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Feeding welfare practices followed by the dairy farmers in Rajasthan

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Abstract

The study was conducted in two districts (Jaipur and Udaipur) of Rajasthan with an objective to assess the welfare status of the dairy animals in terms of feeding practices followed by the dairy farmers. Total 8 villages of 4 blocks from two districts were selected for the purpose of data collection and 20 dairy farmers from each village were selected randomly, making total sample size of 160 respondents. A structured interview schedule duly pre-tested and validated was used to elicit information from the respondents. The findings of the study revealed that majority of the dairy farmers were following individual method of feeding while grazing is common for draught animals with average grazing period of 2-4 hours. Feeding of green fodder and salt was practiced among most of the farmers whereas use of mineral mixture and probiotics was not so common. Frequency of feeding green fodder was twice a day while concentrate was used to feed once a day among majority of the respondents of both the districts. Quantity of green fodder offered to the animals was found low (below 15kg/day) and concentrate feeding was also poor except in case of milch animals.

Keywords: Welfare, practices, dairy farmers, Rajasthan

Introduction

Animal welfare is a multi-faceted issue which implies important scientific, ethical, economic and political dimensions (Lund *et al.*, 2006) [8]. The concept of animal welfare is important for commercial as well as ethical reasons. It has gained recognition by governments, national and international bodies, academic institutions and individuals the world over (Mugoa *et al.*, 2005) [10]. The increasing importance attached to animal welfare in farm animal welfare have been driven by consumer and public attitudes and developments affecting international trade in livestock products (Blandford *et al.*, 2002) [11]. There are increasing public concerns about certain production practices which have resulted to demands for change in some existing production systems (Rollin, 2004) [13]. Consumer's demands for higher standards of animal protection have incumbently led to policy-makers and legislators to respond accordingly (Horgan, 2005) [4]. There are three reasons for being concerned about animal welfare. First is respect for animals and a sense of fair play, Second is poor welfare can lead to poor product quality and third is risk of loss of market share for products which acquire a poor welfare image. With the increasing concern raised by both governments and animal welfare organizations in many countries, the onus has been put on those making intensive and rigorous use of animals for economic benefits to treat their animals humanely, so that at least their most basic needs are met (Kamboj *et al.*, 2014) [6]. This national code of practices prepared by the ICAR – NDRI for the Dairy animals was the base of this study in selecting the different feeding welfare practices followed by the dairy farmers to measure the welfare status of their animals. Keeping the welfare aspect in mind present study was conducted to assess the status of feeding welfare practices followed by the dairy farmers. Water was providing twice a day in winter and thrice a day in winter by most of the dairy farmers of both the districts.

Material and Methods

The study was carried out in Jaipur and Udaipur districts of Rajasthan which were randomly selected from a list of top five districts of the state in terms of their population of the dairy animals. Further, two blocks from each district were selected randomly and from each block, two villages were selected on random basis. Thus, total 8 villages (4 from each district) were selected for the present study and from each village, 20 dairy farmers who owned minimum of two dairy animals were selected, randomly making a total sample size of 160 respondents.

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The data were collected by personal interview through structured interview schedule. The collected data were analyzed through suitable statistical technique.

Result and Discussion

Method of feeding the animals

Table 1 depicts that 95.00 and 85.00 per cent of the dairy farmers in Jaipur and Udaipur were following individual method of feeding for their milch animals and remaining were using group method of feeding. Majority of the farmers in Jaipur (72.50%) and Udaipur (73.75%) followed individual method of feeding for their dry animals while 27.50 and 26.25 per cent respondents were following group method of feeding. For draught animals, all the respondents were following individual method of feeding while 90.00 and 85.00 per cent of the dairy farmers in Jaipur and Udaipur followed individual method for feeding their pregnant animals. Only 10.00 per cent in Jaipur and 15.00 per cent in Udaipur were following group feeding to feed their pregnant animals. As per the pooled data, 90.00 and 87.50 per cent of the respondents were following individual feeding method for their milch and pregnant animals while for dry animals 73.12 per cent farmers followed individual method of feeding. Thus, individual method of feeding was prevalent among majority of the dairy farmers irrespective of districts and type of animals which indicates good practice of welfare according to housing welfare standards. In contrast to this, Manohar *et al.* (2014)^[9] and Kalyankar *et al.* (2008)^[5] found that most of the farmers followed group feeding for their animals.

Grazing practices followed by the dairy farmers

Table 2 reveals that 21.25, 22.50 and 20.00 per cent of the farmers in Jaipur allowed grazing of their milch, dry and pregnant animals while in Udaipur equal percentages (33.75%) of respondents were following grazing practices for their milch, dry and pregnant animals. For draught animals, 43.75 and 46.15 per cent of the respondents in Jaipur and Udaipur were following grazing practices. Overall, 27.50 and 28.12 per cent of the respondents followed grazing of their milch and dry animals while 26.87 and 45.23 per cent of the farmers allowed grazing of their pregnant and draught animals. The findings revealed that grazing practice was uncommon among majority of the dairy farmers which is a negative measure of dairy animal welfare. As per the National standards animals should be allowed for grazing at least for 2 to 4 hours but in study area almost 20 per cent of the respondents were following grazing practice which indicated poor welfare status regarding grazing practices. Deoras *et al.* (2004)^[2] observed that all the farmers of rural (100%) area sent their animals out for grazing while only 3.00 per cent urban farmers do so. Rathore *et al.* (2010)^[12] also revealed that in Rajasthan, majority of the farmers followed group feeding (68.75%) and grazed in fallow/harvested field (65.25%).

Further, duration of grazing for milch animals was 2 to 4 hours among majority of the dairy farmers in Jaipur (64.70%), Udaipur (74.07%) and altogether (70.45%). Grazing hours for dry animals were also ranged between 2 to 4 hours among majority of the respondents in Jaipur (94.44%), Udaipur (77.77%) and altogether (84.44%). Pregnant animals in both the districts were also allowed grazing for 2 to 4 hours by 93.75 and 81.48 per cent of respondents in Jaipur and Udaipur while 85.71 and 91.66 per cent farmers in Jaipur and Udaipur were following grazing of their draught animals for 2 to 4

hours. As a whole, 86.04 and 89.47 per cent of farmers allowed grazing of their pregnant and draught animals for 2 to 4 hours. Grazing period of 4 to 6 hours was found for milch animals among 35.29 and 25.92 per cent of the respondents in Jaipur and Udaipur while for draught animals, 14.28 and 8.33 per cent of farmers in Jaipur and Udaipur followed grazing of 4 to 6 hours. Overall, 29.54, 6.97 and 10.52 per cent of the respondents followed grazing period of 4 to 6 hours for their milch, pregnant and draught animals, respectively. Thus, the results are in agreement with the minimum standards (2 to 4 hours) of grazing which is a good indication of animal welfare for them who followed grazing of animals.

Regarding the total grazing months in a year, majority of the respondents allowed grazing of 3 to 6 six months to their milch (75.00%), dry (73.33%), pregnant (74.42%) and draught animals (84.21%) while 6 to 9 months of grazing was followed by 18.19, 17.78, 18.60 and 10.52 per cent of respondents for their milch, dry, pregnant and draught animals, respectively.

Feeding of green fodders, concentrate, mineral mixture, salt and pro-biotic

The various feeding practices followed by the dairy farmers have been presented in Table 3. A perusal of data revealed that 95.00 per cent and 90.00 per cent of the respondents in Jaipur were providing green fodder to their milch and pregnant animals, respectively. Green fodder was also provided to dry and draught animals with 83.75 and 62.50 per cent respondents in Jaipur. Similarly, in Udaipur, majority of the respondents were providing green fodders to their milch (90.00%), dry (76.25%), pregnant (82.50%) and draught (53.85%) animals. On overall basis, green fodder was provided to milch, dry and pregnant animals by 92.50, 80.00 and 86.25 per cent farmers but only 57.14 per cent of the farmers were providing green fodder to their draught animals. The findings indicate that feeding of green fodders practice was satisfactory among majority of the respondents. Kumar (2008)^[7] in his study on farm animal welfare found that majority of farmers were providing green fodder to milch, dry and pregnant animals while Singh *et al.* (2002)^[14] in Rajasthan observed that feeding of greens was rare among the respondents.

Regarding feeding of concentrate, 92.50 and 82.50 per cent farmers in Jaipur and Udaipur were feeding concentrate to their milch animals. Concentrate feeding to dry animals was reported by 62.50 and 56.25 per cent of the dairy farmers in Jaipur and Udaipur, respectively. Majority of the respondents in both the districts (81.25% in Jaipur and 56.25% in Udaipur) were also providing concentrate to their pregnant animals but in case of the draught animals, concentrate feeding was followed by 50.00 and 47.61 per cent of the farmers in Jaipur and Udaipur, respectively. As per the pooled data, 87.50 and 78.12 per cent of the respondents were feeding concentrate to their milch and pregnant animals. Concentrate feeding to dry and draught animals was comparatively less followed as 59.37 and 47.61 per cent farmers were providing concentrate to these animals. Dwivedi (2013)^[13] reported that most of farmers and traders were giving concentrate in proper amount daily only to milch animals but for dry and pregnant animals they were not giving concentrate in proper amount daily while according to Manohar *et al.* (2014)^[9] about 90.62 per cent of buffalo keepers fed concentrate to buffaloes in advance pregnancy.

Majority of the farmers in Jaipur and 38.75 per cent farmers

in Udaipur were feeding mineral mixture to their milch animals. Feeding of mineral mixture to the dry, pregnant and draught animals was practiced by 21.25, 40.00 and 31.25 per cent of the dairy farmers in Jaipur and 3.75, 10.00 and 11.75 per cent farmers in Udaipur. As a whole, use of mineral mixture was less except that 51.87 per cent of dairy farmers used to give mineral mixture to their milch animals. It's a negative side of feeding welfare measures which may be due to lack of awareness among the farmers or to minimize the production cost. Similar findings were also reported by Manohar *et al.* (2014)^[9], Tanwar *et al.* (2012)^[15] and Rathore *et al.* (2010)^[12].

Feeding salt to milch animals was practiced by almost all the farmers in Jaipur and 95.00 per cent in Udaipur. Salt was also provided to dry and pregnant animals by 92.50 and 86.25 per cent farmers in Jaipur and 85.00 and 92.50 per cent of farmers in Udaipur. Regarding draught animals, 75.00 per cent farmers in Jaipur and 85.71 per cent in Udaipur were feeding salt to their animals. The most common method of salt feeding was through concentrate for milch and pregnant animals while for dry and draught animals salt was provided with drinking water. Rathore and Kachwaha (2009)^[11] in his study in Jhunjhunu district of Rajasthan found that majority of the respondents were feeding salt to their animals while according to Kumar (2008)^[7] use of salt was negligible in the study areas.

Feeding of probiotics was followed by very few of the farmers in both the district except that 22.50 per cent respondents in Jaipur were providing probiotics to their milch animals. Probiotics are extra supplements given to the animals for quick improvement in the growth rate and body condition of the animals.

Frequency of feeding different feed ingredients

Table 4 indicates that frequency of feeding of green fodder was twice a day for milch, dry, pregnant and draught animals among 71.05, 88.05, 81.94 and 70.00 per cent of the farmers in Jaipur and 93.05, 80.32, 72.72 and 100 per cent of the farmers in Udaipur, respectively. Overall, 81.75 and 89.06 per cent respondents used to feed green fodder to their milch and dry animals twice a day. For pregnant and draught animals also green fodder was provided twice a day by 77.53 and 87.50 per cent of the dairy farmers. In Jaipur, thrice a day feeding of green fodder was practiced for milch, and pregnant animals by 26.31 and 13.88 per cent of the farmers while in Udaipur very few of the farmers were following thrice day feeding of green fodder. Further, 30.00 per cent of the respondents in Jaipur were feeding their draught animals only once in a day.

Frequency of concentrate feeding to milch animals was found twice a day among all the respondents of both the districts but for dry, pregnant, and draught animals, it was 92.00, 76.92 and 75.00 per cent of the respondents in Jaipur and 97.77, 96.66 and 83.33 per cent of farmers in Udaipur, respectively. Only 8.00, 23.07 and 25.00 per cent of the respondents in Jaipur had reported to feed concentrate twice a day to their dry, pregnant and draught animals, respectively. In Udaipur, twice a day feeding of concentrate was observed among 2.22, 3.33 and 16.66 per cent of the respondents for their dry, pregnant and draught animals, respectively. As per the pooled data, frequency of concentrate feeding for dry, pregnant and draught animals was once a day among 94.73, 86.40 and 80.00 per cent of the respondents.

Table 6 depicts that in Jaipur, frequency of watering in winter

for milch, dry, pregnant and draught animals was twice a day among 86.25, 92.50, 86.25 and 87.50 per cent of the respondents. Further, in Udaipur, 96.25 per cent of the farmers were providing drinking water twice a day to their milch, dry and pregnant animals and for draught animals, 76.92 per cent of farmers were watering twice a day. Frequency of watering thrice a day was reported for milch and pregnant animals by 11.25 per cent (each) of the dairy farmers in Jaipur and 3.75 per cent farmers in Udaipur. Overall, majority of the respondents have reported twice a day frequency of watering in winter to their milch, dry, pregnant and draught animals with 91.25, 94.37, 91.25 and 80.95 per cent of the dairy farmers.

During summer, water requirement of animal body increased and the animals needed more amount of water, particularly the milch animals as they need extra requirement of 2 to 3 litres of water per kg of milk. The study has revealed that frequency of watering in summer was thrice a day for milch, dry, pregnant and draught animals by 78.25, 86.25, 81.25 and 62.50 per cent of the farmers in Jaipur and 91.25, 97.50, 92.50, and 61.53 per cent of respondents in Udaipur, respectively. Four times a day watering was practiced by 15.00, 13.75, 16.25 and 31.25 per cent of the farmers in Jaipur for their milch, dry, pregnant and draught animals, respectively while in Udaipur, milch, dry, pregnant and draught animals were provided drinking water 4 times a day by 7.50, 2.50, 7.50 and 38.46 per cent of the respondents, respectively. Even 5 times a day watering was also observed by 6.25, 2.50 and 6.25 per cent of the farmers in Jaipur for their milch, pregnant and draught animals, respectively while in Udaipur, only 1.25 per cent respondents were providing water to their milch animals five times a day. The pooled data reflects that 85.00 per cent of the respondents were providing water to their milch animals thrice a day, followed by 4 times a day (11.25%) and 5 times a day (3.75%) while for dry animals, frequency of watering was 3 times and 4 times a day by 91.88 and 8.12 per cent of the respondents. For pregnant and draught animals, common frequency of watering was thrice a day seen among 86.87 and 61.90 per cent of the respondents, followed by 4 times (11.87 and 35.71%) and 5 times a day (1.25 and 2.38%).

Quantity of green fodder, concentrate and water provided to animals

As per the table 7, quantity of the green fodder fed to milch, dry, pregnant and draught animals was low (up to 15 kg per day) among 68.42, 86.56, 81.94 and 70.00 per cent of the dairy farmers in Jaipur. Medium quantity of green fodder was also provided by the farmers to their milch (25.00%), dry (13.43%), pregnant (12.50%) and draught (30.00%) animals. High quantity of green fodder was also given by 6.57 and 5.55 per cent of the dairy farmers in Jaipur to their milch and pregnant animals. In Udaipur, 70.83 per cent farmers were feeding low quantity of green fodder to their milch animals, followed by medium (26.38%) and high (2.77%) whereas for dry animals, it was low and medium among 86.89 and 13.11 per cent of respondents. Regarding pregnant and draught animals, majority (77.27 and 71.42%) of the farmers were providing low quantity of green fodder and remaining 22.72 and 28.57 per cent were providing medium quantity. As per the pooled data, almost 70 per cent of the farmers were feeding low quantity of green fodder to their milch animals, followed by medium (25.68%) and high (4.72%) quantity. Further, almost 80 per cent of the farmers were providing low

quantity of green fodder to their pregnant animals, followed by medium (17.39%) and only 2.89 per cent were providing high quantity. For, dry and draught animals, quantity of green fodder fed to them were low among 86.71 and 70.83 per cent of the respondents while medium quantity of green fodder was provided by 13.29 and 17.39 per cent of the respondents. Table 8 reflects that quantity of concentrate fed to dry, pregnant and draught animals was low (up to 3.33 kg/day/animal) among all the respondents of both the districts. Concentrate quantity fed to milch animals was found medium among 56.75 per cent of the dairy farmers in Jaipur, followed by low (35.13%) and only about 8 per cent were feeding high quantity of concentrate while in Udaipur, majority of the farmers (74.25%) were feeding low quantity of concentrate and 25.75 per cent were providing medium quantity of concentrate to their milch animals. Overall, 53.58 per cent of the respondents were feeding low quantity of concentrate to their milch animals, followed by medium (41.83%) and high (4.29%). Tanwar *et al.* (2012)^[15] reported that quantity of concentrate to be given an individual animal was decided on the basis of milk production. Regarding the amount of water provided to the animals, majority of the dairy farmers in Jaipur (52.50%) and Udaipur

(62.50%) were providing high amount of water to their milch animals, while medium amount of water was provided to the draught animals by majority of the respondents in Jaipur (50.00%) and Udaipur (61.53%). For the dry animals, medium amount of water was provided by majority of the dairy farmers in Jaipur but in Udaipur water provided to dry animals was less among majority (57.50%) of the respondents. Pregnant animals in Jaipur were getting medium amount of water reported by 40.00 per cent of the farmers while high amount of drinking water was provided by 37.50 per cent of the respondents in Udaipur. The pooled data suggests that amount of water provided to milch animals was high (76.67 to 100 litres) among majority (57.50%) of the respondents, followed by medium (31.25%) and less (11.25%). Medium and less amount of water was provided to dry animals by almost equal (50.00) per cent of the respondents while for pregnant animals, 36.25 per cent farmers were providing medium amount of water, followed by high (35.62%) and less (28.12%) amount. Water provided to draught animals was of medium amount among 57.14 per cent of the respondents, followed by less (38.09) and high (4.76%) amount.

Table 1: Distribution of the dairy farmers according the method of feeding their animals

Method of feeding	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 16)	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 26)	Milch (n = 160)	Dry (n = 160)	Pregnant (n = 160)	Draught (n = 42)
Individual feeding	76 (95.00)	58 (72.50)	72 (90.00)	16 (100.00)	68 (85.00)	59 (73.75)	68 (85.00)	26 (100.00)	144 (90.00)	117 (73.12)	140 (87.50)	42 (100.00)
In group	4 (5.00)	22 (27.50)	8 (10.00)	0 (0.00)	12 (15.00)	21 (26.25)	12 (15.00)	0 (0.00)	16 (10.00)	43 (26.87)	20 (12.50)	0 (0.00)

Table 2: Grazing practices followed by the dairy farmers

Grazing practice followed	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 16)	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 26)	Milch (n = 160)	Dry (n = 160)	Pregnant (n = 160)	Draught (n = 42)
	17 (21.25)	18 (22.50)	16 (20.00)	7 (43.75)	27 (33.75)	37 (33.75)	27 (33.75)	12 (46.15)	44 (27.50)	45 (28.12)	43 (26.87)	19 (45.23)
Duration of grazing (in hours)	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 17)	Dry (n = 18)	Pregnant (n = 16)	Draught (n = 7)	Milch (n = 27)	Dry (n = 27)	Pregnant (n = 27)	Draught (n = 12)	Milch (n = 44)	Dry (n = 45)	Pregnant (n = 43)	Draught (n = 19)
Up to 2 hours	0 (0.00)	1 (5.55)	0 (0.00)	0 (0.00)	0 (0.00)	6 (22.22)	3 (11.11)	0 (0.00)	0 (0.00)	7 (15.55)	3 (6.97)	0 (0.00)
2 to 4 hours	11 (64.70)	17 (94.44)	15 (93.75)	6 (85.71)	20 (74.07)	21 (77.77)	22 (81.48)	11 (91.66)	31 (70.45)	38 (84.44)	37 (86.04)	17 (89.47)
4 to 6 hours	6 (35.29)	0 (0.00)	1 (6.25)	1 (14.28)	7 (25.92)	0 (0.00)	2 (7.40)	1 (8.33)	13 (29.54)	0 (0.00)	3 (6.97)	2 (10.52)
Grazing months in a year	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 17)	Dry (n = 18)	Pregnant (n = 16)	Draught (n = 7)	Milch (n = 27)	Dry (n = 27)	Pregnant (n = 27)	Draught (n = 12)	Milch (n = 44)	Dry (n = 45)	Pregnant (n = 43)	Draught (n = 19)
Up to 3 months	3 (17.65)	4 (22.23)	3 (18.75)	11 (14.28)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	3 (6.81)	4 (8.89)	3 (6.98)	1 (5.27)
3 to 6 months	14 (82.35)	14 (77.77)	13 (81.25)	6 (85.72)	19 (70.37)	19 (70.37)	19 (70.37)	10 (83.33)	33 (75.00)	33 (73.33)	32 (74.42)	16 (84.21)
6 to 9 months	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	8 (29.63)	8 (29.63)	8 (29.63)	2 (16.67)	8 (18.19)	8 (17.78)	8 (18.60)	2 (10.52)

Table 3: Feeding welfare practices followed by the dairy farmers

Feeding practice	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 16)	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 26)	Milch (n = 160)	Dry (n = 160)	Pregnant (n = 160)	Draught (n = 42)
1. Feeding green fodder	76 (95.00)	67 (83.75)	72 (90.00)	10 (62.50)	72 (90.00)	61 (76.25)	66 (82.50)	14 (53.85)	148 (92.50)	128 (80.00)	138 (86.25)	24 (57.14)
2. Feeding concentrate	74 (92.50)	50 (62.50)	65 (81.25)	8 (50.00)	66 (82.50)	45 (56.25)	60 (75.00)	12 (46.15)	140 (87.5)	95 (59.37)	125 (78.12)	20 (47.61)
3. Feeding mineral mixture	52 (65.00)	17 (21.25)	32 (40.00)	5 (31.25)	31 (38.75)	3 (3.75)	8 (10.00)	3 (11.53)	83 (51.87)	20 (12.50)	40 (25.00)	8 (19.04)
4. Feeding Salt	79	74	77	12	76	68	74	24	155	142	151	36 (85.71)

	(98.75)	(92.50)	(96.25)	(75.00)	(95.00)	(85.00)	(92.50)	(92.30)	(96.87)	(88.75)	(94.37)	
5. Feeding Probiotics	18 (22.5)	2 (2.50)	10 (12.5)	1(6.25)	3 (3.75)	0 (0.00)	3 (3.75)	0 (0.00)	21 (13.12)	2 (1.25)	13 (8.12)	1 (2.38)

Table 4: Distribution of the dairy farmers according the frequency of feeding green fodder to their animals

Frequency of feeding of green fodder	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 76)	Dry (n = 67)	Pregnant (n = 72)	Draught (n = 10)	Milch (n = 72)	Dry (n =61)	Pregnant (n = 66)	Draught (n = 14)	Milch (n = 148)	Dry (n = 128)	Pregnant (n =138)	Draught (n = 24)
Thrice a day	20 (26.31)	2 (2.98)	10 (13.88)	0 (0.00)	1 (1.38)	0 (0.00)	4 (6.06)	0 (0.00)	21 (14.18)	2 (1.56)	14 (10.14)	0 (0.00)
Twice a day	54 (71.05)	59 (88.05)	59 (81.94)	7 (70.00)	67 (93.05)	49 (80.32)	48 (72.72)	14 (100.00)	121 (81.75)	114 (89.06)	107 (77.53)	21 (87.5)
Once a day	2 (2.63)	6 (8.95)	3 (4.16)	3 (30.00)	4 (5.55)	12 (19.67)	14 (21.21)	0 (0.00)	6 (4.05)	17 (13.28)	17 (12.31)	3 (12.5)

Table 5: Distribution of the dairy farmers according the frequency of feeding concentrate to their animals

Frequency of feeding of concentrate	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 74)	Dry (n = 50)	Pregnant (n = 65)	Draught (n = 8)	Milch (n = 66)	Dry (n =45)	Pregnant (n = 60)	Draught (n = 12)	Milch (n = 140)	Dry (n = 95)	Pregnant (n =125)	Draught (n = 20)
Twice a day	74 (100)	4 (8.00)	15 (23.07)	2 (25.00)	66 (100)	1 (2.22)	2 (3.33)	2 (16.66)	140 (100.00)	5 (5.26)	17(13.60)	4 (20.00)
Once a day	0 (0.00)	46 (92.00)	50 (76.92)	6 (75.00)	0 (0.00)	44 (97.77)	58 (96.66)	10 (83.33)	0 (0.00)	90 (94.73)	108 (86.40)	16 (80.00)

Table 6: Distribution of the dairy farmers according the frequency of watering to their animals

1. Frequency of watering in winter												
Frequency of watering in winter	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 16)	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 26)	Milch (n = 160)	Dry (n = 160)	Pregnant (n =160)	Draught (n = 42)
Twice a day	69 (86.25)	74 (92.50)	69 (86.25)	14 (87.50)	77 (96.25)	77 (96.25)	77 (96.25)	20 (76.92)	146 (91.25)	151 (94.37)	146 (91.25)	34 (80.95)
Thrice a day	9 (11.25)	6 (7.50)	9 (11.25)	2 (12.50)	3 (3.75)	3 (3.75)	3 (3.75)	6 (23.07)	12 (7.50)	9 (5.62)	12 (7.50)	8 (19.04)
4 times a day	2 (2.50)	0 (0.00)	2 (2.50)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	2 (1.25)	0 (0.00)	2 (1.25)	0 (0.00)
2. Frequency of watering in summer												
Frequency of watering in summer	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 16)	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 26)	Milch (n = 160)	Dry (n = 160)	Pregnant (n =160)	Draught (n = 42)
3 times a day	63 (78.75)	69 (86.25)	65 (81.25)	10 (62.5)	73 (91.25)	78 (97.5)	74 (92.5)	16 (61.53)	136 (85.00)	147 (91.87)	139 (86.87)	26 (61.90)
4 times a day	12 (15.00)	11 (13.75)	13 (16.25)	5 (31.25)	6 (7.50)	2 (2.50)	6 (7.50)	10 (38.46)	18 (11.25)	13(8.12)	19 (11.87)	15 (35.71)
5 times a day	5 (6.25)	0 (0.00)	2 (2.50)	1 (6.25)	1 (1.25)	0 (0.00)	0 (0.00)	0 (0.00)	6 (3.75)	0 (0.00)	2 (1.25)	1 (2.38)

Table 7: Distribution of the dairy farmers according the quantity of green fodder fed to their animals

Quantity fed to animal (in kg)	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 76)	Dry (n = 67)	Pregnant (n = 72)	Draught (n = 10)	Milch (n = 72)	Dry (n =61)	Pregnant (n = 66)	Draught (n = 14)	Milch (n = 148)	Dry (n = 128)	Pregnant (n =138)	Draught (n = 24)
Low (up to 15)	52 (68.42)	58 (86.56)	59 (81.94)	7 (70.00)	51 (70.83)	53 (86.88)	51 (77.27)	10 (71.42)	103 (69.59)	111 (86.71)	110 (79.71)	17 (70.83)
Medium (15 to 25)	19 (25.00)	9 (13.43)	9 (12.50)	3 (30.00)	19 (26.38)	8 (13.11)	15 (22.72)	4 (28.57)	38 (25.68)	17 (13.28)	24 (17.39)	7 (29.16)
High (25 to 35)	5 (6.57)	0 (0.00)	4 (5.55)	0 (0.00)	2 (2.77)	0 (0.00)	0 (0.00)	0 (0.00)	7 (4.72)	0 (0.00)	4 (2.89)	0 (0.00)

Table 8: Distribution of the dairy farmers according the quantity of concentrate fed to their animals

Quantity fed to animal (in kg)	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 74)	Dry (n = 50)	Pregnant (n = 65)	Draught (n = 8)	Milch (n = 66)	Dry (n =45)	Pregnant (n = 60)	Draught (n = 12)	Milch (n = 140)	Dry (n = 95)	Pregnant (n =125)	Draught (n = 20)
Low (up to 3.33)	26 (35.13)	50 (100.00)	65 (100.00)	8 (100.00)	49 (74.25)	45 (100.00)	60 (100.00)	12 (100.00)	75(53.57)	95 (100.00)	125 (100.00)	20 (100.00)
Medium (3.33 to 5.67)	42 (56.76)	0 (0.00)	0 (0.00)	0 (0.00)	17 (25.75)	0 (0.00)	0 (0.00)	0 (0.00)	58 (41.42)	0 (0.00)	0 (0.00)	0 (0.00)
High (5.67 to 8)	6 (8.11)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	6 (4.28)	0 (0.00)	0 (0.00)	0 (0.00)

Table 9: Distribution of the dairy farmers according the amount of drinking water provided to their animals

Amount of drinking water provided to animal/day (in litres)	Jaipur (n =80)				Udaipur (n = 80)				Pooled (N = 160)			
	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 16)	Milch (n = 80)	Dry (n = 80)	Pregnant (n = 80)	Draught (n = 26)	Milch (n = 160)	Dry (n = 160)	Pregnant (n =160)	Draught (n = 42)
Low (up to 53.33)	8 (10.00)	34 (42.50)	21 (26.25)	6 (37.50)	10 (12.50)	46 (57.50)	24 (30.00)	10 (38.46)	18 (11.25)	80 (50.00)	45 (28.12)	16 (38.09)
Medium (53.33 to 76.67)	30 (3.75)	44 (55.00)	32 (40.00)	8 (50.00)	20 (25.00)	34 (42.50)	26 (32.50)	16 (61.53)	50 (31.25)	78 (48.75)	58 (36.25)	24 (57.14)
Large (76.67 to 100)	42 (52.50)	2 (2.50)	27 (33.75)	2 (12.50)	50 (62.50)	0 (0.00)	30 (37.50)	0 (0.00)	92 (57.50)	2 (1.25)	57 (35.62)	2 (4.76)

Conclusion

Feeding and watering welfare practices followed by the farmers and traders in study area were satisfactory except the feeding of mineral mixture and probiotics. Feeding of green fodder was found satisfactory for all type of animals but concentrate feeding was comparatively less common for dry and draught animals which indicate that respondents were more concerned with the milch and pregnant animals as compared to draught and dry animals which should be improved.

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