TEMPERAMENT OF MURRAH BUFFALOES IN DIFFERENT LACTATIONS AND ITS EFFECT ON THE MILK YIELD

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ABSTRACT

The investigation was taken up to study general temperament of Murrah buffaloes during milking with its influence on the milk yield. A total of 200 buffaloes in different lactations were observed for their general temperament and milk yield. It was observed from the data that the restless and slightly restless animals are more frequent in primiparous animals (35.18 and 33.33% respectively) followed by docile (24.07%), aggressive and nervous animals (3.7% each), while in second, third and fourth lactations, docile animals were more frequent (73.33, 57.40 and 59.37%, respectively) when compared to other temperaments. The average daily milk yield in docile, restless, slightly restless, aggressive and nervous categories was 6.65 ± 0.15, 6.49 ± 0.34, 5.67 ± 0.26, 4.91 ± 0.30 and 4.56 ± 0.34 Kg, respectively with a significant (P<0.01) negative (-0.406) correlation between the temperament score and the average daily milk yield.

Key words: Temperament, Parity, Milk production, Murrah buffaloes.

INTRODUCTION

Buffalo is a key player in the agriculture animal based Indian rural economy contributing to more than 50% of the total milk produced in India (GOI, 2006). Buffaloes have been supplying about 12% of the world milk production and India is producing 60% of the world’s buffalo milk. Several factors appear to influence the milking potential of the buffaloes. In order to derive the maximum potential from native buffaloes, temperament is important since behaviour of animals has a lot of bearing on the management and making the animals let milk removal smoothly. There were many studies on the cow’s temperament and its relation to the milk yield but reports on the temperament of buffaloes are scanty and the studies were mainly carried out in organized farms. Hence, the present study was taken up to understand the behaviour of Murrah buffaloes in terms of activity in different lactations and its effect on milk yield under rural conditions of India.

MATERIALS AND METHODS

The study was carried out in the Krishna and West Godavari districts of Andhra Pradesh. The Murrah buffaloes available at the Buffalo Research Station, Venkataramannagudem of Sri Venkateswara Veterinary University and in the farms present in the surrounding areas of the research station and NTR College of Veterinary Science, Gannavaram, were utilized for the present study.

A total of 200 Murrah buffaloes with 100 each from the Buffalo Research Station and the farmers fields were utilized for the study.

Management at farm level

The milch buffaloes were kept in loose housing system. Each buffalo was provided with 8.5
The buffaloes were fed roughages ad-libitum that consisted of a mix of greens available in the farm. A concentrate mixture was offered at the time of milking. The concentrates were offered during milking both in the morning and evening as per the requirement. The milch buffaloes were milked twice in a day at 4.00 and 16.00 hours in a Flat barn milking parlour having machine milking facilities. An Eight units system installed by De Laval was used for milking the animals.

**Management of field animals**

Murrah buffaloes maintained in the field were housed in sheds with simple roofing and kutcha flooring and were fed with roughages cultivated in their fields and were allowed for 6 hours grazing (From 9.00 to 15.00 hours). The concentrate mixture was offered at the time of milking. Milking was done twice at 6.00 and 16.00 hours. Hand milking was practiced and for milk ejection, calves were allowed before milking the animals.

**Description of Temperament Score**

Subjective scoring was done on a 1 - 5 scale by the investigator through visual assessment of the animal’s reactivity during handling. This was performed while milking each animal.

Milking temperament of the buffaloes was classified by observing the behaviour of animals during milking by the investigator visually and recordings were done based on the expression of behaviours as five categories: 1, 2, 3, 4 and 5 for docile, slightly restless, restless, aggressive and nervous categories, respectively as per Tulloh (1961) and Dogra (2002).

**Statistical analysis**

Simple tabular technique of analysis using statistical tools such as frequencies and percentages was used in the study to present the prevalence of various temperaments in Murrah buffaloes. Analysis of variance with temperament as the source of variation was used to test the significance of variation in milk yield (F-test) and Duncan’s Multiple Range test was used to test the significance of mean difference at P<0.05. The data were analyzed using SPSS statistical package (version 15.0).

**RESULTS AND DISCUSSION**

**Temperament / Milking behaviour of buffaloes**

Temperament of animals is generally described as the inherent nature of the animal which influences the reaction towards external stimuli and the ease with which the animal can be managed. Good temperament is often equated with or used to describe calm behaviour of the animal while poor temperament describes an animal that appears more disturbed and agitated. Buffaloes are sensitive to changes in the environment. They may withhold the milk if they are uncomfortable with the situation.

Dairymen have recognized the importance of cattle behaviour in successful management since long. Tulloh (1961) conducted a detailed study on the temperament of cattle in yards and gave the temperament classification. Several researchers gave different types of classification basing on the

<table>
<thead>
<tr>
<th>Parity</th>
<th>Docile(1)</th>
<th>Slightly restless (2)</th>
<th>Restless(3)</th>
<th>Aggressive(4)</th>
<th>Nervous(5)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13(24.07)</td>
<td>18(33.33%)</td>
<td>19(35.18%)</td>
<td>2(3.70%)</td>
<td>2(3.70%)</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>44(73.33%)</td>
<td>3(5.00%)</td>
<td>2(3.33%)</td>
<td>7(11.66%)</td>
<td>4(6.66%)</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>31(57.40%)</td>
<td>7(12.96%)</td>
<td>8(14.81%)</td>
<td>6(11.11%)</td>
<td>2(3.70%)</td>
<td>54</td>
</tr>
<tr>
<td>4</td>
<td>19(59.37%)</td>
<td>4(12.50%)</td>
<td>2(6.25%)</td>
<td>4(12.50%)</td>
<td>3(9.37%)</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>107(53.50%)</td>
<td>32(16.00%)</td>
<td>31(15.50%)</td>
<td>19(9.50%)</td>
<td>11(5.50%)</td>
<td>200</td>
</tr>
</tbody>
</table>

**Table 1**: Frequencies and percentages of different temperament scores according to parity in Murrah buffaloes.
temperamental expression by doing subjective and objective assessments.

The temperament scoring of Murrah buffaloes under different lactations done in the present study as per Dogra (2002) are presented in Table 1. It was observed from the data that the restless and slightly restless animals are more frequent in primiparous animals (35.18 and 33.33% respectively) followed by docile (24.07%), aggressive and nervous animals (3.7% each).

In the buffaloes under second, third and fourth lactations, docile animals were more frequent (73.33, 57.40 and 59.37%, respectively) when compared to other temperaments. The lower frequencies of restless and slightly restless animals in later lactations indicated that in buffaloes as the age advanced they themselves were adjusting to the milking routine and to the handling by milkers. The primiparous animals were a bit aversive to the milking routines and they resist handling.

Temperament score and milk yield

The mean and S.E values of average daily milk yield as per the temperament score are presented in the Table 2. It was evident from the results that the docile animals yielded more average daily milk compared to other categories. The average milk yield in docile, slightly restless, restless, aggressive and nervous categories was 6.65 ± 0.15, 6.49 ± 0.34, 5.67 ± 0.26, 4.91 ± 0.30 and 4.56 ± 0.34 Kg, respectively. It was evident that the buffaloes having a temperament score of five were poor yielders. Those with a score of four gave less milk compared to the first three temperament scores and those with a score of 3 had a lesser average daily milk yield compared to docile and slightly restless animals. Thus, there was a significant difference in milk yield of buffaloes with various temperament scores except between docile and slightly restless animals where the difference in milk yield was not significant. The buffaloes under temperament scores one and two were good milk yielders and on an average had the higher daily milk yield. These findings were in conformity with findings of Mishra et al. (1975), Dash et al. (1976), Nayak and Mishra (1984), Gupta et al. (1985), Dogra et al. (2002), Bharadwaj et al. (2007) and Lallawmkimi and Mahendra Singh (2009).

The poor performance of nervous buffaloes with regard to milk yield may be attributed to disturbance in neuro-hormonal mechanism. Scott (1958) also reported that the inhibition of milk production was a function of temperament and observed that both milk production and temperament were related. Kilgour (1975) observed that individual variability in an animal’s physical, hormonal and neuronal characteristics was the reason for their differences in temperament. The descending order of milk yield from docile to slightly restless, restless, aggressive and nervous ones could be due to the fact that under optimum conditions of milking the docile ones did not hold up any milk, while the other categories held up milk due to secretion of adrenalin. The disturbances during milking disrupts milk ejection and milk yield (Aliev, 1969).

<table>
<thead>
<tr>
<th>Temperament</th>
<th>Average daily milk yield</th>
<th>S.E</th>
<th>C.V%</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Docile</td>
<td>6.65±0.15</td>
<td></td>
<td>22.98</td>
<td>4.3</td>
<td>11.2</td>
<td>6.9</td>
<td>107</td>
</tr>
<tr>
<td>Slightly restless</td>
<td>6.49±0.34</td>
<td></td>
<td>29.89</td>
<td>3.4</td>
<td>13.0</td>
<td>9.6</td>
<td>32</td>
</tr>
<tr>
<td>Restless</td>
<td>5.67±0.26</td>
<td></td>
<td>25.57</td>
<td>3.4</td>
<td>8.6</td>
<td>5.2</td>
<td>31</td>
</tr>
<tr>
<td>Aggressive</td>
<td>4.91±0.30</td>
<td></td>
<td>26.51</td>
<td>3.2</td>
<td>7.8</td>
<td>4.6</td>
<td>19</td>
</tr>
<tr>
<td>Nervous</td>
<td>4.56±0.34</td>
<td></td>
<td>24.70</td>
<td>3.2</td>
<td>7.0</td>
<td>3.8</td>
<td>11</td>
</tr>
<tr>
<td>Overall</td>
<td>6.19±0.12</td>
<td></td>
<td>27.20</td>
<td>3.2</td>
<td>13.0</td>
<td>9.8</td>
<td>200</td>
</tr>
</tbody>
</table>

Means with similar superscripts do not differ significantly (P<0.05).
The correlation between the temperament score and average daily milk yield was negative (-0.406) and significant (P<0.01) and was in conformity with Nayak and Mishra (1984). Hence, it may be concluded that parity influences the temperament and temperament influences the milk yield. Selection programmes for improving milk production in buffaloes should therefore pay attention to temperament also as it was found to influence the milk production and animals with docile temperament must be preferred for use in breeding programmes.

REFERENCES