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Animal welfare management practices followed by dairy farmers in Konkan region of Maharashtra

¹R Kumar, ²MN Sawant, ¹AA Chavan, ³AK Bhanotra and ¹SB Sarwade

¹M.V.Sc. Students, Department of Veterinary and Animal Husbandry Extension, Maharashtra, India

²Professor, Department of Veterinary and Animal Husbandry Extension, Maharashtra, India

³Assistant Professor, Department of Veterinary and Animal Husbandry Extension, Maharashtra, India

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Corresponding Author: R Kumar

Abstract

This study investigated the dairy animal welfare management practices adopted by 120 dairy farmers across Thane, Raigad, and Palghar districts in the Konkan region of Maharashtra state using structured interviews. From each district, 2 blocks were selected purposively and from each block five villages were selected randomly. From each village, 4 respondents who had at least 10 milch animals at the time of survey and 5 years dairy experience were selected randomly. Animal welfare management practices related to the five major aspects of dairy husbandry such as feeding, housing, health care, breeding and milking management practices followed by commercial dairy farmers were studied. For assessing welfare practices, a dichotomous (Yes/No) response format was used for each practice, with '1' assigned for a positive response and '0' for a negative one. Results showed that about 98.33% fed colostrum to dairy calves whereas 89.16% used to give colostrum within 2 hours of parturition. Dairy animals were deprived for a period of 6 hours for food by 88.33% of commercial dairy farmers.

Keywords: Animal welfare, commercial, dairy, husbandry, adoption, management

Introduction

Animal welfare has become an increasingly important issue in the dairy industry. Consumers are more conscious about the treatment of animals, and there is a growing concern about the welfare of animals used for food production. The role of dairy farmers in ensuring animal welfare cannot be overemphasized. Farmers have a direct impact on the lives of their animals, and they are responsible for providing proper care and handling of their animals.

Developing countries show less concern for the welfare of farm animals than do developed nations. The problems of the welfare of farm animals can be observed in their conditions of confinement for the majority of their lives, feeding practices, conditions of health care, and normal behavior expression. The developed and developing worlds have different approaches to animal welfare. The reason for the differences is that policymakers in developed and developing countries have different goals when it comes to encouraging customers to demand that products meet animal welfare standards. In contrast to less wealthy countries where animals are mistreated or live below standards because of lack of resources and other factors, animal welfare issues are currently better under pressure in the western portions of the world. Because of misperceptions and a lack of resources, it is typical to witness poor farm animal care and welfare conditions in underdeveloped countries. Animal welfare is becoming a more pressing issue and receiving more attention in the farm sector, which is likely related to rising production costs and declining productivity. This study aims to assess the animal welfare

management practices followed by dairy farmers. The study will focus on understanding the factors that influence the animal welfare management practices by farmers. The findings of this study will provide insights into the animal welfare practices followed by dairy farmers, which can help in developing targeted interventions to follow animal welfare practices. However, not much is known about the animal welfare practices adopted by commercial dairy farms in this region. Understanding the current welfare management scenario, factors influencing adoption of practices is crucial to develop effective strategies to improve dairy cattle welfare. Therefore, this study was conducted with the objective to document the dairy animal welfare management practices related to feeding, housing, health care, breeding and milking followed by the farmers.

Materials and Methods

The study was conducted in the Konkan region of Maharashtra, India, comprising the districts of Thane, Raigad, and Palghar. From each district, 2 blocks were selected purposively and from each block five villages were selected randomly. From each village, 4 respondents who had at least 10 milch animals at the time of survey and 5 years dairy experience were selected randomly. Data was collected through face-to-face interviews using a structured interview schedule. Animal welfare management practices related to the five major aspects of dairy husbandry such as feeding, housing, health care, breeding and milking management practices followed by commercial dairy farmers were studied. For assessing welfare practices, a

dichotomous (Yes/No) response format was used for each practice, with '1' assigned for a positive response and '0' for a negative one. The total individual welfare management score was obtained by summing all positive responses. Descriptive statistics like frequency, percentage, mean, and standard deviation were used to analyze the data.

Results and Discussion

To study the dairy animal welfare management practices followed by dairy farmers

For animal welfare practices feeding, housing, health care, breeding and milking management practices followed by dairy farmers were studied.

Table 1: Distribution of the respondents on the basis of questions

Sr. no	Question	Freq.	Percentage
Multiple Choice and Yes or No type questions			
Feeding			
1	Do you feed colostrum to dairy calves? (a) Yes (b) no	118	98.33
2	How soon after giving birth do you give colostrum to dairy calves? (a) within 2 hrs (b) within 10-12 hrs. (c) within 30 hrs	107	89.16
3	How much concentrate do you feed each day in addition to two kg of milk daily? (a) 3 kg (b) 1kg (c) 2kg (d) 5kg	61	50.83
4	How much amount of salt given to animal? (a) 0.5% (b) 3% (c) 5% (d) 8%	45	37.50
5	How long do you deny access to food to dairy animal? (a) 6 hours (b) 12 hours (c) >12 hours	106	88.33
6	How much amount of mineral mixture given to animal? (a) 50 gms/day (b) 20 gms/day (c) 30 gms/day (d) 100 gms/day	42	35.00
7	How often do you provide drinking water to dairy animal each day? (a) 1 time (b) 2 time (c) Many times	74	61.66
8	Animal are allowed for grazing at least hours? (a) 2 to 4 hours (b) 6 to 8 hours (c) 10 to 12 hours (d) 14 to 16 hours	78	65.00
Housing			
9	How many time you remove dung from shed? (a) 1 time (b) 2 time (c) 3 time	64	53.33
10	Proper ventilation in shed is provided to avoid respiratory problems? (a) Yes (b) No	48	40.00
11	The space of two adult cow & buffalo is? (a) 4 feet (b) 2 feet (c) 8 feet (d) 6 feet	72	60.00
12	To prevent lameness the most comfortable bedding material provided is? (a) sand (b) paddy straw (c) rubber mat (d) soil	38	31.66
13	How many time you clean your shed? (a) 1 time (b) 2 time (c) 3 time	62	51.66
14	Feed mangers and water troughs are disinfected with? (a) Lime (b) phenyl (c) potassium permanganate (d) None	44	36.66
Health Care			
15	You call the doctor when the placenta is not removed in.....? (a) 10 to 12 hours (b) 5 to 6 hours	47	39.16

	(c) 25 to 30 hours		
16	The recommended interval for deworming in your farm is? (a) 3 months (b) 6 months (c) 12 months	73	60.83
17	Do you keep your sick animals separate from healthy animals? (a) Yes (b) No	47	39.16
18	Do you care that your dairy animal is getting unnecessary pain & injury from any reason? (a) Yes (b) No	61	50.83
19	Do you vaccinate your dairy animal with preventive vaccines and medicines to ensure that it is disease-free? (a) Yes (b) No	82	68.33
20	Do you have rapid access to veterinary facilities for quick diagnosis, treatment, and disease control? (a) Yes (b) No	49	40.83
21	Are animals frequently inspected for sign of lameness? (a) Yes (b) No	71	59.16
22	Whether control of ectoparasite is done during summer/ rainy season? (a) Yes (b) No	37	30.83
23	Do you inseminate the animal in heat? (a) Yes (b) No	82	68.33
24	Do you take special care of mastitis infected animal? (a) Yes (b) No	41	34.16
	Breeding		
25	The heat cycle is repeated in dairy animal after every....? (a) 17 to 23 days (b) 1 month (c) 2 months	49	40.83
26	Heifers are separatedcalving? (a) one week before (b) one week after (c) two months after (d) two months before	66	55.00
27	Do you take care of your animal during calving? (a) Yes (b) No	68	56.66
28	Do you take care of your animal after calving? (a) Yes (b) No	74	61.66
	Milking		
29	At what age calves are weaned in farm? (a) 12 to 14 weeks (b) 5 to 7 weeks (c) 20 to 25 weeks	38	31.66
30	Do you sold the mastitis infected milk in nearby market? (a) Yes (b) No	42	35.00
31	Before milking do you clean your hands? (a) Yes (b) No	43	35.83
32	Do you clean the animal daily? (a) Yes (b) No	36	30.00
33	Whether animal is milked during last two months of gestation? (a) Yes (b) No	58	48.33
34	Do you tie the newborn calf with the mother till the weaning age? (a) Yes (b) No	37	30.83
35	Before milking whether the calf is allowed to suck the mother? (a) Yes (b) No	65	54.16

From table 1 it is revealed that in case of feeding, majority of farmers (88.33%) deprive dairy animals to feed for a period of 6 hours. About 98.33% responded positively to colostrum feeding. These results align with the findings of Konch *et al.*, (2023) ^[2]. Majority of farmers (89.16%) used to give colostrum to the newborn calves within 2 hrs of parturition as they might be aware of the importance of colostrum feeding. The findings of the study contradict the observations of Rathva *et al.*, (2020) ^[5] who also studied the same parameters about the colostrum feeding. More than half (50.83%) of the farmers give 1 kg concentrate feed each day in addition to 2 kg of milk daily. About 37.50% of the respondents were knowledgeable about the significance of salt as a crucial component in animal feed and was supplied at the rate of 0.5% of body weight. More than one third (35.00%) of the respondents were aware that mineral mixture is an important ingredient in the feed and should be provided at the rate of 50 gms per day. Commercial dairy farmers provided drinking water to dairy animals for many times in a day was practiced by 61.66% of respondents. Less than two third (65.00%) of the participants adopted the practice of grazing for a minimum of 2 to 4 hours. Dairy farmers likely improved their feeding practices because they had more opportunities to connect with experts, received better education, were exposed to a lot of information through the media, and interacted more with people from different places. This led them to adopt better feeding management practices, resulting in increased milk yield. The study's results align with the findings of Kumar *et al.*, (2019) ^[3] and Singh *et al.*, (2016) ^[7], who similarly investigated the same aspects of feeding management practices.

In case of housing, more than half (53.33%) of the respondents removed dung from shed two times in a day because cleaning of shed is important for animal health and production. About 40.00% of the respondents provided proper ventilation in shed is to avoid respiratory problems. About 60% of farmers adopted that practice of keeping 4 feet of space between two adult animals to avoid fighting among the animals for feed and fodder. Less than one third (31.66%) of the respondents reported that sand was the most comfortable bedding material to avoid lameness and it was provided by them. More than half (51.66%) of the farmers clean the shed for 2 times in a day. Regarding cleaning water troughs and feed mangers of the respondents, 36.66% adopted lime on a regular basis to make potable water. The results of the observations clearly show that most farmers from the three regions implemented few housing management practices. They primarily obtained information regularly from neighbors, family members, relatives and occasionally from veterinary officers, university scientists, medical shop and extension personnel. The findings of the study differ from the observations made by Choudhary *et al.*, (2018) ^[1], Singh *et al.*, (2016) ^[7], and Singh *et al.*, (2019) ^[6], as they also investigated similar aspects regarding housing management practices.

It is reported that in case of health care, about 39.16% of the respondents called the doctor when placenta is not removed in 10 to 12 hours. About 60.83% of the respondents adopted deworming schedule after every 3 months. The practice of keeping sick animal separate from healthy animal was reported by 39.16% of respondents. More than half

(50.83%) of farmers used to ensure their animals were protected from unnecessary pain and injury. More than two third (68.33%) of the respondents did vaccination to ensure that it is disease free at regular intervals and also treat animal for disease. Rapid access to veterinary facilities for quick diagnosis, treatment, and disease control, were reported by 40.83% of the respondents. Lameness was a significant issue concerning animal welfare, and about 59.16% of farmers regularly checked animals for any signs of lameness. Less than one third (30.83%) of the respondents adopted control of ectoparasites during summer /rainy season. More than two third (68.33%) of the farmers adopted practice of insemination when the animal is in heat. More than one third (34.16%) of the respondents took special care of mastitis infected animal. The findings show that most farmers are following health care practices. Also, diseases like F.M.D, H.S, and Mastitis are common, so almost all farmers in the three regions know the basic signs of these diseases and vaccinate and treat the dairy animals. The study's results differ from the observations of Laldinpui *et al.*, (2018) ^[4] and Singh *et al.*, (2016) ^[7]. In their study, respondents had less adopted scientific health care management practices compared to dairy farmers.

It is reported that in case of breeding, 40.83% of the farmers informed that heat cycle is repeated in 17 to 23 days. More than half (55.00%) of the respondents managed the practice of keeping heifers separated one week before calving. About 56.66% of the farmers took care of animal during calving and 61.66% of the farmers took care of animal after calving. Based on the above findings, it's evident that the majority of respondents adopted breeding management practices. The results differ from those of Kumar *et al.*, (2019) ^[3] and Laldinpui *et al.*, (2018) ^[4] as their study showed that respondents adopted scientific breeding management practices less than the dairy farmers.

Regarding milking it is revealed that less than one third (31.66%) of the respondents adopted the practice of weaning calves in 12 to 14 weeks. More than one third (35.00%) of the farmers do not sell the mastitis infected milk. More than one third (35.83%) of the respondents cleaned their hands before milking and 30.00% of the respondents cleaned the animal daily. About 48.33% of the farmers do not milked animal during last two months of gestation. Less than one third (30.83%) of the respondents tie the newborn calf with the mother till the weaning age. More than half (54.16%) of the farmers were allowed the calf to suckle the mother before milking. Based on the above findings, it is evident that the respondents adopted few milking management practices. The current findings contradict the observations of Singh *et al.*, (2016) ^[7], Yankam & Bhanotra (2018) ^[8] who also explored similar parameters in their studies, because in their studies, respondents were less adopted scientific milking management practices compared to dairy farmers.

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