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Performance traits of Murrah buffaloes in an organised farm of West Godavari district of Andhra Pradesh

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Abstract
The main objective of the present study was to evaluate the performances of Murrah buffaloes by analyzing 265 lactation records over a period of eight years related to the production and reproduction traits that were maintained in an organised farm, Buffalo research station, Venkataramannagudem of West Godavari district of Andhra Pradesh. Data maintained in the farm records on mean lactation milk yield (MLMY), mean lactation length (MLL), mean peak yields (MPY), average age at first service period (AFS), average age at first calving (AFC), average service period (ASP), average dry period (ADP), conception rate (CR) and birth weight (BW) were analysed. The mean lactation milk yield, mean lactation length, mean peak yields, average age at first service period (AFS), average age at first calving , average age at first calving (AFC), average service period (ASP),average dry period (ADP), average calving interval, conception rate (CR) and birth weight observed in the farm were 1723.71 ± 77.64, 293.54 ± 11.23, 10.69 ± 0.46, 36.7 ± 3.66, 49.2 ± 3.29, 164.13 ± 20.3, 173.8 ± 27.03, 459.79 ± 23.02, 58.87% and 29.2 ± 0.56, respectively. From the above data, it can be concluded that murrah buffaloes performance in the organised farm was within the permissible levels and performed well though they were maintained in the hot and humid climatic conditions.

Keywords: Murrah, milk production, reproduction

Introduction
India, the leading country with the highest buffalo population in the world with a total of 109.85 million. Buffaloes have a greater impact in the agricultural sector and contribute nearly 51% of India's milk production. (Boro *et al*., 2020) [2]. Dairy sector plays a vital role and has high priority in the improvement of economy when compared to other livestock sectors. Buffaloes were reared for triple purpose like milk, meat and drought (Perišić *et al*., 2015) [10]. Riverine breeds of the Indian subcontinent were mainly reared for milk production of which murrah buffalo was one of the major breed. Murrah was considered as one of the largest milk producer among all the buffalo breeds with a lactation milk yield of 1360 to 2270 kg per lactation (Sastry *et al*., 2005) [14].. They were originated in the tracts of Haryana and Punjab, and well accustomed and sustained to hot and arid climatic conditions by the nature of their wallowing and genetically resistant to many diseases (Sangwan, 2012) [12].
In Andhra Pradesh, Murrah buffaloes were used to upgrade the local non descript buffaloes and produced crossbred called Godavari buffalo to improve the milk yield (Falvey *et al*., 1999) [6]. In the previous years, though there was a reduction of 20 percent in the total buffalo population in Andhra Pradesh, but there was an increased milk production due to discernible increase in graded Murrah milch buffalo population (GOI,2017) [8]. Further, nearly 70 percent of buffalo farmers were rearing graded Murrah which reflects the interest of farmers in increasing productivity from the buffaloes. The present study was aimed to analyse the production and reproduction parameters of the farm during the past eight years and thereby enable to assess the status and growth of the farm.

Materials and Methods
The data of the previous years was obtained from the annual reports since 2012-13 to 2019-20 and was analysed by statistical methods (Snedocor and Cochran, 1979) [16] and using MS Excel 2010 version. The production and reproduction traits that were studied are lactation milk yield, lactation length, milk peak yield, age at first service, age at first calving, service period, dry period, calving interval, conception rate, birth weight. A total of 265 lactation records were

studied. The murrah buffaloes were provided with adlibitum green fodder of hybrid napier varities like Super napier, APBN-1, Co-3,Co-4 and Co-5. Guinea varities like Jury, Bombasa, Colonial and leguminous fodder include Cowpea and Sunhemp. Besides green fodder, dry fodder was given in the early hours at the rate of 4 kg per day. Concentrate mixture was provided to milch animals based on the individuals milk production at the rate of 5 to 6 kg per day. The environmental conditions in the farm was hot with temperatures ranging from 25 to 44 °C based on the season with a relative humidity of 85%.

Results and Discussion

The data on the lactational and reproductive performances of the Murrah buffaloes were presented in table 1. The mean lactation milk yield obtained was 1723.71 ± 77.64 and falls in the permissible level of Murrah breeds. Similar findings were reported by 1635 ± 23 kg and 1865.8 (Falvey *et al*., 1999) [6], 1828 kg (FAO,1999) [7] and 1704 (Park *et al*., 2006) [10] . The mean lactation length in the present study was 293.54 ± 11.23 which were on par with the findings of 299.91 ±5.01 (Babu, 2013) [1] and 300 days (FAO,1999) [7]. The lower lactation lengths in the present study could be due to the hot environmental temparatures prevailing in the area during the summer seasons from March to June. The mean peak yield was about 10.69 ± 0.46 which was on par with the findings of 10.1(Cheema and Basu, 1983) [4]. The average age at first service period was 36.7 ± 3.66 months and the average service period was 164.13 ± 20.3 which was on par with the findings of 139.91 ± 2.96 (Jamuna *et al*., 2013) [9] and 225.0 ± 5.5 (Thiruvenkadam *et al*., 2015) [17]. Variations of the average service period may be due to the seasonal changes and also depends on the parity and herd. The average age at first calving is very important because of the productive life. In the present study, it was found to be 49.2 ± 3.29 and was on par with the findings of 48.2 ± 0.30 (Charlini *et al*., 2015) [3] and 51.9 (Thiruvenkadam *et al*., 2015) [17]. The calving interval of the Murrah buffaloes was 459.79 ± 23.02 which was similar to the findings of 470 ± 4.87 (Charlini *et al*., 2015) [3]. Lesser the calving interval greater the productivity, and it is mainly affected on the season of calving and herd management. The average dry period in the present study was 173.8 ± 27.03 which was on par with 179 ± 4.47 (Charlini *et al*., 2015) [3] but enough dry period is needed in milch animals as it provides nourishment for the growing fetus.

Conception rate in the organised farm was 58.87 % and greatly varies based on the season. Conception rate generally in Murrah buffaloes was found to be 33.19% as per the findings of Sarkar *et al*., 2015) [14]. At lower temparatures, the conception rate was higher when compared to higher temparatures (Dash *et al*., 2015) [5]. The average birth weight of the newly born calves in the farm weighed nearly 29.2 ± 0.56 and were on par with the findings of Pramod *et al*., 2018 [12] and Charlini *et al*., 2015 [3].The body weights of male and female calves were similar and no much variation was observed at the time of birth. The birth weight of calves was in parallel with the weight of the dams body weight as previously described by (Boro *et al*., 2020) [2]. The farm was well maintained with proper care and management right from birth of the new calf to milch animals with balanced nutrition and maintenance of the farm in regard to cleanliness and disinfection process. In a recent study with reference to the incidence of endoparasites in the farm it was noted that the parasitic infection was very meagre thus reflecting the management practices carried in the farm (Rao *et al*., 2020) [18].

Table 1: Production and reproduction traits of Murrah buffaloes during the past eight years

Year	Mean lactation milk yield (Kgs)	Mean lactation Length (Days)	Mean peak yield (Kgs)	Average age at first service (Months)	Average age at first calving (Months)	Average service period (Days)	Average dry period (Days)	Average calving interval (Days)	Conception rate (%)	Average birth weight (Kgs)
2012-13	1477.66 ± 110.49	327.44 ± 16.31	8.77 ± 0.68	43.75 ± 6.68	56.7 ± 7.71	165.33 ± 24.51	173.50 ± 85.5	517.23 ± 35.26	49.00	26.5 ± 0.66
2013-14	1569.33 ± 78.82	317.30 ± 23.26	8.96 ± 0.59	42.75 ± 3.37	53.75 ± 6.68	154.13 ± 36.37	183.17± 25.50	498.25 ± 24.77	51.80	27.8 ± 0.22
2014-15	1586.42 ± 75.31	266.38 ± 9.36	9.89 ± 0.39	34.5 ± 1.74	55.2 ± 3.68	144.08 ± 26.13	163.81 ±29.15	451.21 ± 36.03	60.40	27.5 ± 0.54
2015-16	1544.47 ± 33.76	303.70 ± 18.89	9.02 ± 0.16	40.08 ± 2.83	54.73 ± 0.89	154.66 ± 6.06	175.33 ± 6.80	416.59 ± 17.68	62.50	29.55 ± 0.83
2016-17	1642.31 ± 73.02	286.28 ± 5.28	10.53 ± 0.43	35.50 ± 1.42	45.35 ± 1.46	193.30 ± 22.89	193.30 ±22.89	478.30 ±25.18	63.16	28.33 ± 0.72
2017-18	1917.57 ± 117.10	288.52 ± 6.25	12.11 ± 0.55	35.45 ± 9.28	45.80 ± 2.18	171.14 ± 13.89	171.14 ±13.98	468.28 ± 20.64	55.43	30.73 ± 0.52
2018-19	2072.80 ± 54.69	276.95 ± 3.75	13.45 ± 0.44	32.92 ± 1.97	42.76 ± 1.71	166.32 ± 14.64	166.32 ±14.64	425.20 ± 11.93	52.77	31.64 ± 0.50
2019-20	1979.12 ± 78.00	281.78 ± 6.76	12.86 ± 0.51	29.33 ± 2.04	39.33 ± 2.04	164.13 ± 17.8	164.13 ±17.80	423.28 ± 12.73	51.96	32.12 ± 0.55
Overall performance	1723.71 ± 77.64	293.54 ± 11.23	10.69 ± 0.46	36.7 ± 3.66	49.2 ± 3.29	164.13 ± 20.3	173.8 ± 27.03	459.79 ± 23.02	58.87	29.2 ± 0.56

Conclusion

The growth and progress of a farm mainly depends on the productive and reproductive performances. From the above pertained data in the farm it could be concluded that the production traits and reproduction traits of the murrah buffaloes in the herd seemed to be in good permissible levels and were acclimatized to the tropical and humid climatic conditions and performed extremely well.

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References

1. Babu DS. Production performance of Murrah buffaloes under organized dairy farm production system in west

Godavari district of Andhra Pradesh. Indian Journal of Applied Research. 2013;3(8):674-5.
2. Boro P, Saharia J, Bharali D, Sarma M, Sonowal M, Brahma J. Productive and reproductive performances of Murrah buffalo cows: A review. J Entomol Zool Stud. 2020;8:290-3.
3. Charlini BC, Sinniah J. Performance of Murrah, Surti, Nili-Ravi buffaloes and their crosses in the intermediate zone of Sri Lanka. Development 2015;27(3):1-7.
4. Cheema JS, Basu SB. Lactation curve in Murrah buffaloes [India]. Indian Veterinary Journal 1983.
5. Dash S, Chakravarty AK, Sah V, Jamuna V, Behera R, Kashyap N et al. Influence of temperature and humidity on pregnancy rate of Murrah buffaloes under subtropical climate. Asian-Australasian journal of animal sciences 2015;28(7):943.
6. Falvey L. editor. Smallholder dairying in the tropics. ILRI (aka ILCA and ILRAD) 1999.
7. FAO D. Domestic animal diversity information system. FAO) Available at. http://dad. fao. org [Verified December 1999] 1999.
8. GOI. State/UT wise buffalo milk production and population in India from 2013-14 to 2015-16.Community.org.in. Open Government Data (ODG) Platform India, as accessed on 20/9/2017.
9. Jamuna V, Chakravarty AK, Patil CS, Mahajan AC, Dash S, Vohra V. Decline in reproductive performance in high producing Murrah buffalo. Journal of Animal Research 2013;3(2):203-8.
10. Park YW, Haenlein GF, Wendorff WL. editors. Handbook of milk of non-bovine mammals. Ames, IA: Blackwell 2006.
11. Perišić P, Bogdanović V, Mekić C, Ružić-Muslić D, Stanojević D, Popovac M et al. The importance of buffalo in milk production and buffalo population in Serbia. Biotechnology in Animal Husbandry 2015; 31(2):255-63.
12. Pramod S, Sahib L, Becha BB, Venkatachalapathy RT. Growth Performance of Murrah Buffalo Calves under Humid Tropical Conditions of Kerala. Journal of Animal Research 2018;8(6):1125-8.
13. Sangwan ML. Analysis of genetic diversity of Indian buffalo breeds by DNA markers. Journal of Buffalo Science 2012;1(1): 91-101.
14. Sarkar U, Gupta AK, Yadav P, Mohanty TK, Raina VS. Factors affecting conception rate in Murrah buffaloes. Journal of Dairying, Foods and Home Sciences 2005; 24(2):113-5.
15. Sastry NS, Thomas CK, Pearson RA. Livestock production management. Kalyani-Publ. 2005.
16. Snecodor GW, Cochran WG. Statistical Methods (8 th edn). The Iowa State University Press, Ames, IA, USA. Swain T, Hills W E, 1979, 1994.
17. Thiruvenkadan AK, Panneerselvam S, Rajendran R. Lifetime performance of Murrah buffaloes hot and humid climate of Tamil Nadu India. Buffalo Bulletin. 2015;34(1):92-9.
18. Rao KA, Kumari GD, Latchumikanthan A. Incidence of endoparasites in Murrah Buffaloes of Buffalo Research Station of West Godavari region of Andhra Pradesh. Journal of Zoology and Entomology 2020;8(6):1628-1630.