration one has to consider the body weight of the animal, but under farmer's condition it was not possible to have weighing facility. In absence of valid records external body measurements was considered *viz.,* chest girth and body length for predicting body weights by mathematical formula. Therefore, an attempt was made to study the phenotypic characterization of Marathwadi buffalo on field scale in the Hingoli District. This study was taken up at College of Agriculture, Latur, Marathwada Krishi Vidyapeeth, Parbhani (M.S.).

RESEARCH METHODOLOGY

Out of 1008 Marathwadi buffalo, 990 were female and 19 breeding bull were used for present study. The animals were divided in five age groups such as (0-3 months) consisted of 124 female buffaloes, (4-12 months) consisted of 151 female buffaloes, (12-24 months) consisted of 107 female buffaloes, (25-36 months) consisted of 81 female buffaloes and (above 36 months) consists of 527 female buffaloes. Among these animal, 224, 207, 290 and 287 were selected from 5 villages of each tehsil Basmath, Aundha Nagnath, Hingoli and Sengao, respectively, of Hingoli districts of Marathwada region of Maharashtra. The data for present investigation were recorded for various body measurements *viz*., chest girth; body length and height at wither for Marathwadi individuals from the Hingoli district. These Marathwadi buffaloes were distributed in 20 villages of four tahsils. Efforts was made to collect data of these measurements by taking actual measurements of each individual on 1008 individuals at different age groups. Arrangement was made to stand the animal on even surface and in normal position at the time of measurement. The body measurements was measured with the help of standard metallic tape. The data was generated on farmer's field condition, with the help of questionnaires and door to door visits. The raw data collected on the characters under study were classified in suitable sub-class frequencies and subjected for correction. The data were classified into four blocks as given below. B1- Basmat tahsil , B2- Audha Nagnath tahsil, B3- Hingoli tahsil and B4- Sengaon tahsil. The body weights at various age groups in Marathwadi buffaloes were estimated by using Shaeffers formula. For statistical analysis of data, the Least Square Technique as outlined by Harvey (1976) was employed. After analysis of variance, the significant effects were further analyzed to have all the pair wise comparisons. For this purpose the DMRT as modified by Karmer (1957) was applied.

RESULTS AND DISCUSSION

The Least Square Mean of body measurement and body weight were recorded at different age groups for female animals and breeding bull is presented in Table 1.

The LSM of girth, body length and height at 0 to 3 months of Marathwadi buffaloes were 76.06 ± 0.60, 64.72 ± 0.42 and 71.04 ± 0.54 cm, respectively. Similar results were reported by Kalyankar (2001); Gujar (2003) and Gambhire (2009); in the same breed.

The LSM of girth, body length and height at 4 to 12 months of Marathwadi buffaloes were 96.52 ± 0.88, 76.09 ± 0.65 and 85.26 ± 0.72 cm, respectively. Similar results were reported by Kalyankar (2001); Gujar (2003) and Gambhire (2009); in the Marathwadi buffaloes breed.

The LSM of girth, body length and height at 13 to 24 months of Marathwadi buffaloes were 119.07 ± 0.94, 98.56 ± 0.44 and 104.24 ± 0.59 cm, respectively. Similar results were reported by Kalyankar (2001); Gujar (2003) and Gambhire (2009); in the Marathwadi buffaloes breed.

The LSM of girth, body length and height at 25 to 36 months of Marathwadi buffaloes were 141.51 ± 1.46, 107.67 ± 0.84 and 113.35 ± 0.82 cm, respectively. Similar results were reported by Kalyankar (2001); Gujar (2003) and Gambhire (2009); in the Marathwadi buffaloes breed.

The LSM of girth, body length and height in breeding

Table 1 : Least square mean and standard error of girth, length, height and weight at different age group of Marathwadi buffaloes

Age group (month)	Sex	Animal	LSM ± S.E			
			Girth	Length	Height	Weight
0-3	F	124	76.06 ± 0.60	64.72 ± 0.42	71.04 ± 0.54	34.43 ± 0.78
4-12	F	151	96.52 ± 0.88	76.09 ± 0.65	85.26 ± 0.72	67.07 ± 1.63
13-24	F	107	119.07 ± 0.94	98.56 ± 0.44	104.24 ± 0.59	130.10 ± 2.52
25-36	F	81	141.51 ± 1.46	107.67 ± 0.84	113.35 ± 0.82	202.03 ± 5.58
More than 36	F	527	171.64 ± 0.56	126.07 ± 0.29	122.96 ± 0.26	345.15 ± 2.73
	Breeding bull	18	175.27 ± 0.56	129.83 ± 0.71	126.43 ± 0.60	363.19 ± 3.72

F- Female buffalo animal

Table 2 : ANOVA for block effect on girth, length, height and weight at different age group of Marathwadi buffaloes

Age group (month)	Sex	Animal	F Value			
			Girth	Length	Height	Weight
0-3	F	124	0.74^{NS}	1.14^{NS}	0.91^{NS}	0.19^{NS}
4-12	F	151	0.33^{NS}	1.69^{NS}	0.23^{NS}	0.17^{NS}
13-24	F	107	0.93^{NS}	0.28^{NS}	0.16^{NS}	0.64^{NS}
25-36	F	81	1.30^{NS}	0.34^{NS}	0.55^{NS}	0.99^{NS}
More than 36	F	527	2.15^{NS}	7.82**	3.41*	3.46**
	Breeding bull	18	2.74**	4.72*	2.65^{NS}	7.277**

** P<0.01 *< 0.05 NS- Non significant

bull of Marathwadi buffaloes were 175.27 ± 0.56, 129.83 ± 0.71 and 126.43 ± 0.60 cm, respectively. Such type of results was also reported by Pundir and Sahai (1997) in Nagpuri, Bhadawari, Jaffarabadi, Mehsana, Murrah, Nilli-ravi and Surti buffaloes; Patil and Ulmek (2001) in Pandharpuri; Ahlawat (2007) in Bhadawari, Jaffarabadi, Mehsana, Murrah, Nagpuri, Nilliravi, Pandharpuri and Surti buffaloes, respectively

The LSM of girth, body length and height of more than 36 months of Marathwadi buffaloes were 171.64 ± 0.56, 126.07 ± 0.29 and 122.93 ± 0.26 cm, respectively. Similar results were reported by Kalyankar (2001); Pundir and Ahlawat (2007); Shrikhande *et al*. (1996) in Nagpuri buffaloes and Pundir and Ahlawat (2007) in Bhadawari, Nagpuri and Surti buffaloes.

The LSM of body weight for Marathwadi buffaloes at 0 to 3, 4 to 12, 13 to 24, 25 to 36 and more than 36 months of age were reported as 34.43 ± 0.78, 67.07 ± 1.63, 130.10 ± 2.52, 202.03 ± 5.58 and 345.15 ± 2.73 kg, respectively. Similar results were reported by Gambhire (2009) in Marathwadi buffaloes; Sadana *et al*. (2006) in Murrah buffaloes and Chauhan *et al.*(2008) in Pandharpuri and Nagpuri buffaloes.

ANOVA for block effect on chest girth, body length, height at wither and body weight of different age group of Marathwadi buffaloes animals is presented in Table 2.

Conclusion:

It can be concluded from present investigation on growth production, linear body measurement of Marathwadi breed maintained in different management conditions, that the breed was found well adapted to the varied geographical and management situations. But the preference to this breed was not given by the animal owners of this area. For well distribution of this adapted breed, the formation of breed society and elite heard is essential in future.

LITERATURE CITED

Chauhan, D.S., Thombre, B.M., Mitkari, K.R. and Rotte, S.G. (2008). *A Text book of livestock production and management*. Jagrani Publication, Bhokar (M. S.) PP : 47-49.

Gambhire, A.B. (2009). Phenotypic characterization of Marathwadi buffalo on field scale in their breeding tract. M.Sc. (Ag.) Thesis, Marathwada Krishi Vidyapeeth, Parbhani, M.S. (INDIA).

Gujar, B.V. (2003). Adhoc Project on Characterization and Evaluation of Marathwadi Buffalo. Scheme Report, ICAR, New Delhi, INDIA.

Harvey, W.R. (1976). Least squares analysis of data with uneequal subclass numbers, Agricultural Research Service, United State, Department of Agriculture, Washington, D.C.

Kalyankar, S.D. (2001). Performance of Marathwadi Buffalo in Parbhani District. M.Sc. (Agri.) Thesis, Marathwada Agricultural University, Parbhani, M.S. (INDIA).

Karmer, C.Y. (1957). Extension multiple range test to group correlation adjusted mean. *Biometrics*, **13**: 13 – 18.

Patil, V.P. and Ulmek, B.R. (2001). Studies on the Influence of Lactation number on some physical characteristics of Pandharpuri buffaloes. *Indian J. Dairy Sci*., **54** (5) : 283 - 285.

Pundir, R. K. and Sahai, R. (1997). Conservation of Indigenous cattle breeds. *Dairy India* - 5th Ed.: 267 - 281.

Sadana, K.D., Kothariya, R.S. and Mishra, B.P. (2006). Buffalo genetic resources of India, Murrah. *Monograph*. NBPGR (ICAR) Karnal. PP : 4.

Shrikhande, R.K., Kolte, A.Y. and Kolte, B.R. (1996). Phenotypic characters of Nagpuri (Berari) buffalo. *Indian Vet. J.,* **73** (11) : 1198 – 1199.

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