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Milking and Health Care Management Practices Followed by Dairy Animal Owners in Rural Areas of Surat District

G. P. Sabapara[1*], A. B. Fulsoundar[1], V. B. Kharadi[2]
[1]Department of Livestock Production and Management, [2]Livestock Research Station, Vanbandhu College of Veterinary Science and Animal Husbandry, Navsari Agricultural University, Navsari 396 450, Gujarat

***Corresponding Author**
Name: G. P. Sabapara
Email: gpsabapara@gmail.com

Abstract: The study was conducted purposively in Surat district to ascertain the milking and health care management practices followed by rural dairy animal owners. A field survey was conducted during March, 2013 to January, 2014 and data were collected from randomly selected 300 dairy animal owners through personal interview with the help of pre-tested structured schedule from five talukas selected at random. The present study revealed that 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 (87.33%) and knuckling (80.67%) methods of milking. Majority (69%) of the respondents followed stripping at the end of milking and all the respondents didn't wipe the udder and teats just after milking. Majority (60%) of the respondents allowed calves for suckling before milking and 79.67% of the respondents offered concentrates and did teat manipulation, while 20.33% of the respondents used oxytocin injection if the animals do not let down milk after the death of calf. Majority (98.33%) of the respondents did not follow teat dipping after milking and none of the respondents followed testing for mastitis in their dairy animals. The 54 and 46% respondents adopted practice of drying off their dairy animals for less than two months and two months / more time before calving, respectively. Majority of the respondents (99.33%) didn't follow sealing of teat canal at the end of lactation. Majority (95.67%) of respondents sold their milk to village dairy co-operative society. Majority of the respondents (96.33%) practiced regular vaccination to their animals against Foot and Mouth disease and Haemorrhagic Septicaemia disease. Majority (50%) of the respondents practiced deworming of their dairy animals regularly and also followed various practices (dusting, spraying and injectable drugs) for control of ecto–parasites (63%) and cleaned sheds (66%) while, 34% respondents did not give more attention towards sanitary condition of animal sheds. Majority (78%) of the respondents informed that they got treatment to their sick dairy animals by livestock inspectors whereas; only 22% did so by qualified veterinarians. Majority (93.67%) of the respondents washed the animal's hind quarters after drop of placenta while, 6.33% of the respondents did not follow this practice. The 88.67% respondents kept diseased animals together with healthy ones while, remaining 11.33% of the respondents kept these two categories of animals separately.
Keywords: Dairy animals, Milking, Health care, Practices, Surat district

INTRODUCTION

Gujarat is an important state in milk production and marketing in India on co-operative dairy system. It contributed around 9.82 million tonnes (7.65%) of milk to the total milk pool of India and per capita milk availability was 436 g/day during 2011-12 [2]. Gujarat has around 4.43% of cattle and 9.09% of buffalo population of the country [1]. Good milking practices also enhance productivity, assist in keeping teat and udder in healthier condition and contribute significantly in clean milk production. Health care management include preventive measures like vaccination, deworming and timely treatments ensure proper health of animals that promotes their productivity [17]. Keeping these things in mind the present study was designed to gather information on milking and health care management practices under village conditions of Surat district.

MATERIAL AND METHODS

A field survey was conducted in Surat district of South Gujarat during March, 2013 to January, 2014. Surat district possess nine talukas namely Choryasi, Palsana, Kamrej, Bardoli, Olpad, Mangrol, Mandvi, Mahuva and Umarpada. This district is spread over an area of 4327 sq. km and has 761 villages. Out of nine talukas in the district, five talukas were randomly selected. From each selected taluka 5 villages having functional primary milk producer's co-operative societies were selected at random. Twelve dairy animal owners from each village were randomly selected with the help of Talati cum Mantri/ village dairy cooperatives which constituted a total of 300 respondents. While selecting respondents due care was taken to ensure that they were evenly distributed in the village and truly represented animal management

practices prevailing in the area. The selected dairy farmers were interviewed and the desired information was collected regarding milking and health care management practices with the help of pre-designed and pre-tested questionnaire. Data were tabulated and analyzed as per standard statistical tools to draw meaningful interference.

RESULTS AND DISCUSSION

Milking management practices:

The information regarding milking management practices are presented in Table 1 and reveals that all the respondents followed two times milking and selling milk to primary village milk producers' co-operative society at morning and evening. Thus, farmers overcome the burden of marketing the raw milk or processing milk for production of indigenous products and thereby getting increased hours in taking care of milch animals. The results are similar with the results of Chowdhry *et al.* [4], Kumar and Mehla [8], Rathore *et al*. [15] and Varaprasad *et al*. [19]. It was also observed that all the respondents washed teats along with udder of milking animals before milking which helped for clean milk production. Present results are in agreement with the results of Bainwad *et al.* [3], Chowdhry *et al.* [4], Kumar and Mehla [8], Kumar and Mishra [9] and Rathore *et al*. [15]. However, Swaroop and Prasad [18] reported 78% farmers washed teats along with udders of milking animal before milking.

Data presented in Table 1 reveal that all the respondents developed habit of washing hand before milking. The present results are similar with the results of Rathore *et al*. [15]. However, Kumar and Mishra [9] and Swaroop and Prasad [18] reported that only 35.83 and 78% of the respondents washed their hands before milking the animals, respectively. It was also observed that majority (87.33%) of the respondents had habit of wet hand milking and only 12.33% respondents had habit of dry hand milking. The present results are in accordance with the results of Rathore and Kachwaha [14]. However, present result was contrary to the result of Malik and Nagpaul [11]. 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.

Data in Table 1 reveal that majority (80.67%) of the respondents followed knuckling method, whereas 9.33% respondents practiced full hand milking and 9.67% stripping method of milking. However, 0.33% of the respondents used milking machine in surveyed area. Present results are in agreement with the results of Chowdhry *et al*. [4], Deshmukh *et al*. [5], Kumar and Mishra [9], Pawar *et al*. [13], Rathore and Kachwaha [14] and Rathore *et al*. [15]. The results are contrary to the findings of Varaprasad *et al*. [19]. 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.

Data presented in Table 1 indicate that majority (69%) of the respondents followed stripping at the end of milking, while 31% of respondents didn't follow this practice. The present results are in accordance with the findings of Malik and Nagpaul [11] and Swaroop and Prasad [18]. However, present results are lower than the results of Kumar and Mishra [9] and Rathore *et al*. [15]. It might be due to the fact that farmers of these areas were more awared regarding beneficial effects of stripping at the end of each milking.

Data in Table 1 reveal that all the respondents didn't wipe the udder and teats just after milking. The present results are similar with the results of Kumar and Mehla [8], Kumar and Mishra [9] and Rathore *et al.* [15]. This practice helped to minimize the incidences of mastitis as milk is a very good media for the growth of bacteria.

Data presented in Table 1 indicate that majority (60%) of the respondents allowed calves for suckling before milking, whereas 23.33 and 7.67% of the respondents allowed calves for suckling after milking and suckling both timed i.e. before and after milking. However, 9% of the respondents didn't follow this practice. The present results are lower than the results of Gupta *et al*. [7] and Meena *et al*. [12] who reported that more than 91% of the respondents allowed the calves to suckle before milking. However, Kumar and Mishra [9], Rathore and Kachwaha [14] and Rathore *et al*. [15] 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.

Perusal of data in Table 1 reveal that 79.67% of the respondents' offered concentrate feed and teat manipulation, while 20.33% of the respondents used oxytocin injection if the animals did not let down milk after the death of calves. The present results are similar with the results of Rathore and Kachwaha [14] and Rathore *et al*. [15].

Data presented in Table 1 reveal that all of the respondents milked their dairy animals at the same place. The present results are higher than the results of Gupta *et al*. [7], Kumar and Mishra [9], Rathore *et al.* [15] and Swaroop and Prasad [18]. However, present findings are contrary to the results of Kumar and Mehla [8], Malik and Nagpaul [11] and Rathore and Kachwaha [14] who observed that majority of the respondents milked their animals at separate and dry place. It might be due to the fact that farmers of these areas were aware of the clean milk production practices.

Perusal of data in Table 1 indicate that 99.67% of the respondents used open mouth bucket for collection of milk during milking, while only 0.33% of the respondents used scientific milking pails for collection of milk during milking. The present results are similar with the results of Kumar and Mishra [9], Meena *et al*. [12], Rathore and Kachwaha [14] and Rathore *et al*. [15].

Data presented in Table 1 reveal that 54 and 46% 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 art of milking management, particularly for high yielding dairy animals. These findings are supported by Chowdhry *et al*. [4].

Data in Table 1 shows that 98.33% of the respondents did not follow teat dipping after milking, whereas only 1.67% of the respondents followed teat dipping after milking. Present results are in accordance with the results of Deshmukh *et al.* [5] and Sabapara *et al*. [16]. 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. Adoption of this practice seems to be very very low.

Data in Table 1 indicate that all respondents washed and cleaned their milking utensils. However, 73% of the respondents washed their milking utensils by simply tap water and 27% of the respondents washed their milking utensils by hot water. These findings are well supported by the results of Bainwad *et al.* [3], Kumar and Mishra [9], Malik and Nagpaul [11], Rathore and Kachwaha [14]. 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.

Data in Table 1 reveal that majority (95.67%) of respondents disposed off their milk through village primary milk co-operative society, while very few respondents (4.33%) disposed their milk through private milk vendors. The study area has well developed network of Surat district dairy co–operative union (Sumul). Easy disposal of milk through the network of co-operative society encourages farmers for adoption of more and more dairy husbandry practices. Thus, farmers got economic benefits of white revolution. Present results are in accordance with the results of Chowdhry *et al.* [4] in Banaskantha district of North Gujarat. However, the results are contrary to the results recorded by Gupta *et al.* [7] in Rajasthan. This showed that in Gujarat the network of dairy co-operative is better, which has reached to the interior parts in tribal belt.

Perusals of data in Table 1 reveal that none of the respondents followed testing for mastitis diagnosis in their dairy animals. Present results are similar to the results of Sabapara *et al*. [16] in Navsari district of South Gujarat. However, the results are contrary with the finding of Gill and Saini [6] who reported that 44% of the respondents followed practices to detect mastitis in Ludhiana district of Punjab. 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 Surat district. Zero level awareness is suggestive of probably absence of efforts in communication and training.

Data depicted in Table 1 reveal that majority of the respondents (99.33%) didn't follow sealing of teat canal at the end of lactation, while remaining 0.67% of respondents followed sealing of teat canal at the end of lactation. Teat sealing at end of lactation is important practice to maintain good udder health but it seems that the awareness level of the farmers in Surat district was poor. Present findings are encouraging than earlier results of Kumar and Mishra [9], Rathore and Kachwaha [14] and Rathore *et al*. [15].

Health care practices:

Health care practices followed by respondents are presented in Table 2 and reveal that 96.33% of the respondents practiced regular vaccination of their animals against Foot and Mouth Disease and Haemorrhagic Septicaemia disease, while 3.67% of the respondents did not follow vaccination practice of their animals against these diseases. This is suggestive of high level of awareness in farmers regarding protecting the animals by vaccination. Present findings are in accordance with the results of Gill and Saini [6], Pawar *et al*. [13] and Varaprasad *et al*. [19]. However, they are contrary to the results recorded by Kumar *et al*. [10] and Singh *et al*. [17].

It was observed from Table 2 that only 50% respondents practiced deworming to their milch animals at regular interval, whereas 36.67% practiced occasionally and 13.33% did not practice deworming to their milch animals. These findings are well comparable with findings of Pawar *et al.* [13]. However, present results are encouraging than the results of Chowdhry *et al.* [4]. Thus, the present results indicated high level of awareness in dairy animal owners.

Table 1 Distribution of the dairy animal owners according to milking practices followed

Particulars	Type	Frequency	Per cent
Frequency of milking	Once	000	000.00
	Twice	300	100.00
Splashing of water on teat / udder before milking	Yes	300	100.00
	No	000	000.00
Washing of hands before milking	Yes	300	100.00
	No	000	000.00
Milking habit	Dry hand	037	12.33
	Wet hand	262	87.33
Milking method	Full hand	028	09.33
	Knuckling	242	80.67
	Stripping	029	09.67
	Machine milking	001	00.33
Stripping at the end of milking	Yes	207	69.00
	No	093	31.00
Wipe the udder and teat just after milking	Yes	000	000.00
	No	300	100.00
Calf is allowed to suckle	Before milking	180	60.00
	After milking	070	23.33
	Both time	023	07.67
	Not allowed	027	09.00
If cow do not let down milk after death of calf then practice followed	Offer concentrate feed & teat manipulation	162	54.00
	Apply oxytocine injection	061	20.33
	None	077	25.67
Place of milking	Milking at the same place	300	100.00
	Milking at separate and dry place	000	000.00
Type of milking pail	Open mouth bucket	299	99.67
	Scientific milking pail	001	00.33
Drying period	>2 months	162	54.00
	<2 months	138	46.00
Teat dipping followed	Yes	005	01.67
	No	295	98.33
Cleaning of milking utensils	Hot water	081	27.00
	Tap water	219	73.00
Disposal of Milk	Co-operative society	287	95.67
	Vendors	013	04.33
	Home use	300	100.00
Testing for mastitis control	Yes	000	00.00
	No	300	100.00
Sealing of teat canal at the end of lactation	Yes	002	00.67
	No	298	99.33

Data in Table 2 reveal that majority (63%) of the respondents followed various practices (dusting, spraying & injectable drugs) for control of ecto–parasites, whereas 37% respondents did not follow any practice to control ecto-parasites. However, some farmers adopted traditional practices like smoke of neem leaves to prevent mosquitoes, salt spray to control ticks and lices in animal houses etc. The present findings are on the lower side than the results recorded by Pawar *et al*. [13] and Rathore and Kachwaha [14]. This practice needs attention to create awareness in respondents.

Data in Table 2 indicate that 66% respondents had clean sheds, while, 34% farmers did not give more attention towards sanitary condition of sheds. Most of the respondents cleaned the sheds and mangers daily. Housewives, played major role in handling of animals, removal of faecal material and left over fodder regularly. The low adoption might be due to lack of sufficient space in house, inadequate drainage facility and sheds with earthen floors which not be washed and thus ultimately lead to dampness and insanitary condition. The present findings are on lower side than reported by Chowdhry *et al.* [4], Gill and Saini [6], Rathore and Kachwaha [14] and Rathore *et al*. [15].

Data in Table 2 reveal that 78% of the respondents got treated their sick dairy animals by livestock inspectors, whereas 22% respondents got treated their sick dairy animals by qualified veterinarians. These results are supported by Meena *et al*. [12]. However, present findings are contrary to Chowdhry *et al*. [4], Gill and Saini [6] and Singh *et al*. [17]. It was observed that 93.67% of the respondents washed hind quarters after drop of placenta, while 6.33% of the respondents did not follow this practice. The present results are contradictory to Rathore *et al*. [15]. The results of this practice are indicative of high level of awareness in respondents.

Data in Table 2 indicate that all the respondents did not follow grooming practices for their animals. It might be due to lack of awareness regarding beneficial effects of grooming. Present results are similar with the results reported by Rathore *et al*. [15]. However, they are contradictory to the finding of Gill and Saini [6]. It was also observed that 88.67% of the respondents of Surat district kept diseased animals together with healthy ones, while remaining 11.33% of the respondents kept these two categories of animals separately. It might be due to low level of knowledge of the dairy farmers about the isolation and segregation process to be adopted in order to control the spread of diseases in the herd or may be due to less availability of space so that even if they are knowing the practice but couldn`t follow it due to paucity of the space. Similar findings were reported by Kumar *et al*. [10] and Meena *et al*. [12]. However, present findings are contrary to the findings of Gill and Saini [6], Gupta *et al*. [7] and Rathore *et al*. [15].

Table 2 Distribution of the dairy animal owners according to health care practices followed

Particulars	Type	Frequency	Per cent
Vaccination against F.M.D. & H.S.	Yes	289	96.33
	No	011	03.67
Deworming of milch animal	Regular	150	50.00
	Occasional	110	36.67
	Not practiced	040	13.33
Practices to control ecto-parasites	Followed	189	63.00
	Not followed	111	37.00
Sanitary condition of shed / shelter / standing place	Clean (dry)	198	66.00
	Dirty (wet)	102	34.00
Treatment of sick animal by	Livestock inspector	234	78.00
	Veterinary doctor	066	22.00
Wash of hind quarters after drop of placenta	Yes	281	93.67
	No	019	06.33
Grooming practice followed	Yes	000	00.00
	No	300	100.00
Isolate the sick animals from healthy animals	Yes	034	11.33
	No	266	88.67

CONCLUSIONS

It can be concluded that 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 (87.33%) and knuckling (80.67%) methods of milking. Majority (69%) of the respondents followed stripping at the end of milking and all the respondents didn't wipe the udder and teats just after milking. Majority (60%) of the respondents allowed calves for suckling before milking and 79.67% of the respondents offered concentrates and did teat manipulation, while 20.33% of the respondents used oxytocin injection if the animals do not let down milk after the death of calf. Majority (98.33%) of the respondents did not follow teat dipping after milking and none of the respondents followed testing for mastitis in their dairy animals. The 54 and 46% respondents adopted practice of drying off their dairy animals for less than two months and two months / more time before calving, respectively. Majority of the respondents (99.33%) didn't follow sealing of teat canal at the end of lactation. Majority (95.67%) of respondents sold their milk to village dairy co-operative society. Majority of the respondents (96.33%) practiced regular vaccination to their animals against Foot and Mouth disease and Haemorrhagic Septicaemia disease. Majority (50%) of the respondents practiced deworming of their dairy animals regularly and also followed various practices (dusting, spraying and injectable drugs) for control of ecto–parasites (63%) and cleaned sheds (66%) while, 34% respondents did not give more attention towards sanitary condition of animal sheds. Majority (78%) of the respondents informed that they got treatment to their sick dairy animals by livestock inspectors whereas; only 22% did so by qualified veterinarians. Majority (93.67%) of the respondents washed the animal's hind quarters after drop of placenta while, 6.33% of the respondents did not follow this practice. The 88.67% respondents kept diseased animals together with healthy ones while, remaining 11.33% of the respondents kept these two categories of animals separately.

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