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Adoption of buffalo healthcare management practices by farmers of Banaskantha district of Gujarat state

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Abstract

This study was conducted to study the adaptation of buffalo health care management practices by farmers. A sample of 150 respondents were randomly selected from the Banaskantha district of Gujarat state of India and Data were collected through face-to-face interview and analyzed by frequency and percentage. Data revealed that majority of farmers having old age, education up to primary level, belongs to the nuclear family, medium size landholding and annual income upto 1.5 Lakh. As concerned to adaptation of Buffalo health care management practices majority of farmers attended calving, gave special calving feed to buffalo after calving and follow colostrum feeding practices to calf. Majority of farmers got regular veterinary doctor service, regularly vaccinate an animal, gave ectoparasiticides, maintain clean shed after a regular interval, and provide mineral mixture in feed of buffalo.

Keywords: Buffalo, health care management, dairy farmers

Introduction

India is enriched with the largest livestock population (535.78 millions) and one of the highest milk producers (198.40 MT) in the world (DAHD Annual Report 2020). Animal Husbandry is helpful in generating gainful employment in the rural sector, particularly among the landless laborers, small and marginal farmers and women by supplementing their family incomes. Buffalo has inherent ability to produce milk with high milk fat content ranging from 6 to 8.5 percent because of its higher milk fat contents, buffalo milk is preferred over cow milk and it fetches better price in the market.

In Gujarat state of Banaskantha district buffalo is predominantly reared by farmers. Environmental temperature in the district ranges from 40 °C to 43 °C and it reaches up to 45 °C in summer. So, the buffalo of this region suffers from heat stress and other health-related problems. Hence, the study was conducted to explore the socioeconomic profile of dairy farmers and different buffalo health care practices adopted by the farmers.

Materials and Methods

The study was conducted purposively in the Banaskantha district from July to November 2020. Three talukas viz; Kankrej, Danta and Vadgam were randomly selected for the study. Five villages from each taluka were selected randomly and from each village 10 farmers rearing buffalo were selected randomly. Thus, a total of 150 buffalo farmers were selected. The exploratory research design was used in the study and a multistage random sampling technique was used for the selection of respondents. The interview schedule for the farmers on buffalo health care management practices and their constraints were developed and pretested before administering in the main sample area. Data was collected through informal and friendly visits to the farmers' homes and farms in the early hours of the day. The data collected were statistically analyzed for frequency and percentage.

Results and Discussion

The results of the socio-economic profile of buffalo farmers are presented in Table 1. It is revealed that 50% (75) respondents belong to the old age group, followed by 36% (54) respondents belong to the middle age group and the remaining 14% (21) respondents belong to the young age group. Regarding experience, 57.33% (86) farmers have experienced above ten years whereas, 31.33% (47) and 11.33% (17) farmers have 6- 10 years and 3-5 years experience respectively (Nande M.P *et.al*, 2019) [4].

Nearly 33.33% (50) respondents were educated up to primary level, while 23.33% (35) and 20.00 % (30) were educated up to higher secondary and illiterate respectively.

However, 9.33% (14) of respondents were graduates. 68.66% (103) respondents belong to nuclear family size followed by joint family 31.33% (47) (Nande M.P *et al.*, 2019) [4] and 40.00% (60) found to have medium herd size (3-4 buffaloes), whereas 33.33% (50) respondents were having large herd size (> 4 buffaloes) and rest of 26.67% (40) respondents were possessing small herd size (1-2 buffaloes) (Md Enayat Kabir *et al.*, 2020) [3].

Nearly, 48% (72) respondents were have medium size of land (2-4 hector), while 22% (33) and 20.66% (31) were small and marginal farmers. Whereas, 09.33% (14) were large landholding. Majority of respondents 44% (66) were gained income from agriculture while 42% (63), 05.33% (08) and 04.66% (07) were from animal sector, business and horticulture while rest of farmers gain income from services either government or private job. In which 57.33% (86) respondents were have annual income more than Rs. 1.5 lakh and rest of have Rs. 50,000 – 1 lakh. While majority of respondents 53.33% (80) belongs to medium milk production followed by 34% (51) low milk yield and 12.66% (19) have high milk yield per day.

The distribution of buffalo farmers based on health care management is depicted in the Table: 2. In this study majority of respondents 100% (150) attended calving of buffalo and took care of a calf and dam after parturition. Attending calving is important to guide safe calving so that live calf is delivered and minimum stress to the dam. In particular let down of milk without calf in most of buffalo is almost not possible. More than three forth 86.00 % (129) of the farmers were found to supplement special calving feed/mixture to their buffaloes after parturition. Generally, it is supplemented to provide energy so that placenta is expelled in time and pain is relieved to some extent.

The present study indicated that 100% of the respondents followed the practice of colostrum feeding to newborn calves for their survival. Further, the data revealed that scientific recommendation of feeding colostrum to newborn calves within 1.5 hours of birth was being practiced by 46% (69) of the respondents, and the remaining 54% (81) respondents fed colostrum after shedding of placenta. Feeding of colostrums

in time i.e. within 1.5 hours after birth is very important for calf to absorb quantum of antibodies to fight against infection, to get maximum protein for body growth, laxative nature to expel first fecal material and nutrient richness of the colostrum. (Ranjana Sachan *et al.*, 2016) [5]

More than three forth 75% (113) respondents got services from veterinary officers, whereas 17.33% (26.00) from livestock inspectors, 04.67% (07) from local persons and rest 2.67% (04) by themselves when their buffaloes get sick (Kathiriya *et al.* 2017) [2].

Vaccination in livestock plays a pivotal role in the prevention of diseases which ultimately keeps disease away and keeps animal healthy. Most of the farmers 88% (132) know about importance of vaccination and its schedule; however, 72.67% (109) farmers have adopted on their farm. The study revealed that 63.33% (95) respondents gave anthelmintics to the calves regularly and the remaining 36.67% (55) did not supplement to control the endoparasites. Endoparasites in particular in calves are major responsible cause of mortality in buffalo calves. (Kathiriya *et al.* 2017) [2].

Cleaning of a shed is adopted by most of the 82% (123) respondents regularly clean their shed out of them 78.86% (97) clean shed daily and 13.82% (17), 07.31% (09) clean shed on weekly and sometimes respectively. It is an important management practice to keep the shed and animals health free from infection. Control of ectoparasites is very important. It sucks the blood and transmits the internal protozoal disease. So that's why controlling it is a very important practice in a shed. So the majority of respondents 89.33% (134) used ectoparasiticide to control lice or ticks in his /her shed (Kathiriya *et al.* 2017) [2].

It was observed that the majority of respondents 75.33% (113) provide mineral mixture in feed to boost their nutrition power in buffalo, in which most of them 49.55% (56) feed mineral mixture to milch buffalo followed by heifer 32.74% (37) and buffalo calf 17.70% (20). More than fifty percent of buffalo owners 53.57% (30) supplement mineral mixture to their milch buffalo after calving up to conception and the rest of 46.42% (26) after calving up to next calving (Ranjana Sachan *et al.*, 2016) [5].

Table 1: Socio- Economic Profile of Dairy Farmers

A.	Socio-economic profile	Village (n)			Overall (150)
		Kankrej (50)	Danta (50)	Vadgam (50)	
1.	Age of farmers				
	Young age group (Up to 35 years)	09 (18.00)	07 (14.00)	05 (10.00)	21 (14.00)
	Middle age group (36-50 years)	17 (34.00)	21 (42.00)	16 (32.00)	54 (36.00)
	Old age group (More than 50 years)	24 (48.00)	22 (44.00)	29 (58.00)	75 (50.00)
2.	Experience				
	Low (3-5 Years)	06 (12.00)	08 (16.00)	03 (6.00)	17 (11.33)
	Medium (6-10 Years)	19 (38.00)	14 (28.00)	14 (28.00)	47 (31.33)
	High (above 10 years)	25 (50.00)	28 (56.00)	33 (66.00)	86 (57.33)
3.	Education				
	Illiterate	08 (16.00)	17 (34.00)	05 (10.00)	30 (20.00)
	Primary education (Up to 7 std.)	14 (28.00)	22 (44.00)	14 (28.00)	50 (33.33)
	Secondary education (8 to 10th std.)	09 (18.00)	04 (8.00)	08 (16.00)	21 (14.00)
	Higher Secondary education (Up to 11th to 12th std./ Diploma course)	14 (28.00)	05 (10.00)	16 (32.00)	35 (23.33)
	Graduate	05 (10.00)	02 (04.00)	07 (14.00)	14 (09.33)
4.	Family Size				
	Nuclear (Up to 5 members)	23 (46.00)	38 (76.00)	42 (84.00)	103 (68.67)
	Joint (More than 5 members)	27 (54.00)	12 (24.00)	08 (16.00)	47 (31.33)
5.	Herd size				
	Small (1 to 2 Buffaloes)	12 (24.00)	22 (44.00)	06 (12.00)	40 (26.67)
	Medium (3-4 Buffaloes)	27 (54.00)	19 (38.00)	14 (28.00)	60 (40.00)
	Large (above four Buffaloes)	11 (32.00)	09 (18.00)	30 (60.00)	50 (33.33)

6.	Land Holding (Hacter)				
	Marginal Farmer (up to 1.00 Ha)	08.00 (16.00)	17.00 (34.00)	06.00 (12.00)	31.00 (20.66)
	Small (1.01 to 2.00 Ha)	13 (26.00)	09 (18.00)	11 (22.00)	33 (22.00)
	Medium (2.01 to 4.00 Ha)	24 (48.00)	21 (42.00)	27 (54.00)	72 (48.00)
	Large (more than 4.00 Ha)	05 (10.00)	03 (06.00)	06 (12.00)	14 (09.33)
7.	Source of Income				
	Agriculture	23 (46.00)	21 (42.00)	22 (44.00)	66 (44.00)
	Animal Husbandry	18 (36.00)	22 (44.00)	23 (46.00)	63 (42.00)
	Horticulture	04 (08.00)	01 (02.00)	02 (04.00)	07 (04.66)
	Service(Government/Private)	03 (06.00)	02 (04.00)	01 (02.00)	06 (04.00)
	Business	02 (04.00)	04 (08.00)	02 (04.00)	08 (05.33)
8.	Annual Income (Per Annum)Rs.				
	Rs. 50,000 – 1,00,000/-	19 (38.00)	28 (56.00)	17 (34.00)	64 (42.67)
	Rs. > 1,00,000/-	31 (62.00)	22 (44.00)	33 (66.00)	86 (57.33)
9.	Total Milk Production (Litter/ day)				
	Low milk yield (3-6)	14 (28.00)	25 (50.00)	12 (24.00)	51 (34.00)
	Medium milk yield (6-10)	27 (54.00)	21 (42.00)	32 (64.00)	80 (53.33)
	High milk yield (> 10)	09 (18.00)	04 (8.00)	06 (12.00)	19 (12.66)

Table 2: Buffalo Healthcare Management Practices followed by the Dairy farmers

Sr. No.	Management Practices	Village (n)			
		Kankrej (50)	Danta (50)	Vadgam(50)	Overall (150)
1.	Are you attending calving?				
	Yes	50 (100.00)	50 (100.00)	50 (100.00)	150 (100.00)
	No	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)
2.	Special Feed after calving				
	Yes	48 (96.00)	39 (78.00)	42 (84.00)	129 (86.00)
	No	02 (04.00)	11 (22.00)	08 (16.00)	21 (14.00)
3.	Feeding of colostrum feeding after birth				
	Yes	50 (100.00)	50 (100.00)	50 (100.00)	150 (100.00)
	No	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)
4.	Time of colostrum feeding after birth				
	Within 1.5 hrs after birth	14(28.00)	31 (62.00)	24 (48.00)	69 (46.00)
	After shedding of placenta	36 (72.00)	19 (38.00)	26 (52.00)	81 (54.00)
5.	Animal Healthcare Services				
	Yes	50 (100.00)	50 (100.00)	50 (100.00)	150 (100.00)
	No	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00)
6.	Treatment of sick animal				
	Veterinary Officer	41 (82.00)	39 (78.00)	33 (66.00)	113 (75.33)
	Livestock Inspector	07 (14.00)	06 (12.00)	13 (26.00)	26 (17.33)
	Local Person	01 (02.00)	03 (06.00)	03 (06.00)	07 (04.67)
	By Own	01 (02.00)	02 (04.00)	01 (02.00)	04 (02.67)
7.	Are you know about Vaccination Schedule of your animal?				
	Yes	48 (96.00)	37 (74.00)	47 (94.00)	132 (88.00)
	No	02 (04.00)	13 (26.00)	03 (06.00)	18 (12.00)
8.	Vaccination is adopted				
	Yes	43 (86.00)	29 (58.00)	37 (74.00)	109 (72.67)
	No	09 (18.00)	17 (34.00)	15 (30.00)	41 (27.33)
9.	Deworming of buffalo calves				
	Yes	37 (74.00)	22 (44.00)	36 (72.00)	95 (63.33)
	No	13 (26.00)	28 (56.00)	14 (28.00)	55 (36.67)
10.	Deworming of adult buffalo				
	Yes	17 (34.00)	11 (22.00)	18 (36.00)	46 (30.67)
	No	33 (66.00)	39 (78.00)	32 (64.00)	104 (69.66)
11.	Cleaning of sheds				
	Yes	40 (80.00)	37 (74.00)	46 (92.00)	123 (82.00)
	No	10 (20.00)	13 (26.00)	04 (08.00)	27 (18.00)
a.	Daily	27 (67.50)	29 (78.37)	41 (89.13)	97 (78.86)
	Weekly	11 (27.50)	03 (08.10)	03 (06.52)	17 (13.82)
	Sometimes	02 (05.00)	05 (13.51)	02 (04.34)	09.00 (07.31)
12.	Control of lice or tick				
	Yes	47 (94.00)	38 (76.00)	49 (98.00)	134 (89.33)
	No	03 (06.00)	12 (24.00)	01 (2.00)	16 (10.67)
13.	Feeding of mineral mixture				
	Yes	42 (84.00)	27 (54.00)	44 (88.00)	113 (75.33)
	No	08 (16.00)	23 (46.00)	06 (12.00)	37 (24.67)
a)	If Yes to whom				

	Calf (1-3 Month)	04 (09.52)	05 (18.51)	11 (25.00)	20 (17.70)
	Heifer	17 (40.47)	09 (33.33)	11 (25.00)	37 (32.74)
	Milch buffalo	21 (50.00)	13 (48.14)	22 (50.00)	56 (49.55)
b.)	If mineral mixture given to milch buffalo				
	After calving up to next calving	04 (19.04)	09 (69.23)	13 (59.09)	26 (46.42)
	After calving up to conception	17 (80.95)	04 (30.76)	09 (40.90)	30 (53.57)

Conclusion

From the above study, it is concluded that most of the farmers attained calving and care of the calf and buffalo after calving. Most of the respondents are aware of sick animal and they preferred veterinary officers for the treatment of sick animal. Most of the respondents followed healthcare practices such as vaccination and deworming. They also know about the cleaning of a shed. So in this study considering the adaptation of buffalo health care management practices by farmers could be implemented by advanced technology for the betterment of farmers.

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