



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2018; 6(5): 2321-2323

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Received: 05-07-2018

Accepted: 10-08-2018

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Milking management practices followed by buffalo rearing farmers of temperate Himalayan region of Kashmir valley

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Abstract

The study was conducted in Kashmir valley in two geographically isolated districts of Anantnag in south Kashmir and Baramulla in north Kashmir. In each district 200 buffalo rearing farmers were selected. The information was collected through personal visit on the basis of a pre-formulated and tested questionnaire. The results revealed that majorities (86.25%) of the farmers were milking their animals within the herd and bucket was used by majority (64.75%) of the respondents followed by dome shaped pail (28.50%) as milking pails. Maximum proportion (84.75%) of respondents used cold water for the cleaning of milking pail while as 68.50 percent of the respondents were not adopting pre milking hygiene and not adopting by 31.50 percent and Maximum proportions (76.75%) of the farmers were milking by full hand milking followed by stripping (23.25%). Maximum 95.50 percent of the respondents were milking twice a day and 87.50 percent of farmers replied docile nature of their buffaloes during milking followed by aggressive (7.00%) and restlessness (5.50%), while as majority (62.50%) of farmers were not cleaning the udder of animals followed by cleaning of udder (37.50%). Only 12.75 percent farmers fed concentrate to their animals during milking while as 78.50 percent of the farmers were not washing their animals followed by once in a month (15.75%) and once in a week (5.75%). To let off first two streams of milk were not practiced by maximum proportion of farmers (96.00%), considerable proportions of respondents (53.00%) were allowing the third person during milking followed by third person not allowed during milking (47.00%).

Keywords: buffalo; milking; udder; bucket: Kashmir valley

Introduction

Livestock sector plays a crucial role in the welfare of rural Indian population. Furthermore, livestock is closely linked to the social and cultural lives of several million resource-poor farmers for whom animal ownership ensures varying degrees of sustainable farming and economic stability. This enterprise provides a flow of essential food products, draught power, manure, employment, income and export earnings. Hence, it is considered an important component in poverty alleviation programs. In India, about 70 per cent of the population is engaged in agriculture and rearing livestock, subsidiary to agriculture. India has about 190.90 million cattle and 108.70 million buffalo population (DAHD, 2014) [3]. The Indian dairy industry has made a remarkable progress in last three decades with unprecedented growth in milk production. India has emerged as a leading milk producer country in the world with 132.4 million tones milk (DAHD, 2014) [3]. Livestock population in Jammu & Kashmir is 9.20 million in which cattle population is 2.79 million and buffalo population is 0.738 million (DAHD, 2014) [3]. The nutritive interest of buffalo milk products is also higher than cows because of the higher concentrations of protein, fat, lactose, minerals and vitamins in buffalo milk. Buffalo milk and its derived products could be a good source of conjugated linoleic acid (CLA) for humans like other food products from ruminants. Numerous potential physiological effects have been attributed to CLA including those related to its potential antiadipogenic, antidiabetogenic, anticarcinogenic and anti-atherosclerotic properties (Frank *et al.*, 2012) [4]. Buffalo rearing seems to have received least attention of policy planners as well as farmers particularly in Kashmir. In spite of being quite hardy, better adapted to low input production system buffalo rearing has not been so popular in Kashmir Valley. Present study was therefore planned to know the milking management practices followed by buffalo rearing farmers of Kashmir Valley.

Materials and Methods

The study was conducted in Kashmir Valley which is surrounded by Himalayas on all sides with average temperature ranging from -5° to 32°C. During the period of one year in Kashmir Valley two geographically isolated districts with highest buffalo population viz, Anantnag in South Kashmir and Baramulla in North Kashmir were included in the study. Random sampling technique was used to select the respondents within the selected districts. A minimum of 200 buffalo rearing farmers in each district were covered. The information was collected on the basis of pre-formulated and tested questionnaire devised for the purpose and the interview schedule developed for the study was used for collecting the information by personal interview from selected buffalo owners. The questions / statements of interview schedule were read out one by one and their responses were recorded. The data generated on these traits was tabulated and classified. The data was analyzed using standard statistical procedures (Snedecor and Cochran, 1994) [8]. Simple averages and percentages were calculated. However, the proportionate data was compared through z-test of proportions. After performing statistical analyses tests were referred by p-values, any p-value ≤ 0.05 was taken as statistically significant.

Results and Discussion

Milking procedure and its management

As per the table 1 & 2 the study revealed that majority (86.25%) of the farmers milked their animals within the herd and only few in isolation (13.75%). Bucket was used by majority (64.75%) of the respondents followed by dome shaped pail (28.50%) and other (6.75%) as a milking pail. As per the response and belief of farmers the use of bucket was most appropriate. The findings are in contrary with Kishore *et al.* (2013) [5], who reported that only 4.17 percent of respondents used buckets in Khammam district of Andhra Pradesh.

Maximum proportion (84.75%) of respondents used just cold water for the cleaning of milking pail. The findings are closely related to Bainwad *et al.* (2007) [1] in Parbhani district in Marathwada region. Majority (68.50%) of the respondents were not adopting pre milking hygiene. This shows that farmers lack awareness about clean milk production and

practices. Maximum proportions (76.75%) of the farmers practised full hand milking. The reason for maximum number of farmers practicing the full hand milking is the tradition and the ease with which milk is drawn by this method. The findings are contrary to Kishore *et al.* (2013) [5], who reported that very few farmers (8.00%) followed the full hand method of milking and remaining (92.00%) followed the knuckling method in Andhra Pradesh.

Majority (95.50%) of the respondents were milking twice a day. Only few were milking once a day (4.50%). Similar results were reported by Bashir and Kumar (2013) [2], who reported that majority of the farmers were practicing two times milking per day in Kottayam (Kerala). The majority (62.50%) of farmers were not cleaning the before milking. The findings are closely related with Kishore *et al.* (2013) [5] in Andhra Pradesh. The majority (87.25%) of the farmers did not feed concentrate. Some farmers were feeding concentrate during milking to keep the aggressive animals busy, while maximum proportion of farmers having belief that it disturbs the proper let down of milk. The findings are contrary with Sargara (2007) [7] in Kutch district of North West Gujarat.

Letting off first two streams of milk was not practiced by maximum proportion of farmers (96.00%). The farmers possibly had no knowledge about bacterial load in first two streams of milk. Considerable proportions of respondents (53.00%) did not allow third person during milking. Third person was not allowed during milking because it was believed to disturb the animals. In 92.25 percent cases milkers were found in poor hygienic condition. It indicates that they have no knowledge about hygienic practices during milking. Kumar *et al.* (2014) [6], also reported that only 30.00 percent of the respondents were having clean environment during milking in Madhya Pradesh. Majority (78.50%) of the farmers did not wash their animals rest did it once in a month (15.75%) or once in a week (5.75%). Washing was done by some farmers but that too only in summer. The findings are contrary with Tiwari *et al.* (2007) [9], who reported that buffaloes were provided bath once a day in summer and once a week in winter in Bareilly district of Uttar Pradesh. The climatic reasons could be ascribed to frequency of washing. Hot climate necessitates frequent washing of animals while as it could be a disadvantage in cold climate.

Table 1: Milking practices followed by buffalo rearers in Kashmir Valley (N=200/district)

| Parameter | Response by farmer | Percentage | | |
|--------------------------------------|--------------------|---------------------|---------------------|--------------------|
| | | Anantnag | Baramulla | Overall |
| Milking place | In isolation | 13.00 ^a | 14.50 ^a | 13.75 ^a |
| | Within the herd | 87.00 ^b | 85.50 ^b | 86.25 ^b |
| Pail used for milking | Dome shaped | 29.50 ^b | 27.50 ^b | 28.50 ^b |
| | Bucket | 64.00 ^c | 65.50 ^c | 64.75 ^c |
| | Other | 6.50 ^a | 7.00 ^a | 6.75 ^a |
| | Full hand milking | 95.00 ^{bA} | 58.50 ^{bB} | 76.75 ^b |
| Method of milking | Stripping | 5.00 ^{aA} | 41.50 ^{aB} | 23.25 ^a |
| | Twice | 95.00 ^c | 96.00 ^c | 95.50 ^c |
| Frequency of milking/day | Once | 5.00 ^b | 4.00 ^b | 4.50 ^b |
| | Docile | 89.00 ^b | 86.00 ^b | 87.50 ^b |
| Temperament of animal during milking | Restlessness | 4.50 ^a | 6.50 ^a | 5.50 ^a |
| | Aggressive | 6.50 ^a | 7.50 ^a | 7.00 ^a |
| | Yes | 8.00 ^{aA} | 17.50 ^{aB} | 12.75 ^a |
| Concentrate feeding during milking | No | 92.00 ^{bA} | 82.50 ^{bB} | 87.25 ^b |
| | Yes | 45.50 ^{aA} | 60.50 ^{bB} | 53.00 ^a |
| Third person allowed during milking | No | 54.50 ^{aA} | 39.50 ^{aB} | 47.00 ^a |

Different small case superscripts across rows in a particular parameter indicate significant difference between different variants and different upper case superscripts across columns indicate significant difference between districts

Table 2: Hygienic practices followed during milking by buffalo rearers in Kashmir Valley (N=200/district)

| Parameter | Response by farmer | Percentage | | |
|------------------------------------|--------------------|---------------------|---------------------|--------------------|
| | | Anantnag | Baramulla | Overall |
| Milk pail cleaning | Water + detergent | 4.50 ^a | 8.00 ^a | 6.25 ^a |
| | Warm water | 4.00 ^{aA} | 14.00 ^{aB} | 9.00 ^a |
| | Cold water | 91.50 ^{bA} | 78.00 ^{bB} | 84.75 ^b |
| Pre milking hygiene | Adopted | 32.00 ^a | 31.00 ^a | 31.50 ^a |
| | Not adopted | 68.00 ^b | 69.00 ^b | 68.50 ^b |
| Udder cleaning | Done | 32.50 ^{aA} | 42.50 ^{aB} | 37.50 ^a |
| | Not done | 67.50 ^{bA} | 57.50 ^{bB} | 62.50 ^b |
| Washing of animals | Once in a weak | 1.50 ^{aA} | 10.00 ^{aB} | 5.75 ^a |
| | Once in a month | 13.00 ^b | 18.50 ^b | 15.75 ^b |
| | No Washing | 85.50 ^{cA} | 71.50 ^{cB} | 78.50 ^c |
| Letting off first 2 stream of milk | Yes | 4.50 ^a | 3.50 ^a | 4.00 ^a |
| | No | 95.5 ^b | 96.50 ^b | 96.00 ^b |
| Hygiene of milker | Poor | 94.50 ^b | 90.00 ^b | 92.25 ^b |
| | Average | 5.50 ^a | 10.00 ^a | 7.75 ^a |

Different small case superscripts across rows in a particular parameter indicate significant difference between different variants and different upper case superscripts across columns indicate significant difference between districts

Conclusion

Thus the present study revealed that majority of the farmers followed full hand milking, practicing twice a day milking used bucket as a milking pail and milking their animals within herd. Not letting off first two streams of milk, poor milkers hygiene and not washing their animals was the practice of major chunk of farmers.

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