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, 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) [3]. 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) [9]. 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) [8]. 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 ad libitum green fodder of hybrid napier varieties like Super napier, APBN-1, Co-3, Co-4 and Co-5. Guinea varieties 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 milk production. Similar findings were reported by 1635 ± 23 kg and 1865.8 (Falvey et al., 1999) [7] and 1828 kg (FAO, 1999) [8] and 179 ± 4.47 (Charlini et al., 2015) [14]. The average lactation length in the present study was 299.91 ± 5.01 (Babu, 2013) [15] and 300 days (FAO, 1999) [7]. The lower lactation lengths in the present study could be due to the hot environmental temperatures prevailing in the area during the summer season 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) [9]. 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) [10] and 225.0 ± 5.5 (Thiruvengadham et al., 2015) [11]. 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 (Thiruvengadam 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) [14] but enough dry period is needed in milch animals as it provides nourishment for the growing fetus.

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean lactation milk yield (Kgs)</th>
<th>Mean lactation Length (Days)</th>
<th>Mean peak yield (Kgs)</th>
<th>Average age at first service (Months)</th>
<th>Average age at first calving (Months)</th>
<th>Average service period (Days)</th>
<th>Average dry period (Days)</th>
<th>Average calving interval (Days)</th>
<th>Conception rate (%)</th>
<th>Average birth weight (Kgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>1477.66 ± 110.49</td>
<td>327.44 ± 16.31</td>
<td>8.77 ± 0.68</td>
<td>43.75 ± 6.68</td>
<td>56.7 ± 7.71</td>
<td>165.33 ± 24.51</td>
<td>173.50 ± 85.5</td>
<td>517.23 ± 35.26</td>
<td>49.00</td>
<td>26.5 ± 0.66</td>
</tr>
<tr>
<td>2013-14</td>
<td>1596.33 ± 78.82</td>
<td>317.30 ± 23.26</td>
<td>9.96 ± 0.59</td>
<td>42.75 ± 3.37</td>
<td>53.7 ± 6.68</td>
<td>154.13 ± 36.37</td>
<td>183.17 ± 25.0</td>
<td>498.25 ± 24.77</td>
<td>51.80</td>
<td>27.8 ± 0.22</td>
</tr>
<tr>
<td>2014-15</td>
<td>1586.42 ± 75.31</td>
<td>266.38 ± 9.36</td>
<td>9.89 ± 0.39</td>
<td>34.5 ± 1.74</td>
<td>55.2 ± 3.68</td>
<td>144.08 ± 26.13</td>
<td>163.81 ± 29.15</td>
<td>451.21 ± 36.03</td>
<td>60.40</td>
<td>27.5 ± 0.54</td>
</tr>
<tr>
<td>2015-16</td>
<td>1544.47 ± 33.76</td>
<td>303.70 ± 18.89</td>
<td>9.02 ± 0.16</td>
<td>40.08 ± 2.83</td>
<td>54.73 ± 0.89</td>
<td>154.66 ± 6.06</td>
<td>175.33 ± 6.80</td>
<td>416.59 ± 17.68</td>
<td>62.50</td>
<td>29.55 ± 0.83</td>
</tr>
<tr>
<td>2016-17</td>
<td>1642.31 ± 73.02</td>
<td>286.28 ± 5.28</td>
<td>10.53 ± 0.43</td>
<td>35.50 ± 1.42</td>
<td>45.35 ± 1.46</td>
<td>193.30 ± 22.89</td>
<td>193.30 ± 22.89</td>
<td>478.30 ± 25.18</td>
<td>63.16</td>
<td>28.33 ± 0.72</td>
</tr>
<tr>
<td>2017-18</td>
<td>1917.57 ± 117.10</td>
<td>288.52 ± 6.25</td>
<td>12.11 ± 0.55</td>
<td>35.45 ± 9.28</td>
<td>45.80 ± 2.18</td>
<td>171.14 ± 13.89</td>
<td>171.14 ± 13.89</td>
<td>468.28 ± 20.64</td>
<td>55.43</td>
<td>30.73 ± 0.52</td>
</tr>
<tr>
<td>2018-19</td>
<td>2072.80 ± 54.69</td>
<td>276.95 ± 3.75</td>
<td>13.45 ± 0.44</td>
<td>32.92 ± 1.97</td>
<td>47.26 ± 1.71</td>
<td>166.32 ± 14.64</td>
<td>166.32 ± 14.64</td>
<td>425.20 ± 11.93</td>
<td>52.77</td>
<td>31.64 ± 0.50</td>
</tr>
<tr>
<td>2019-20</td>
<td>1979.12 ± 78.00</td>
<td>281.78 ± 6.76</td>
<td>12.86 ± 0.51</td>
<td>29.33 ± 2.04</td>
<td>39.33 ± 2.04</td>
<td>164.13 ± 17.8</td>
<td>164.13 ± 17.80</td>
<td>423.28 ± 12.73</td>
<td>51.96</td>
<td>32.12 ± 0.55</td>
</tr>
<tr>
<td>Overall</td>
<td>1727.31 ± 77.64</td>
<td>293.54 ± 11.23</td>
<td>10.69 ± 0.46</td>
<td>36.7 ± 3.66</td>
<td>49.2 ± 3.29</td>
<td>164.13 ± 20.3</td>
<td>173.8 ± 27.03</td>
<td>459.79 ± 21.02</td>
<td>58.87</td>
<td>29.2 ± 0.56</td>
</tr>
</tbody>
</table>

Conclusion
The growth and progress of a farm mainly depends on the productive and reproductive performances. From the above mentioned 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
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