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Calf management practices followed by dairy farmers of Sabar dairy milk shed area in North Gujarat

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Abstract

The study on status of calf rearing management practices followed by the dairy owners in Gujarat was conducted in Sabarkantha districts. The data were collected randomly from selected 150 dairy animal owners through personal interview using pre-tested structured schedule in randomly selected three clusters (Ider, Prantij and Himmatnagar). The study revealed that the majority of the respondents (86.66 per cent) attended calving and 62.0 per cent of the respondents did not clean the calves soon after parturition, the result being highly significant ($P<0.01$). Majority (58.67 per cent) of respondents practiced cutting and disinfection of the navel cord the result being highly significant ($P<0.01$). All the respondents followed practice of feeding colostrum to new born calves but only 37.34 per cent of the respondents fed colostrum to new born calves within one hour of birth, the result being highly significant ($P<0.01$). Majority (93.33 per cent) of the respondents followed dehorning practice in calves and the results are also highly significant ($P<0.01$).

Keywords: Calf rearing, navel cord, colostrums, dehorning

1. Introduction

India's livestock sector is one of the largest in the world. It has 56.70 per cent of world's buffaloes, 12.50 per cent cattle, 20.40 per cent small ruminants, and 3.10 per cent poultry. In the year 2010-11 livestock comprised 4.0 per cent of the GDP and 26.0 per cent of the agricultural GDP. North Gujarat is a major milk production region of Gujarat. Banaskantha, Sabarkantha and Mehsana districts rank first, second and third, respectively with regard to milk production in the state (Anonymous, 2010) [1]. Hence, the present study was undertaken to document information regarding calf management practices adopted by the dairy farmers of the Sabar Dairy milk shed area of Sabarkantha district in Gujarat. Calves play an important role in the development of the dairy sector of the country as the future of the dairy herd solely depends upon the successful raising of young calves. Female calves are especially kept for herd replacement. Important aspects in the calf rearing are the health management and proper nutrition (Mehmood, 1991) [11]. The present study has been designed to outline information on the dairy animal management practices followed by dairy animal owners of Ider, Prantij and Himmatnagar clusters of Sabar dairy milk shed area of Sabarkantha district in North Gujarat.

2. Materials and Methods

The information from present study was collected by arrangement of field survey in Sabarkantha district of north Gujarat. Sabarkantha district possesses eight talukas out of which three clusters (Ider, Prantij and Himmatnagar) were randomly selected. From each selected clusters 5 villages having functional primary milk producer's co-operative societies were selected at random. There were 150 respondents overall after a random selection of 10 dairy animal owners from each village. 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 farmers were interviewed and the desired information was collected regarding housing management practices adopted by them for dairy animals with the help of pre-designed and pre-tested questionnaire. Data were tabulated and analyzed as per standard statistical tools.

3. Result and Discussion

The results of various calf rearing management practices followed by dairy animal owners in the study area are presented in Table-1 and photograph as plate number 1-2.

3.1 Attending the animal at the time of calving

The results of attending the animal at the time of calving are presented in Table 1. The majority of respondents (86.66 per cent) attended calving and took care of the calves after parturition, while only 13.33 per cent of the respondents didn't follow this practice. Present findings are similar to the findings of Malik and Nagpal (1999) ^[9] who revealed that 94.44 per cent of the respondents attended cows/buffalos during calving. The results are also well supported by Khadda *et al.* (2010) ^[5], Rathore *et al.* (2010a) ^[15] and Kumar and Mishra (2011b) ^[6] who reported that all the respondents attended calving and took care of the calves after parturition.

3.2 Cleaning the calf immediately after birth

It was observed that 38.0 per cent respondents cleaned the calves soon after calving and majority (62.0 per cent) of the respondents didn't follow this practice. The results are highly significant ($P < 0.01$). The highest per cent (60.0 per cent) of farmers of Himmatnagar cluster adopted this practice, whereas Ider and Prantij have respectively 58.0 and 88.0 per cent respondents did not followed this practice. Thus amongst clusters there is high degrees of variation. It might be due to closeness of Himmatnagar dairy farmers with Sabarkantha co-op. milk producers union. These findings are lower than reported by Meena *et al.* (2008) ^[10] in which majority (71.0 per cent) of the respondents cleaned the calf soon after calving and 29.0 per cent of the farmers did not follow this practice

3.3 Cutting and disinfecting the naval cord of calf

It was observed that majority (58.66 per cent) of respondents followed practice of ligation, cutting and disinfection of the navel cord with new blade or knife and tied with thread, whereas remaining 41.33 per cent of respondents didn't follow these practices and it was left to fall off itself naturally. Results of present findings are highly significant ($P < 0.01$) Dairy farmers of Ider and Prantij followed this practice (70.00 and 64.0 per cent respectively) but surprisingly dairy farmers of Himmatnagar did not follow this practice to extent required (42.0 per cent). There cannot be assigned any explanation for such results. Present findings are similar to the results of cutting and disinfecting naval cord to those reported by Kushwaha *et al.* (2007) ^[7] and Rathore *et al.* (2010b) ^[14]. In their study respondents following these practices were 60.50, 85.56 and 85.56 per cent, respectively. Contrary to the present findings Gill and Saini (2008) ^[3] and Rathore *et al.* (2010a) ^[15] observed 48.67 and 37.00 per cent of the respondents, respectively not practicing cutting/ligation and disinfection of the naval cord of newly born calves.

3.4 Feeding of colostrum to the calf

It was observed that 37.33, 44.00 and 18.66 per cent of the respondents provided colostrum within one hour of birth, 2 to 4 hours after birth and after fall of placenta, respectively. The results of colostrum feeding are highly significant ($P < 0.01$). Fifty six per cent of dairy farmers of Himmatnagar cluster fed colostrum within 2 hrs. after birth where as 50.0 and 54.0 per cent of respondents of Ider and Prantij cluster feed colostrum within 2 to 4 hrs after birth. Very few fed after fall of placenta. Though periods are different but all farmers are feeding colostrum. This indicates that practices are well adopted by dairy farmers. These findings are in close line to the finding of Deshmukh *et al.* (2009) ^[2], Rathore and Kachawaha (2009) ^[13] and Rathore *et al.* (2010b) ^[14].

3.5 Quantity of colostrum feeding

The quantity of colostrum feeding was *ad lib*, one-quarter and some milk in all quarters and as per body weight was followed by 35.33, 30.00, 8.66 and 26.00 per cent of the respondents, respectively. The results are significant ($P < 0.05$). In Ider and Himmatnagar clusters 42.0 and 46.0 per cent farmers followed the practice of feeding colostrum *ad lib*. Whereas in Prantij cluster highest number of respondents (36.0 per cent) fed colostrum from one quarter. Present findings are similar to the results of Kumar and Mishra (2011) ^[6].

3.6 Reasons for feeding colostrum

It was observed that (65.33 per cent) of the respondents were of the opinion that it increases the appetite of new born calf when colostrum is provided; whereas 34.66 per cent respondents were of the opinion that it provides immunity against diseases. The belief of the majority of the farmers was wrong. This could be due to misunderstanding or lack of proper extension work about this practice.

3.7 Starting giving green fodder to calf after attaining age

The majority (58.0 per cent) of the respondents who provided green fodders (Plate-1) from two months followed by 33.33 and 8.66 per cent of the respondents provided green fodders from three and one months after birth, respectively. The results are highly significant ($P < 0.01$). Dairy farmers of Prantij and Himmatnagar clusters feed green fodders (72.0 and 60.0 per cent) at 2 months of age and farmers of Ider clusters (44.0 per cent) followed this practice at 3 months of age. Early starting of coarse feed stimulates faster development of ruminal activities. It might be due to the awareness of dairy farmers regarding incorporation of fodder in the ration of calves which hastens the development of rumen function at an early age. This finding is supported by the findings of Sinha *et al.* (2010) ^[16] who observed that 63.30 per cent of the dairy farmers started green fodder feeding to calves within 2 months of age of calf.

3.8 Milk feeding

The majority (72.67 per cent) of the respondents followed milk feeding to the calf directly through suckling followed by 27.33 per cent of the respondents who used nipple feeding through bottle. The results are highly significant ($P < 0.01$). In all clusters majority (Ider: 82.00, Prantij: 52.00 and Himmatnagar: 84.0 per cent) farmers were following this practice. This indicates that farmers are still allowing suckling initially.

3.9 Calf starter supplied

The majority of the (57.33 per cent) of the respondents provided calf starter while remaining 42.66 per cent of the respondents did not provide calf starter to the calves. The present findings are just opposite to the results reported by Prajapati (2012) ^[12] who observed that none of the respondents provided calf starter to their young calves. It might be due to the high level of awareness of dairy farmers in the study area regarding the nutrient requirements of growing calves which couldn't be met by feeding milk alone.

3.10 Disposal of placenta

The Majority (98.66 per cent) of the dairy animal keepers disposed of the placenta by deep burial method and only 1.33 per cent threw the placenta out skirt common land for natural

decaying. Burial method was a very good practice followed by farmers which help in preventing disease transmission.

3.11 Period of milk feeding to calf

The half (50.66 per cent) of the respondents allowed suckling to their calves up to two months of age, whereas, 36.00 and 13.34 per cent of the respondents allowed suckling one month and above two months of age, respectively. This practice increased the calving interval in dairy animals. However, these are contradictory to the results of Rathore *et al.* (2010a) [15] who reported that majority (81.25 per cent) of the respondents allowed the calf to suckle the mother up to 6 months of age.

3.12 Deworming of calf

The most of the respondents (55.33 per cent) gave anthelmintics to the calves regularly followed by respondents who gave occasionally (40.0 per cent) and who gave no medication (4.66 per cent) to control the endoparasites. The results are highly significant ($P < 0.01$). Higher number of dairy farmers (66.0 per cent) belonged to Ider cluster followed by Himmatnagar cluster (54.0 per cent) and of Prantij cluster

(52.0 per cent) followed this practice occasionally. Thus there are no specific reasons for such variation amongst clusters. The present observations are in accordance with the results recorded by Malik and Nagpal (1999) [9] they observed that 83.33 per cent of the respondents dewormed calf regularly. Gupta *et al.* (2008) [4] observed one-third of the farmers adopted deworming practices in calves.

3.13 Dehorning of calf

The most of the respondents (93.33 per cent) followed dehorning during 3-4 weeks of age of their calves, while only 6.66 per cent of the respondents did not follow dehorning during 3-4 weeks of age of their calves (Plate-2). The results are highly significant ($P < 0.01$). Dairy farmers of Ider and Himmatnagar showed very high level of awareness regarding this practice. These findings are supported by Malik *et al.* (2005) [8] who revealed that majority (82.0 per cent) of the respondents followed the deworming practice. Contrary to the present findings Gupta *et al.* (2008) [4] reported that only one fourth (26.20 per cent) of the farmers followed dehorning of calf.

Table 1: Distribution of the dairy animal owners according to calf management practices

Particulars	Clusters			Total	χ^2 Value	
	Ider	Prantij	Himmatnagar			
1. Attending the animal at the time of calving	a) Yes	45 (90.00%)	42 (84.00%)	43 (86.00%)	130 (86.66%)	0.8077
	b) No	5 (10.00%)	8 (16.00%)	7 (14.00%)	20 (13.34%)	
2. Cleaning the calf immediately after birth	c) Yes	21 (42.00%)	6 (12.00%)	30 (60.00%)	57 (38.00%)	24.957**
	d) No	29 (58.00%)	44 (88.00%)	20 (40.00%)	93 (62.00%)	
3. Cutting and disinfecting the navel cord of calf	e) Yes	35 (70.00%)	32 (64.00%)	21 (42.00%)	88 (58.66%)	9.973**
	f) No	15 (30.00%)	17 (34.00%)	30 (60.00%)	62 (41.34%)	
4. Feeding of colostrum to the calf	a) Within one hour of birth.	18 (36.00%)	10 (20.00%)	28 (56.00%)	56 (37.33%)	15.383**
	b) Two to four hour of birth.	25 (50.00%)	27 (54.00%)	14 (28.00%)	66 (44.00%)	
	c) After dropping of placenta.	7 (14.00%)	13 (26.00%)	8 (16.00%)	28 (18.66%)	
5. Quantity of colostrum feeding	d) <i>Adlib</i> sucking.	21 (42.00%)	9 (18.00%)	23 (46.00%)	53 (35.34%)	13.1162*
	e) One quarter.	14 (28.00%)	18 (36.00%)	13 (26.00%)	45 (30.00%)	
	f) Some milk in all Quarters.	5 (10.00%)	7 (14.00%)	1 (2.00%)	13 (8.67%)	
	g) As per body weight.	10 (20.00%)	16 (32.00%)	13 (26.00%)	39 (26.00%)	
6. Reasons for feeding colostrum	a) It provides immunity against diseases.	17 (34.00%)	13 (26.00%)	22 (44.00%)	52 (34.66%)	3.5911
	b) It increases appetite.	33 (66.00%)	37 (74.00%)	28 (56.00%)	98 (65.34%)	
7. Starting giving green fodder to calf after attending age	a) 1 months.	7 (14.00%)	4 (8.00%)	2 (4.00%)	13 (8.66%)	11.3341*
	b) 2 months.	21 (42.00%)	36 (72.00%)	30 (60.00%)	87 (58.00%)	
	c) 3 months or more.	22 (44.00%)	10 (20.00%)	18 (36.00%)	50 (33.33%)	
Particulars	Clusters			Total	χ^2 Value	
	Ider	Prantij	Himmatnagar			
8. Milk feeding	a) Suckling	41 (82.00%)	26 (52.00%)	42 (84.00%)	109 (72.67%)	16.178**
	b) In pen	9	24	8	41	

		(18.00%)	(48.00%)	(16.00%)	(27.33%)	
9. Calf starter supplied	a) Yes	31 (62.00%)	31 (62.00%)	24 (48.00%)	86 (57.33%)	2.6708
	b) No	19 (38.00%)	19 (38.00%)	26 (52.00%)	64 (42.67%)	
10. Disposal of placenta	a) Dip in burial	50 (100%)	48 (96.00%)	50 (100%)	148 (98.66%)	4.0541
	b) Dispose in open	0 (0.0%)	2 (4.00%)	0 (0.0%)	2 (1.34%)	
11. Period of milk feeding to calf	a) One months	22 (44.00%)	13 (26.00%)	19 (38.00%)	54 (36.00%)	5.6965
	b) Two months	20 (40.00%)	29 (58.00%)	27 (54.00%)	76 (50.67%)	
	c) More than two months	8 (16.00%)	8 (16.00%)	4 (8.00%)	20 (13.34%)	
12. Deworming of calves	a) Regular	33 (66.00%)	23 (46.00%)	27 (54.00%)	83 (55.33%)	13.388**
	b) Occasionally	17 (34.00%)	26 (52.00%)	17 (34.00%)	60 (40.00%)	
	c) Not practiced	0 (0.0%)	1 (2.00%)	6 (12.00%)	7 (4.66%)	
13. Dehorning of calves	a) Yes	49 (98.00%)	50 (50.00%)	41 (82.00%)	140 (93.33%)	15.642**
	b) No	1 (2.00%)	0 (0.0%)	9 (18.00%)	10 (6.67%)	

Figure in parenthesis indicate percentage; *Significant at 5% level ($P<0.05$) **Significant at 1% level ($P<0.01$).



Plate 1: Giving green fodder to calf



Plate 2: Dehorned calves

4. Conclusion

Regarding calf rearing management practices results indicated that majority (86.66 per cent) of the respondents attended the dairy animals at the time of calving. Only 38.0 per cent of the owners cleaned the calf after birth. The majority (58.66 per cent) of the respondents practiced ligation, cutting and disinfection of the naval cord of calves. Only 37.33 per cent

of the respondents fed colostrum to new born calves within one hour of birth and 35.33 per cent respondents allowed *adlib* quantity of colostrum to the calf. About 57.33 per cent of the respondents provided calf starter, while 42.66 per cent of the respondents did not provide calf starter to the calves. The majority (98.66 per cent) of the respondents disposed off placenta by a dip burial method. It was found that half (50.66 per cent) of the owners allowed suckling of calf up to 2 months of age. More than half (55.33 per cent) of the respondents dewormed their calves and most (93.33 per cent) of the respondents did dehorning of their calves.

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