

Breeding and milking management practices of dairy animals in coastal areas of Gujarat

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ABSTRACT

A field survey was conducted during years 2010-2012 in Jalalpore taluka of Navsari district to ascertain the breeding and milking management practices followed by dairy animal owners and data were collected from randomly selected 150 dairy animal owners through personal interview with the help of pre-tested structured schedule. The present study revealed that all the respondents detected heat in their animals by observing the symptom of bellowing and mucous discharge (98%) and bred their animals by artificial insemination (59.33%) between 12-18 hours after heat detection (46%). The 74.67% respondents bred their animals after 5 months of calving and 27.33% respondents followed the pregnancy diagnosis by veterinarian after 3 months of breeding. All the respondents washed their hands before milking and cleaned teats and udder by splashing of water and milked their animals at same place twice in a day by adopting wet hand (75.33%) and knuckling (69.33%) methods of milking. Majority (74.67%) of respondents allowed calves for suckling before milking for letdown of milk and 98% of respondents did not follow teat dipping after milking. Only 2% of respondents followed testing for mastitis in their dairy animals. The 44 and 56% respondents adopted practice of drying off their dairy animals for less than two months and two months/ more time before calving, respectively. Majority (90%) of respondents sold their milk to village dairy co-operative society.

Key words: Breeding, Dairy animals, Management, Milking practices

Livestock rearing is the integral part of agriculture in India as well as many developing countries since centuries. Animal husbandry signifies as the second largest economical activity next to agriculture in rural India. Dairying plays a prominent role in upliftment of socio-economic status of dairy farmers. Production potential of livestock depends mostly on the management practices under which they are reared and these practices vary significantly across various agro-ecological regions due to many factors. Understanding of livestock management practices followed by farmers in a region is necessary to identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies⁶. Each component of management practices interacts either independently or in combination to affect the productivity of the livestock. Breeding

management practices have much influence on milk production and ultimately the economy of the dairy animal owners. Good milking practices also enhance productivity, assist in keeping teat and udder in healthier condition and contribute significantly in clean milk production. Therefore, it is imperative to ascertain the scientific breeding and milking management practices of dairy animals followed by dairy animal owners under village conditions so that need based extension programme may be launched to make them aware, to increase their knowledge and the adoption of scientific management practices for dairy animals in study areas.

MATERIALS AND METHODS

A field survey was conducted in Jalalpore taluka of Navsari district of Gujarat during the year 2010-2012. Navsari district is located in the south eastern part of Gujarat state in the coastal lowland along Purna river. Out of 72 villages in the

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taluka, 15 villages having functional primary milk producer's co-operative societies were selected randomly. Ten dairy animal owners from each village were randomly selected using a two stage random sampling technique. Ultimately a total of 150 respondents were included in the study. While selecting respondents due care was taken to ensure that they were evenly distributed in the village and truly represented dairy animal management practices prevailing in the area. The selected dairy farmers were single interviewed and the desired information was collected regarding breeding and milking management practices for dairy animals with the help of pre-designed and pre-tested schedule. Data were tabulated and analyzed as per standard statistical tools like frequency and percentage to draw meaningful interference.

RESULTS AND DISCUSSION

Breeding management practices

The results are presented in Table 1 and revealed that all respondents detected heat in dairy animals based on the symptoms of oestrus. It was also found that 98% respondents observed mucus discharge and bellowing as the symptoms of oestrus while, 2% respondents observed mucus discharge as sole symptom of heat detection. It was informed by the respondents during personal interview that mostly buffaloes are showing mucus discharge as heat symptom while crossbred cows are showing mucus discharge and bellowing during estrus. The symptoms of estrus were mostly pronounced in morning or during cool hours of day. In winter buffaloes showed more intense heat symptoms as compared to summer. Present findings are comparable with the results of^{1,14,19}. Majority (59.33%) of the respondents used scientific method of artificial insemination (A.I.) for conceiving their dairy animals. Only 9.33% respondents used breeding bull for natural service and 31.33% respondents used both natural service and artificial insemination for conceiving their dairy animals. Higher proportion to use of A.I. were due to availability of good infrastructure facilities for the preservation and timely A. I. services with satisfactory results provided by A. I. workers in villages. Present results are

similar to the results of^{1,10,14}. However, the results are contrary to the findings of^{9,17} who reported that majority of the farmers adopted natural service for their animals. This might be due to natural service considered more reliable and there is less chance of failure as well as more cost incurred on A.I. in their study area of Madhya Pradesh and Rajasthan. The present study revealed that 54% respondents allowed their female animals for breeding through A.I. or N.S. immediately after heat and 46% respondents allowed their animals within 12-18 hours of heat period. The results are in accordance with the results of^{11,14}. It was observed that 3.33, 22 and 74.67% respondents rebred their cow and buffalo after 2-3 months, 3-5 months and after 5 months of calving, respectively. These findings are in accordance with the results of¹⁵. However, 48, 26.67 and 25.33% respondents followed breeding of their dairy buffaloes after 2-3, 3-5 and after 5 months of calving, respectively as reported by⁴. It might be due to fairly high level of awareness in respondents as they are under a milk shed of co-operative milk producer union. Pregnancy diagnosis after insemination is essential steps for reducing calving interval in dairy animals at door step of the animal owners. Among pregnancy diagnosis practice adopted, 27.33% pregnancy diagnosis were done by qualified veterinarians and 3.33% by either livestock inspectors or A.I. workers after three months of breeding. However, 69.33% of the respondents had done pregnancy diagnosis by their own judgements by means of enlargement of abdomen and udder. Present results are encouraging than the results of²³ who reported that 15% cases of pregnancy diagnosis were done by veterinarians. More than 18 months of calving interval was observed in 66.67, 71.43 and 76.67% of cross bred cow, indigenous cow and buffalo, respectively in the study areas. Longer calving interval in buffaloes might be due to summer stress, silent heat problems and low conception rate¹¹.

Milking management practices

Results from Table 2 indicated that all the respondents followed two times milking in their dairy animals at morning and evening which is similar with the results of^{2,7,15,17,18,20,22}. It was observed that

all the respondents washed teats along with udder of milking animals before milking which helped for clean milk production which is similar to the results of^{7,8,17,18,20}. However, 78% farmers washed teats along with udders of milking animal before milking as also reported by²¹. All the respondents developed habit of washing hand before milking of animals which is similar with the results of^{17,18,20}. However,^{8,21} reported that only 35.83 and 78% of the respondents washed their hands before milking the animals, respectively. Majority (75.33%) of the respondents had habit of wet hand milking and only 24.67% respondents had habit of dry hand milking. The present results are encouraging than the results of^{15,16,18,20}. However, present results were contrary to the results of¹⁰. The practice of dry hand milking is superior practice than wet hand milking and the farmers of surveyed area still need to increase their awareness for adopting this practice. Full hand milking is best method of milking the dairy animals with respect to udder health. However, in present study majority (69.33%) of the respondents followed knuckling method, whereas 12.67 and 18% respondents practiced full hand and stripping method of milking, respectively. Present results are in agreement with the results of^{8,12,16,17,18,20} who also reported that majority of the respondents followed knuckling method of milking in their study areas. This might be due to lack of awareness about full hand milking and easiness in practicing knuckling. Hence, dairy farmers must be educated that knuckling is a wrong method of milking which may lead to teat injury and mastitis in long term. The results are contrary to the findings of^{13,22} who reported that majority of the farmers followed full hand milking method for milking of animals. Majority (74.67%) of the respondents allowed calves for suckling before milking, whereas 25.33% of the respondents allowed calves for suckling both timed i.e. before and after milking. The present results are lower than the results of^{6,13} who reported that more than 91% of the respondents allowed the calves to suckle before milking. However,^{8,9,16,17} who observed fairly high percent of farmers allowed the calves to suckle before and after milking. It might be due to the fact that farmers of these areas were not aware of beneficial effects of suckling before milking. All of the respondents milked their dairy animals

at the same place which is similar with results of^{6,18,20,21}. However, present findings are contrary to the results of^{7,10,16} who observed that majority of the respondents milked their animals at separate and dry place. The present study revealed that 44 and 56% respondents adopted practice of drying off their dairy animals for less than two months and two months / more time before calving, respectively. Drying off milking animals during advance stage of pregnancy preferably last two months before the commencement of next lactation is an important aspect of milking management, particularly for high yielding dairy animals. These findings are supported by^{2,18,20}. Majority (98%) of the respondents did not follow teat dipping after milking, whereas only 2% of the respondents followed teat dipping after milking. Present results are in accordance with the results of^{3,18,20}. This might be due to the lack of awareness of the respondents about teat dipping in relation to maintenance of good udder health in milking animals. This modern practice has yet not reached to the farmers in rural area. All the respondents washed and cleaned their milking utensils. It was found that 54.67% of the respondents washed their milking utensils by simply tap water and 45.33% of the respondents washed their milking utensils by hot water. These findings are well supported by the results of^{8,10,16,17,18,20}. From the personal discussion during interview some of them informed that they were using detergent powder also to remove the stickiness of milk. This is a good practice for cleaning the utensils. Majority (90%) of respondents disposed off their milk through village primary milk co-operative society, while 6 and 4% of the respondents disposed their milk through private milk vendors and co-operative society as well as milk vendors, respectively. Present results are in accordance with the results of^{2,18,20} in Gujarat. However, the results are contrary to the results of⁶ in Rajasthan. This showed that the network of dairy co-operative is better in Gujarat. Only 2% of the respondents followed testing for mastitis control in their dairy animals. Earlier reports of^{15,18,20} who observed that none of the respondents adopted testing for mastitis control in their dairy animals. The test is standard qualitative and easy to follow by farmers but this technique had not reached at farmers' level in rural

areas. It might be due to the lack of awareness about the detection of subclinical form of mastitis among the farmers of study areas. However, the results are contrary with the finding of⁶ who reported that 44% of the respondents followed practices to detect mastitis in Ludhiana district of Punjab.

CONCLUSION

It can be concluded that only 2% of the respondents detected heat in their animals by observing the symptom of mucus discharge and bred their animals. Majority (74.67%) of respondents bred their animals after 5 months of calving and

only 27.33% respondents followed the pregnancy diagnosis by veterinarian during three months of pregnancy. More than 18 months of calving interval was observed in 66.67 and 76.67% of cross bred cow and buffalo, respectively. All the respondents washed their hands before milking and cleaned teats and udder by splashing of water and milked their animals at same place twice in a day by adopting wet hand (75.33%) and knuckling (69.33%) methods of milking. About 25.33% of respondents allowed calves for suckling before and after milking and 98% of respondents did not follow teat dipping after milking.

Table 1. Distribution of the dairy animal owners according to breeding practices followed (n=150)

Variable	Category	Frequency	Percent
Methods of heat detection	By Symptoms	150	100.00
Symptoms of heat detection	Mucus discharge	003	02.00
	Mucus Discharge + Bellowing	147	98.00
Breeding of female animals	Artificial insemination	89	59.33
	Natural service	14	09.33
	Artificial insemination+ Natural service	47	31.33
Insemination or mating of female after heat detection	Immediately after heat	81	54.00
	Within 12-18 hrs	69	46.00
Breeding after calving	2-3 months	05	03.33
	3-5 months	33	22.00
	After 5 months	112	74.67
Pregnancy diagnosis by	Own judgments	104	69.33
	(ii) Qualified veterinarian	016	
	(iii) Any other	112	
	Qualified veterinarian	41	27.33
Calving interval in crossbred cow n=75	L.I. or A.I. worker	05	03.33
	12-15 months	06	8.00
	16-18 months	19	25.33
	More than 18 months	50	66.67
Calving interval in indigenous cow n=28	12-15 months	02	7.14
	16-18 months	06	21.43
	More than 18 months	20	71.43
Calving interval in buffalo n=150	12-15 months	06	4.00
	16-18 months	29	19.33
	More than 18 months	115	76.67

Table 2. Distribution of the dairy animal owners according to milking practices followed (n=150)

Variable	Category	Frequency	Percent
Frequency of milking	Twice	150	100.00
Splashing of water on teat / udder before milking	Yes	150	100.00
	No	000	000.00
Washing of hands before milking	Yes	150	100.00
	No	000	000.00
Milking habit	Dry hand	037	24.67
	Wet hand	113	75.33
Milking method followed	Full hand	19	12.67
	Knuckling	104	69.33
	Stripping	27	18.00
Place of milking	At the same place	150	100.00
	At separate and dry place	000	000.00
Calf is allowed to suckle	Before milking	112	74.67
	Before and after milking	38	25.33
Drying period	>2 months	84	56.00
	<2 months	66	44.00
Teat dipping followed	Yes	003	02.00
	No	147	98.00
Cleaning of milking utensils	Hot water	068	45.33
	Tape water	082	54.67
Disposal of Milk	Co-operative society	135	90.00
	Vendors	009	06.00
	Co-operative society+ Vendors	006	04.00
Testing for mastitis control	Yes	003	02.00
	No	147	98.00

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