A Study on the Breeding Practices followed by Dairy Farmers in Tribal Area of North Gujarat Region


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ABSTRACT

A survey-based study was conducted to know the existing cattle and buffalo breeding practices followed by the tribal livestock farmers of North Gujarat region. For the study, two villages from 7 taluka of three districts of North Gujarat region were selected having large number of tribal farmers. Fifteen respondents were selected from each village, which resulted into selection of 210 respondents for the study. Data were collected with the help of a well-structured pretested interview schedule. Frequency was obtained from each category and percentage of respondents was calculated to draw the inference. Study revealed that mucus discharge and bellowing (76.19%) signs were the major symptoms utilized for the detection of oestrous. For the breeding of their cows 72.73 per cent respondents utilized artificial insemination and 61.50 per cent bred buffaloes by natural service. More than one third respondents (35.24%) bred their animals between 12 to 18 hours after heat detection. More than fifty percent (56.19 %) respondents adopted pregnancy diagnosis of their animals. Majority of the respondents (74.29%) were conscious of breeding their cows within a range of 5 months after calving. The findings of this study revealed that the most of the respondents involved in cattle and buffalo husbandry had adopted artificial insemination but still a notable number of farmers preferred natural service in tribal area.

Key words: Breeding practices, Tribal area, Oestrous detection

Livestock sector plays very important role in shaping the rural economy of India and it is a major continuous income generating activity for the rural households. The livestock sector has been recognized as “Power House of Growth” by the planning commission of India and has potential to galvanize the rural and tribal economy through generation of 75.00 per cent employment opportunities in rural and tribal areas. The total human population of Gujarat in 2011 Census of India was 6,04,39,692 and out of this 8,91,7174 persons belong to the Scheduled Tribes constituting 14.75 per cent of the total population of the state. There are 249 talukas in Gujarat state wherein scheduled tribe are registered in 43 talukas of 12 districts including Banaskantha, Sabarkantha and Aravalli district of North Gujarat. Role of livestock in livelihood of tribal people is also well-known part and portal of tribal’s life style and culture of our country and the state. Tribals mostly use traditional pattern for their agriculture and animal husbandry practices. Management practices in cattle and buffalo husbandry plays a very important role in production and health of the animal. Profit of dairy enterprises solely depends on the regular and efficient management of animals. Therefore, understanding of cattle and buffalo breeding practices followed by the farmers is the key factor in identification of strength, weakness, opportunity and threat in livestock rearing. Keeping this in view, the present study was planned to delineate information on the breeding practices followed by the dairy animal owners of tribal area of North Gujarat.

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MATERIALS AND METHODS

The study was conducted in the three districts (Banaskantha, Sabarkantha and Aravalli) of North Gujarat region (Fig. 1). Districts and talukas were selected purposively based on tribal population, while villages and respondents were selected randomly. Majority of tribal people inhabitants of Banaskantha, Sabarkantha and Aravalli districts of North Gujarat region. So, they were selected purposively for the study. Amirgadh and Danta from Banaskantha, Khedbrahma, Poshina and Vijaynagar from Sabarkantha and Bhiloda and Meghraj talukas from Aravalli District were selected. Two villages were selected randomly from each taluka. Hence the study was carried out in 14 villages. In the present investigation, fifteen respondents were selected from each village randomly, which resulted into 210 respondents from whole North Gujarat region. The interview schedule developed for the study was used to collect the desired information by personal interview of selected farmers.

The study aimed at documenting the breeding practices adopted by the cattle and buffalo owners of tribal area of North Gujarat region. The collected data were classified and tabulated according to managemental practices adopted by farmers to obtain meaningful inference. Frequency was obtained from each category and percentage of respondents was calculated for comparison. The Chi square test was applied as mentioned by the author

Fig. 1 Map showing the Banaskantha, Sabarkantha and Aravalli districts of Gujarat.
RESULTS AND DISCUSSION

The data regarding knowledge about observation of heat detection symptoms, method of service, time of serving the animal, pregnancy diagnosis and breeding after parturition have been studied and presented in Table 1.

Method of heat detection is essential to find out the dams in oestrous. Better heat detection could increase the conception rate in the herd. Mucus discharge, bellowing and mounting were the major symptoms observed by the cattle and buffalo owners to detect the animals in heat.

Majority of the respondents (76.19%) detected oestrus in animals mainly by observing heat symptoms like vaginal discharge and bellowing. However, remaining respondents (23.81%) also observed the other signs like mounting and other oestrous symptoms in addition to the mucus discharge and bellowing for the heat detection in dairy animals. It is observed that none of the respondents used any heat detection aids like pedometer, chin ball devise etc. Trend of heat detection symptoms was non-significant among respondents of different districts. Similar type of trend was observed by several authors. These researchers concluded that mucus discharge and bellowing were observed by majority of the respondents for heat detection. Study shows that there is need to create awareness among the farmers about heat detection devices like pedometer, chin ball device etc.

Majority of cattle owners (72.73%) followed artificial insemination (A.I.) for breeding their cows. It showed the awareness of respondents about the benefits of artificial insemination and the facility available at their door step. Natural service was more prevalent in Banaskantha (34.55%) district as compared to Sabarkantha and Aravalli districts. The difference was found to be non-significant among the districts. The results are in line with the findings of various researchers and they reported that majority of the respondents followed A.I in their study area. Results were in contrast with the findings of authors as they reported that majority of the respondents followed natural service for breeding their cows. This may be due to the difference in the geographical location of the study and chronology gap between the studies.

Majority (61.50%) of buffalo owners followed natural service and remaining 38.50 per cent of the respondents have adopted artificial insemination for breeding buffaloes. In Banaskantha district majority (88.00%) of the respondents adopted natural service to bred their buffaloes. Adoption of artificial insemination in buffaloes was observed more (58.82%) in Aravalli district, while in Sabarkantha district 58.14 per cent of the respondents had preferred natural service. Trend for the service method in buffaloes was highly significant (p<0.01) among the different districts. The results of the study are in accordance with the findings of researchers who stated that majority of the respondents were breeding their animals by natural service. Results revealed that natural service was more prominently adopted for buffaloes as compared to cattle which might be the perception among farmers regarding the higher conception rate in natural service than AI. Reason for low A.I. in Banaskantha district might be due to hilly geographical location and low literacy rate in the tribal area selected.

After the oestrous detection the time of breeding (Natural service /AI) plays an important role in successful conception. It is revealed from the results (Table 1) that about one third (35.24per cent) of the respondents inseminated their cows/buffaloes between 12 and 18 hours of heat detection, followed by 27.14 per cent between 18 and 24 hours. About 19.52 per cent bred their animals within 12 hours of heat detection which is too early while 18.54 per cent respondents bred their animals after 24 hours of heat detection in study area which might be too late for successful conception.

Trend of breeding duration heat detection was non-significant among different districts of
Table 1: District wise distribution of respondents according to various breeding practices followed in Tribal area of North Gujarat Region

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Parameter</th>
<th>Number and percentage of respondents</th>
<th>Banaskantha (n=60)</th>
<th>Sabarkantha (n=90)</th>
<th>Aravalli (n=60)</th>
<th>Total (n=210)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Method of heat detection</td>
<td>Mucus discharge and bellowing</td>
<td>46 (76.67)</td>
<td>66 (73.33)</td>
<td>48 (80.00)</td>
<td>160 (76.19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mucus discharge, bellowing, mounting and other</td>
<td>14 (23.33)</td>
<td>24 (26.67)</td>
<td>12 (20.00)</td>
<td>50 (23.81)</td>
</tr>
<tr>
<td>2</td>
<td>Time of serving the animal after heat detection</td>
<td>Within 12 hours of heat</td>
<td>16 (26.67)</td>
<td>15 (16.67)</td>
<td>10 (16.67)</td>
<td>41* (19.52)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Between 12 to 18 hours of heat</td>
<td>19 (31.67)</td>
<td>34 (37.77)</td>
<td>21 (35.00)</td>
<td>74 (35.24)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Between 18 to 24 hours of heat</td>
<td>15 (25.00)</td>
<td>27 (30.00)</td>
<td>15 (25.00)</td>
<td>57 (27.14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After 24 hours of heat</td>
<td>10 (16.66)</td>
<td>14 (15.56)</td>
<td>14 (23.33)</td>
<td>38 (18.10)</td>
</tr>
<tr>
<td>3</td>
<td>Pregnancy diagnosis</td>
<td>Yes</td>
<td>33 (55.00)</td>
<td>48 (53.33)</td>
<td>37 (61.67)</td>
<td>118 (56.19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>27 (45.00)</td>
<td>42 (46.67)</td>
<td>23 (38.33)</td>
<td>92* (43.81)</td>
</tr>
<tr>
<td>4</td>
<td>Breeding after calving</td>
<td>2-3 months</td>
<td>11 (18.33)</td>
<td>18 (20.00)</td>
<td>17 (28.33)</td>
<td>46* (21.91)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3- 5 months</td>
<td>33 (55.00)</td>
<td>49 (54.44)</td>
<td>28 (46.67)</td>
<td>110 (52.38)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 5 months</td>
<td>16 (26.67)</td>
<td>23 (25.56)</td>
<td>15 (25.00)</td>
<td>54 (25.71)</td>
</tr>
<tr>
<td>5</td>
<td>Service method in cow</td>
<td>Natural service</td>
<td>19 (34.55)</td>
<td>25 (29.41)</td>
<td>10 (17.24)</td>
<td>54* (27.27)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Artificial insemination</td>
<td>36 (65.45)</td>
<td>60 (70.59)</td>
<td>48 (82.76)</td>
<td>144 (72.73)</td>
</tr>
<tr>
<td>6</td>
<td>Service method in buffalo</td>
<td>Natural service</td>
<td>44 (88.00)</td>
<td>50 (58.14)</td>
<td>21 (41.18)</td>
<td>115** (61.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Artificial insemination</td>
<td>6 (12.00)</td>
<td>36 (41.86)</td>
<td>30 (58.82)</td>
<td>72 (38.50)</td>
</tr>
</tbody>
</table>

*Chi-square = 4.605 (Non significant)

Chi-square = 24.14** (Significant at 1% level)

n= No. of Respondents and Figures in the parenthesis indicate percentage of the respondents.
Breeding practices followed by dairy farmers in North Gujarat

respondents. Findings of this study are in agreement with the findings of authors\textsuperscript{12, 8, 4 & 6} who stated that majority of the respondents preferred to breed their animals between 12 to 18 hours. The results indicated that the many dairy farmers of the tribal area of the North Gujarat region were a bit ignorant about the timing of breeding or unaware about the importance of timed breeding. Hence the farmers must be trained / made aware about the correct time of breeding.

More than half of the respondents had adopted pregnancy diagnosis in study area. In Aravalli district 61.67 per cent of the respondents had adopted pregnancy diagnosis, while 55.00 and 53.33 per cent of the respondents in Banaskantha and Sabarkantha district, respectively preferred pregnancy diagnosis. Trend of pregnancy diagnosis was non-significant among different districts of respondents. The present findings were supported by \textsuperscript{20, 15, 3, 8, 4 & 13} who reported that pregnancy diagnosis was adopted by more than fifty per cent of the respondents in their study area. Pregnancy diagnosis should be done in dairy animal at around two to four months of age, which identify the not pregnant animals at an early stage, which ultimately affect the profitability of dairy farm. Hence an awareness campaign should be conducted regarding the pregnancy diagnosis among the dairy farmers in the tribal area.

Results from the present study revealed that 52.38, 25.71 and 21.91 per cent respondents preferred to breed their animals between 3-5 months, after 5 months and within 2 to 3 months of calving, respectively. Majority of the respondents (74.29\%) were conscious of breeding their cows within a range of 5 months after calving but noticeable proportion were unaware about the calving interval and its economic impact. It was also revealed that 55.00, 54.44 and 46.67 per cent of the respondents had preferred to breed their animals between 3 to 5 months after calving in tribal areas of Banaskantha, Sabarkantha and Aravalli district, respectively. Trend of breeding after calving was non-significantly different among different districts of respondents. Present findings are in accordance with the findings of several authors \textsuperscript{20, 3, 8, 21, 13 & 6} and they reported that majority of the respondents preferred to breed their animals within 3 to 5 months of calving. Long service period is uneconomical and it has impact on profitable dairy farming. Hence, there is a need to create awareness among the farmers regarding optimum service period as it has a huge impact on profitability of dairy farming.

**CONCLUSION**

The findings of this study revealed that most of the respondents involved in cattle and buffalo husbandry had adopted artificial insemination but still a notable number of farmers preferred natural service in tribal area. Most of the tribal farmers follow AI in cattle and natural service in buffaloes. Two-third of the tribal farmers were not aware about timing of service or artificial insemination and service period. It may be concluded from the study that the dairy farmers of tribal area are required to be trained for adoption of improved breeding practices. Hence extension functionaries like farmer’s training centres, extension department of SAUs / KVKs, ATMA project of respective districts and other NGOs can guide the farmers by dissemination of improved scientific breeding practices by suitable training methods.

**REFERENCES**


Breeding practices followed by dairy farmers in North Gujarat


