

## Adoption of Quality Milk Production Practices by Dairy Farmers in Wardha District of Maharashtra

S.H. Surkar\*, S.W. Sawarkar<sup>1</sup>, R.P. Kolhe<sup>2</sup> and V.K. Basunathe<sup>3</sup>

Department of Veterinary and Animal Husbandry Extension Education, Nagpur Veterinary College (Maharashtra Animal and Fishery Sciences University Nagpur), Seminary Hills Nagpur-440006, Maharashtra, India.

### Abstract

Milk being an easily perishable product, needs to be produced and handled in hygienic way right from farm till it reaches to the consumers table. However, milk production practices vary from place to place which pose significant impact on quality of raw milk and various milk products. In view of this, a study was conducted in 12 villages of Wardha district of Maharashtra to assess the extent of adoption of various scientific preventive measures for quality milk production by dairy farmers. A total of 120 dairy farmers were randomly selected from 12 villages and information was collected by structured personal interview schedule. The collected data was analyzed by estimating frequency, percentage etc. The study revealed that majority of the dairy farmers had adopted routine dairy management practices in the areas of animal house, milking area, milking utensils and feeding of milking animal management whereas non adopted practices were in the areas of care of milking animals, udder management, milker's hygiene, milking techniques and post milking care practices.

\*Corresponding Author:

S.H. Surkar

Email: [drsmi@rediffmail.com](mailto:drsmi@rediffmail.com)

Received: 02/05/2014

Revised: 09/07/2014

Accepted: 11/07/2014

**Key words:** Adoption, Quality milk production, Dairy farmer.

### 1. Introduction

Indian milk production reaches to over 119 million tones with per capita availability of 281 grams/person per day which is very close to world standard of 285 grams. This production is directly proportional to huge bovine population of the country. India's potential of milk production is not fully explored, since per milch animal production is very less. Secondly, due to lack of adoption of hygienic milk production practices, quality of milk produced is compromised. The domestic production could be increased in terms of quantity and quality with adoption of Good Dairy Farming Practices (FAO, 2011). This undoubtedly requires a technological breakthrough in the areas of animal sciences, veterinary and dairying and much depends upon the rate and speed of dissemination of such information to dairy entrepreneurs. Milk quality is utmost important factor in dairying today due to consumer's awareness regarding "Quality". Thus quality milk production and knowledge of hygiene and sanitation of farmers is crucial in food chain. Quality is a result of totally integrated approach from farm dairy environment to the consumer's door. Although, India ranks first in milk production, quality of milk produced is not

satisfactory due to lack of technical knowledge to the farmer (Ogale, 1999). Dairy innovations are not adopted on mass scale by dairy farmers due to lack of extension services (Rathod *et al.*, 2014). To achieve quality standards it is need of time to have concerted extension efforts to bring the desired level of adoption of preventive measures at the farm level. In Vidarbha region of Maharashtra, dairy developments are meager, and dairy cooperative network is weak, therefore present study was undertaken to know the profile of dairy farmers and to assess the extent of adoption of quality milk production practices being followed them.

### 2. Materials and Method

The present study was conducted in Wardha district in Vidarbha region of Maharashtra state. On the basis of data available from government organization, the more milk producing taluka was purposively selected due to more marketing opportunities for dairy farmers. Twelve villages were randomly selected from the study area. From each of these selected villages, 10 dairy farmers were randomly selected in order to make total sample size of 120 respondents. Each respondent interviewed personally, and data was collected through structured interview schedule. The extent of adoption

was measured on three point continuum i.e. full, partial, and no adoption. If respondent adopt the improved practices fully or always, the adoption score 2 was given; while for partial or some times, adoption 1 score and for non adoption or never, 0 scores were given. The collected data was analyzed by frequency and percentage.

### 3. Results and Discussion

The study revealed that majority of respondents were middle age group, educated up to middle school (SSC), belong to medium (5-7) family size, had medium size of land holding (5.1 to 10 hectares), low level of social participation, had medium level of utilization of communication sources, having 3-5 animals, medium level of knowledge about quality milk production, possessed favorable attitude towards adoption of preventive measures of quality milk production practices. Information regarding the adoption rate of various practices towards quality milk production is presented in Table 1. In this study different adoption practices were clubbed into nine groups. The extent of adoption was computed for each respondent based on the scores obtained. Respondents were further categorized as non adoption, partial adoption and full adoption.

It was observed that majority of the respondents (82.50%) are reluctant to keep milking area clean and its disinfection. About 60.83 per cent respondents had not cleaned animal shed fifteen minutes before milking. Partially adoption of these practices was recorded in 39.17 per cent farmers. More than half of respondents had partially adopted preventive measures in the group care of milking animals viz. not to use BHC or DDT as insecticide for control of ectoparasites in milking animal (59.17%), vaccinate milking animal regularly (56.67%), regular examination of milking animal by veterinarian (55.83%). Majority of the respondents didn't adopted measure to prevent animals from licking paints from walls or iron bars (96.67%), clipping of hairs around the udder and hind quarter of the milking animal (88.33%). The respondents have fully adopted preventive measures regarding udder management viz. not to inject hormonal preparations i.e. oxytocine injections before milking (100%). However, it was observed that adoption rate of practices viz. teats dipping before and after milking (100%), use of different cloth for cleaning udder of diseased animal (99.17%), to wipe udder with dry cloth after washing (89.17%), regularly udder examination by veterinary doctor (73.33%) were found to be negligible.

Table 1: Adoption rate of preventive measures for quality milk production by dairy farmers

Sr. No.	Preventive measures for quality milk production	Adoption type		
		Non adoption	Partial Adoption	Full Adoption
<b>A. Animal House</b>				
1.	Provide ventilation to animal house	56 (46.67)	62 (51.66)	2 (01.67)
2.	Provide bedding material like sand or sawdust during cold weather or in damp or marshy floor	98 (81.67)	22 (18.33)	00 (00.00)
3.	Fill up cracks and crevices in animal house	68 (56.67)	51 (42.50)	01 (00.83)
4.	Tie animal at such a distance that they cannot lick each other	95 (79.17)	23 (19.16)	02 (01.67)
5.	Provide adequate space for each animal to move around	119 (99.17)	01 (00.83)	00 (00.00)
6.	Collection of urine in a pit outside the animal house by providing sloppy drainage system in shed	119 (99.17)	01 (00.83)	00 (00.00)
7.	Collect the dung and dispose away from the animal house	00 (00.00)	00 (00.00)	120 (100.00)
8.	Clean animal house daily	00 (00.00)	18 (15.00)	102 (85.00)
<b>B. Milking area</b>				
1.	Clean animal shed 15 min. before milking	73 (60.83)	47 (39.17)	00 (00.00)
2.	Keep milking area clean, disinfested and free from flies and insects	99 (82.50)	21 (17.50)	00 (00.00)
<b>C. Care of milking animal</b>				
1.	Wash and clean animal everyday	72 (60.00)	48 (40.00)	00 (00.00)
2.	Clip hairs around the udder and hind quarter of the milking animal	106 (88.33)	14 (11.67)	00 (00.00)
3.	Not to use BHC or DDT as insecticide for control of ectoparasites in milking animal	46 (38.33)	71 (59.17)	03 (02.50)
4.	Prevent milking when surrounding is not free from diesel or petrol fumes	119 (99.67)	00 (00.00)	01 (00.83)
5.	Not to allow animals from licking paints from walls or	116 (96.67)	04 (03.33)	00 (00.00)

	iron bars			
6.	Vaccinate milking animals regularly	51 (42.50)	68 (56.67)	01 (00.83)
7.	Regular examination of milking animal by veterinary doctor.	51 (42.50)	67 (55.83)	02 (01.67)
<b>D. Udder Management</b>				
1.	Time to wash udder for removal of mud and dung	88 (73.33)	32 (26.67)	00 (00.00)
2.	Wash udder with dry cloth after udder washing	81 (67.50)	39 (32.50)	00 (00.00)
3.	Wipe udder with dry cloth after udder washing	107 (89.17)	13 (10.83)	00 (00.00)
4.	Use different cloth for cleaning of udder of diseased animal	119 (99.17)	01 (00.83)	00 (00.00)
5.	Dip teats in potassium permanganate solution before and after milking	120 (100.00)	00 (00.00)	00 (00.00)
6.	Not to inject hormonal preparations solution before and after milking	00 (00.00)	00 (00.00)	120 (100.00)
7.	Examine udder, teat or milk regularly by veterinary doctor.	88 (73.33)	31 (25.83)	01 (00.83)
<b>E. Milking Utensils</b>				
1.	Use milking utensils made up of stainless steel or aluminum	00 (00.00)	60 (50.00)	60 (50.00)
2.	Not to use rusted cans for milk collection	00 (00.00)	02 (01.67)	118 (98.33)
3.	Use dome shaped milking pots for milking	117 (97.50)	03 (02.50)	00 (00.00)
4.	Wash milking utensils daily with caustic soda and hot water	00 (00.00)	25 (20.83)	95 (79.17)
5.	Sterilization of milking utensils by keeping in sunlight or else disinfect near bonfire	00 (00.00)	13 (10.83)	107 (89.17)
<b>F. Milker</b>				
1.	Milking by healthy person	79 (65.83)	31 (25.83)	10 (08.33)
2.	Trimming of nails of milker before milking	35 (29.17)	59 (49.16)	26 (21.67)
3.	Washing hands properly with disinfectants before milking	52 (43.33)	62 (51.67)	06 (05.00)
4.	Care for the hairs of milking person not to fall in the milk	40 (33.33)	60 (50.00)	20 (16.67)
5.	Not to allow skin diseased milker for milking of animals	83 (69.17)	29 (24.16)	08 (06.67)
<b>G. Milking Techniques</b>				
1.	Apply full hand milking techniques	120 (100.00)	00 (00.00)	00 (00.00)
2.	Collect 2-3 stripping of milk before milking in a separate pot	105 (87.50)	15 (12.50)	00 (00.00)
3.	Milk high yielding animal three times a day	106 (88.33)	14 (11.67)	00 (00.00)
4.	Complete milking within 6-7 minutes	52 (43.33)	59 (49.17)	09 (07.50)
<b>H. Post Milking Care</b>				
1.	Keep animal in standing position for 15 min. after milking	34 (28.33)	55 (45.83)	31 (25.83)
2.	Store milk in cold area immediate after milking	00 (00.00)	04 (03.33)	116 (96.67)
<b>I. Feeding of Milking Animal</b>				
1.	Not to feed cabbage, turnip tops and onions couples of hours before milking	00 (00.00)	03 (02.50)	117 (97.50)
2.	Not to feed pesticides sprayed fodder to milking animal	00 (00.00)	00 (00.00)	120 (100.00)
3.	Provide 5-6 kg dry fodder (straws) and 1 kg concentrate mixture and 1 kg additional concentrate per 2-2.5 litres milk.	62 (51.67)	58 (48.33)	00 (00.00)
4.	Provide clean and fresh water to milking animal for drinking	00 (00.00)	120 (100.00)	00 (00.00)

Figures without brackets indicate number of respondents i.e. frequency. Figures in brackets indicate percentage.

Regarding hygiene of milking utensils, use of stainless still and their regular washing with caustics and hot water found to be common. However, dome shaped utensils were not in use. Although, dome shaped utensil are recommended for milking but they are not commonly available in the local market.

Farmers were not much aware about the risk of zoonoses and milk contamination. Majority of the respondents were unaware about fact viz. not to allow diseased person for milking (69.17%). Partial adoption recorded with practices viz. washing hands with disinfectants (51.67%) and trimming of nails before

milking (49.16%). Full hand milking technique was not adopted by any of the respondent. They also didn't follow important practices viz. thrice milking a day of high yielder (88.33%), collection of 2-3 stripping of milk before milking in a separate pot to check sub clinical mastitis (87.50%). It was attributed to the lack of knowledge and exposure to demonstration to dairy farmers or difficulties perceived by farmers in changing their routine habits. Majority of them had fully adopted measures for post milking care as to store milk in cold area immediate after milking (96.67%). Large number of respondents fully adopted practices i.e. avoids pesticide sprayed fodder to animal (100%), not to feed cabbage, turnip tops and onions couples of hours before milking (97.50%), whereas all respondents had partially adopted to provide clean and fresh water to milking animal for drinking.

In study conducted by Radder and Bhanj (2011) it was observed that dairy farmers largely neglected impact of cleanliness on animals' udder and health, about milk contamination causing health hazards. Variation in the adoption rate of standard practices associated with clean milk production is obvious and largely depends upon the technology transfer, dissemination of information, community participation and public education (Saini, 1975; Mahipal, 1983). Nahuelhual *et al.* (2009) studied the adoption of

cleaner production practices by dairy farmers in southern Chile revealed that role of dairy co-operatives is very important in making producers aware about quality indices and its adoption. Since, the Cooperative buys milk from producers that follow stricter standards in order to keep value along the chain. This strategy could motivate farmers to adopt clean practices in order to continue selling to the Cooperative in the long run. As far as dairy sector is concern, especially in parts of Vidarbha; role of cooperatives would be very significant in popularizing clean practices and its adoption by dairy farmers/milk producers.

#### 4. Conclusion

The study concluded that the adoption was not satisfactorily, though majority of the respondents had favorable attitude with some of the practices. Therefore, efforts should be made to convince dairy farmers about the adoption of preventive measures for quality milk production. They should be motivated through organizing trainings and demonstrations at field levels. Efforts of local Livestock Development Officers, Livestock Supervisors and extension workers would be crucial. Simultaneously, avenues must be open in this area for efficient and economic marketing of milk at good price.

#### References

- FAO and IDF (2011). Guide to Good Dairy Farming Practice. *Animal Production and Health Guidelines, No. 8. Rome.*
- Mahipal (1983). A study of socio-economic and psychological correlates in adoption of dairy innovations in the ORP areas of NDRI, Karnal. *Ph. D. Thesis, NDRI, Karnal.*
- Nahuelhual L, Engler MA, Carrillo B, Moreira V and Castro I (2009). Adoption of cleaner production practices by dairy farmers in southern Chile. *Cien. Inv. Agr.* 36(1): 97-106.
- Ogale H (1999). Clean milk production- the key to quality management in dairy industry. *Indian Dairyman*, 51(6): 41-43.
- Radder SK and Bhanj SK (2011). Perceptions of dairy farmers of Gadag district in northwestern part of Karnataka state, India regarding Clean Milk Production. *Veterinary World*, 4: 79-81.
- Rathod P, Balraj S, Dhanraj G, Madhu R, Chennaveerappa and Ajith MC (2014). Knowledge level of dairy farmers about artificial insemination in Bidar district of Karnataka, India. *Veterinary Research International*, 2(2): 46-50.
- Saini SS (1975). A study of factors affecting adoption of selected recommended dairy practices. *M.Sc. Thesis, Punjab Agriculture University, Ludhiana.*