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Study of prevailing healthcare management practices in specialized dairy farms

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Abstract

A study was carried out to compare the feeding management practices of specialized dairy farms of north and south Gujarat. The data were collected from each ten specialized dairy farm each from north and south Gujarat. Analyzed data revealed all dairy farms were followed practice of vaccination. Around 30 per cent farms were not followed booster and subsequent dose of vaccine as per standard recommendation. Only 17.5 per cent of the dairy farms were followed deworming at regular interval. More than half dairy farms were providing rubber mat to their animals. Results are statistically similar for both the regions. Only few dairy farms (40%) were followed faecal sample testing for diagnosis of parasitic infestation in their animals.

Keywords: Booster dose, deworming practice, ecto-parasites, vaccination

Introduction

Gujarat has four well established veterinary colleges along with several polytechnics to produce paravets. Animal husbandry department of state is also having veterinary dispensaries upto taluka and big village level. Most of clustered village is also having first aid veterinary clinic. Government has started mobile veterinary dispensary scheme for 10 villages in which veterinarians are posted. Cooperative dairies in most of the districts are also providing veterinary services since long back. Therefore, treatment to sick animals or other services should not problem for farmers or farms. Achieving profitability in specialized dairy farms is big challenge. They need to use scientific and modern feeding, breeding, treatment and management with possible farm mechanization. Now a day many areas in Gujarat having good numbers of specialized farms. Many such farm owners are claims themselves as most profitable farms, whereas, some are in closed due no nonpayment of installment to banks against loan. Therefore, it needs systemic study. Among 33 districts of Gujarat, from north Gujarat, Banaskantha and Sabarkantha districts and from south Gujarat, Bharuch, Surat and Navsari districts are known for milk production, specialized dairy farms adopting modern technologies, and established cooperative milk producers unions. The agro-climatic condition in both regions are quite different as north Gujarat has semi-arid to dry climate with less rainfall, whereas south Gujarat falls under medium to heavy rainfall zone. Specialized dairy farming in both regions needs to be understood considering its importance. However, not much work has been carried out about comparative aspects of health care management practices of dairy farmers from these regions, hence, present study was carried out.

Materials and methods

The dairy farms which contributed more than 50 per cent in total income of farm owners were considered specialized dairy farms. A list was prepared for all such farms in selected districts i.e. Surat, Navsari, Bharuch, Banaskantha and Sabarkantha which were having minimum 40 heads of either white cattle or buffalo. Sabarkantha districts were having 25 farms whereas Banaskantha has such 5 farms. From this both district 10 farms were selected randomly as a sample of north Gujarat. To study specialized farms in heavy to medium heavy rainfall zone, 10 specialized dairy farms were selected randomly from Surat, Bharuch and Navsari districts of south Gujarat from available 31 farms. The information pertaining to prevailing healthcare management practices was collected by interviewing respondents by using questionnaire method. Collected data were tabulated, analyzed using frequency and percentages and compared by chi-square test following Snedecor and Cochran (1994) [10].

Results and discussion

1. Health care practices

Data regarding healthcare practice followed by dairy farms is presented in Table 1. Table revealed that all dairy farms were followed vaccination and further, 70% were followed booster and subsequent dose of vaccine as per recommendation. Adoption of vaccination practices was statistically similar for both regions. However, per cent of dairy farms were higher were not followed the practice for booster and subsequent dose of vaccination was slightly higher in south region it indicate that dairy farms of north Gujarat were more aware for the regular interval dose of vaccination. Tewari *et al.* (2018) [11] observed that 91.50% dairy farmers practiced regular interval of vaccination for their animals. All the dairy farms were followed the practice of deworming to control the endoparasites, however, detail analysis revealed that only 17.5 per cent of the dairy farms were followed deworming at regular interval. It is statistically similar for both the region. Present study revealed very good adoption of deworming practices in compare to many studies. Chowdhry *et al.* (2008) [12] reported that 35 per cent of the respondents dewormed their calves at regular intervals. Table 1 depicts that majority of the dairy farms were using injectable drug to control the ectoparasite while, 10 per cent farms were using spraying method to control ectoparasites in their animals. This finding is higher than the result of Sabapara *et al.* (2015) [7]. As they reported that more than half of the respondents were using dusting, spraying & injectable drugs to control ectoparasites. Result of present study indicated that dairy farms of studied area preferred injectable drug to control the ectoparasite. In order to treatment of sick animal more than half of the dairy farms (60%) consulted veterinarian for the treatment of sick animal. This finding is more or less agreement with the result Sekhar *et al.* (2017) [9] who reported that most of the dairy farms (73%) consulted veterinarian for treatment of their sick animal. It was statistically similar for both regions. However,

more dairy farms of north region were consulted paravets than south region. Result indicated that veterinary treatment in studied dairy farms of north region was supported by cooperative societies. It was observed that majority dairy farms were possessed isolation shed and travis. These findings are statistically similar for both the regions. However, number of dairy farms having isolation shed and travis were more in north region. It might be due to lack of awareness about the mode of transmission of diseases and space for animals among the studied dairy farms in south region as compare to north region. This finding were corroborated with Sabapara *et al.* (2015) [7] who reported that majority of dairy farmers kept diseased animals together with healthy animals and did not provided sufficient space to the animals in Surat district which is present in south region of Gujarat state. In order to practice of providing rubber mat it was observed that more than half of the dairy farms were providing rubber mat to their animals. Results are statistically similar for both the regions. This finding is higher than the result of Pilaniya *et al.* (2018) [6] who reported that around 13.34 per cent dairy farmers were provided rubber mat to their animals in the districts of north Gujarat. This is because former study was conducted on marginal dairy farmers of north Gujarat while, present study was conducted on large specialized dairy farm. Further, in detail it was observed that 53.8% of the dairy farms were provided rubber mat to lame animals while, 46.2 per cent dairy farms were providing it to high milk yielding animals together with lame animals. It indicated that dairy farms of both regions understood the importance of good effect of rubber mat on lameness and milk production of animals. Bengtsson *et al.* (2009) [1] and Kara *et al.* (2015) [3] found that when cattles kept on rubber mats there was significant increase in milk production. Norberg (2012) [5] also reported that the incidence of severe lame cattle was decreased by 3.5% in cattle kept on rubber mat, whereas, it was increased by 16% in cattle kept on concrete floor in three-month study.

Table 1: Frequency distribution of the dairy farms according to health care practices followed

S. No.	Practices	North		South		Over all		Chi Square		
		n	%	n	%	n	%	F	P	
1	Practice of revaccination									
	Yes	8	80	6	60	14	70	0.95	0.32	
No	2	20	4	40	6	30				
2	Practice of regular deworming of animal									
	Yes	7	85	6	80	13	82.5	0.17	0.67	
No	3	15	4	20	7	17.5				
3	Practices to control ecto-parasites									
	Spraying	00	00	2	20	2	10	2.22	0.13	
Injectable drugs	10	100	8	80	18	90				
4	Treatment of Sick animal by									
	Paravet	3	30	5	50	8	40	0.83	0.36	
V.O	7	70	5	50	12	60				
5	Separate shed for sick animal									
	Yes	8	80	6	60	14	70	0.95	0.32	
No	2	20	4	40	6	30				
6	Facility of travis in open space									
	Yes	9	90	7	70	18	80	1.25	0.26	
No	1	10	3	30	4	20				
7	Provision of rubber mat									
	Yes	6	60	5	50	11	55	0.20	0.65	
No	4	40	5	50	9	45				
8	Type of category of animal to which rubber mat provided									
	High milk yielding animal together with lame animal	4	66.7	2	28.6	6	46.2	1.88	0.17	
Lame animals	2	33.3	5	71.4	7	53.8				

2. Vaccination practice

Data regarding the adoption of vaccination practice and schedule followed by dairy farms presented in Table 2. It was statistically almost similar for both the region. As per said table FMD vaccine was given by majority of farms as primary dose at 4 to 6 month and subsequent dose annually. Further, half of the dairy farms were giving booster dose of FMD at 9 months after primary dose and subsequent dose half yearly. Result indicated that half of the dairy farms were giving booster dose of this vaccine as per the schedule mentioned in Farmer's manual and around 15 per cent dairy farms were giving subsequent dose at half annually that was only annually as per the schedule of Marek's manual. It might be due to half of the farms were not aware about the booster dose FMD vaccine. This finding is higher than the result of Kaur *et al.* (2017) [4] who reported that 45 per cent dairy women believed that vaccination of animal against FMD should be done 6 monthly while, 22.50 percent dairy women believed that is should be given annually. Less than half dairy farms (40%) were not giving primary dose of Haemorrhagic Septicemia vaccine at 6 month. As far as subsequent dose of HS concern 55 and 45 per cent dairy farms were giving at 6 month and 12 month interval, respectively. It might be due to less than half of the dairy farms were not aware about the primary dose of B.Q. vaccine. Whereas, all the dairy farms were not giving booster dose for B.Q. disease as per the recommendation Marek's manual. This finding was supported by Kaur *et al.* (2017) [4] who reported that 46 per cent dairy women believed that vaccination of animal against B.Q. should be done 20 monthly while, 46 percent dairy women believed that is should be given annually. Less than half of the

dairy farms (70%) were giving only primary dose of Brucella vaccine at 6 month and rest of dairy farms were giving it at 3 months. This finding is encouraged by Kaur *et al.* (2017) [4] who reported that 31.88 per cent dairy women vaccinated their animal against brucella disease at the age of 4-6 month. All the dairy farms were giving the single dose of Theileriosis vaccine at the age of 2 months (65%) and more than 2 month (35%). Only 35 per cent of the dairy farms were giving Anthrax vaccine at the age of 6 months. Whereas, all the dairy farms were giving subsequent dose half annually and annually, respectively. Result indicated that only 35 per cent of the dairy farms were giving this vaccine as per the schedule mentioned in Marek's manual. Data present in table indicated that overall only few dairy farms were used vaccine of private company against the contagious disease while only while, majority (75%) were used co-operative or government vaccine. It is because majority of the dairy farms were associated with co-operative sector while, few private dairy farm were not associated. Also it was revealed from the data of table all the dairy farms were followed the practice of vaccination but in depth it was found that only few dairy farms were vaccinate their animal at regular interval of time or strictly follow the vaccination schedule. This finding is less in agreement with the result of Sahu *et al.* (2017) who reported that majority (71.43%) of the respondents were not practicing vaccination timely and regularly against the contagious diseases because former study was conducted on commercial dairy farms who are less aware for the benefits of regular vaccination schedule to maintain the immunity of animal for various contagious diseases.

Table 2: Distribution of the dairy farms of according to vaccination practices followed

S. No.	Practices	North		South		Over all		Chi Square			
		n	%	n	%	n	%	F	P-		
1	F.M.D. Vaccine doses										
	Private company	2	20	3	30	5	25	0.26	0.60		
	cooperative/Gov. supplied	8	80	7	70	15	75				
	Schedule of F.M.D. vaccine										
	Primary dose at 4 to 6 month	9	90	8	80	17	85	0.39	0.53		
	Booster dose at 9 month after primary	6	60	4	40	10	50	0.80	0.37		
	Subsequent dose annually	7	70	10	100	17	85	3.52	0.06		
	Subsequent dose half yearly	3	30	00	00	3	15				
	2	B.Q. Vaccine									
		Private	3	30	3	30	6	30	0.00	1.00	
Cooperative/Gov. supplied		7	70	7	70	14	70				
Schedule of B.Q vaccine											
Primary dose at 6 month		9	90	8	80	17	85	0.39	0.53		
Booster dose at 2 weeks after primary		7	70	4	40	11	55	1.81	0.17		
Subsequent dose annually		8	80	7	70	15	75	0.26	0.60		
Subsequent dose half yearly		2	20	3	30	5	25				
3		H.S. Vaccine									
		Private	7	70	9	90	16	80	1.25	0.26	
	Cooperative/Gov.	3	30	1	10	4	20				
	Schedule of H.S. Vaccine										
	Primary dose at 6 month	8	80	4	40	12	60	3.33	0.06		
	Subsequent dose annually	6	60	3	30	9	45	1.81	0.17		
	Subsequent dose half yearly	4	40	7	70	11	55				
	4	Brucellosis Vaccine									
		Private	7	70	1	10	8	40	7.50	0.00*	
		Cooperative/Gov. supplied	3	30	9	90	12	60			
Schedule of Brucella vaccine											
Single dose at the age of 3 month		6	60	8	80	14	70	0.95	0.32		
Single dose at the age of 6 month		4	40	2	20	6	30				
5		Theileriosis Vaccine									
		Private	10	100	10	100	10	100	--	--	

	Cooperative/Gov. supplied	00	00	00	00	00	00		
	Schedule of Theilera vaccine								
	Single dose at the age of 2 month	9	90	4	40	13	65	5.49	0.01*
	Single dose at more than 2 month	1	10	6	60	7	35		
6	Anthrax Vaccine								
	Private	2	20	9	90	11	55	9.89	0.00*
	Cooperative/Gov. supplied	8	80	1	10	9	45		
	Schedule of Anthrax vaccine								
	Primary dose at 6 month	5	50	2	20	7	35	1.97	0.16
	Subsequent dose annually	10	50	10	50	20	100	0.00	1.00

3. Deworming practice

Data regarding the adoption of deworming practice and schedule followed by dairy farms presented in Table 3. It was statistically almost similar for both the region. Data regarding the adoption of deworming practice and time interval followed by dairy farms presented in Table 3. Result depicted that more than half of the dairy farms were dewormed their animals thrice/year followed by 30 and 15 percent dairy farms who were dewormed their animals twice/year and monthly, respectively. It was statistically similar for both the regions. This finding is more than the result of Kaur *et al.* (2017) [4] reported most (41.25%) dairy women were dewormed their animals twice/year. In order to preference of deworming method majority (75%) of the dairy farms were giving it by liquid form while only 25 per cent dairy farms were giving it in powder form. It was statistically similar for both the regions. Regarding the change of deworming drug most of the dairy farms were doing it while less than half of the (40%) the dairy farms were not doing it. It was statistically similar for both regions. In order to choose of drug all the dairy farms were using ivermectin (100%) followed by albendazole

(85%), fenbendazole, closantel and piperazine (60%) while, levamisole was choice of drug for few farms (35%). However, data regarding choice of closantel and piperazine was statistically not similar for both the region because use of closantel drug as a dewormer was used by more farms (90%) in north region as compared to south region (30%). Whereas, use of piperazine was higher (90%) in south region as compared to north region (30%). It was studied that majority (75%) of the dairy farms were followed the practice of deworming before vaccination. It was statistically similar for both the regions. Regarding the practice of test of faecal sample only few dairy farms (40%) were followed the practice of test of faecal sample for diagnosis of parasitic infection in their animals. This finding is encouraged by the result of Tiwari *et al.* (2007) [12] who reported that most of the dairy farms were followed the practice of testing of faecal sample and schedule of deworming. These result indicate that more than half (55-60%) of the dairy farms were highly aware regarding the deworming practice and change of dewormer drug.

Table 3: Distribution of the dairy farms according to deworming practices followed

S. no.	Practices	North		South		Over all		Chi Square	
		n	%	n	%	n	%	F	P
1	Adult animal								
	Once/year	00	00	00	00	00	00	1.09	0.58
	Twice/year	2	20	4	40	6	30		
	Thrice/year	6	60	5	50	11	55		
	Monthly	2	20	1	10	3	15		
2	Preference of deworming method								
	Liquid form	8	80	7	70	15	75	0.26	0.60
	Powder form	2	20	3	30	5	25		
3	Change of drug								
	Yes	7	70	5	50	12	60	0.83	0.36
	No	3	30	5	50	8	40		
4	Choice of drug								
	Levamisole	6	60	1	10	7	35	0.83	0.36
	Ivermectin	10	100	10	100	20	100	--	--
	Closantel	9	90	3	30	12	60	7.50	0.00*
	Piperazine	3	30	9	90	12	60	7.50	0.00*
	Albendazole	9	90	8	80	17	85	0.39	0.53
	Fenbendazole	7	70	5	50	12	60	0.83	0.36
5	Deworming before vaccination								
	Yes	8	80	7	70	15	75	0.26	0.60
	No	2	20	3	30	5	25		
6	Test of faecal sample								
	Yes	5	50	3	30	8	40	0.83	0.36
	No	5	50	7	70	12	60		

Conclusion

From the above results regarding the health care practice it can be conclude that awareness regarding the vaccination and deworming practice were slightly higher in north region. i.e. as there is a more chances of infection for F.M.D disease in

north region because of its semi-arid to arid climate so more than half (60%) of the dairy farms were giving booster dose as per the standard protocol. On the other hand, in south region there is more chances of infection for H.S. disease because of its medium to heavy rainfall-humid climate but 40

per cent dairy farms were giving booster dose as per standard protocol. Whereas in order to deworming practice change of deworming drug and test of faecal sample were carried out by around 50 percent dairy farms that is slightly less than north region i.e. 70 per cent

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Conflict of Interest: Nil.

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