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Original Article

Status of Breeding and Health Care Management Practices of Dairy Bovines in the Rural and Urban Areas of South Gujarat of India

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Abstract

A field study was conducted to find out the status of existing breeding and health care management practices followed by dairy animal owners of rural and urban areas of Navsari district of South Gujarat, India. Majority of farmers used scientific method of artificial insemination (AI) for conceiving their dairy animals in rural (82%) and urban (70%) areas. Majority of respondents in rural (98%) and urban (95%) area allowed their female animals for breeding between 12 and 18 h after heat detection for better conception rate. Around 49.5 % of the respondents in the rural and 78 % in the urban areas practiced deworming to their milch animals at regular interval. Overall farmers in urban areas were following more scientific and organized herd management practices compared to farmers of rural areas.

Keywords: Breeding, dairy animal, healthcare, management practices.

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Introduction

Optimum postpartum interval to estrus, proper heat detection, timely breeding of the animals and lesser number of insemination/mating etc affects service period and calving period which in turn affects the overall profitability from the dairying. Further, adoption of recommended health care management practices ensure better health of animals that leads to increases productivity of animals. Understanding the livestock management practices followed by farmers is necessary to identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies (Gupta *et al.*, 2008). Hence, the present investigation was undertaken to study breeding and health care management practices followed by the rural and urban dairy animal owners in the Navsari district of South Gujarat, India.

Materials and Methods

A field study was conducted to outline the information on array of existing breeding and health care management practices followed by dairy animal owners of Navsari district of South Gujarat, India. The Navsari district is situated at 20051'N (latitude) and 72o55'E (longitude) in the South Eastern part of Gujarat state. Navsari district is spread over five talukas (a group of several villages organized for revenue purposes), 366 village councils and 374 villages. Majority of the population live in rural areas (72.6%), who are mostly engaged in agriculture, animal husbandry, floriculture and horticulture, small scale and cottage industry, sugar industry, agro and food processing. Out of the five talukas under Navasari district four of them namely Navsari, Jalalpore, Gandevi and Chikhli were selected for the purpose of this study.

Ten rural villages were selected randomly from each taluka and from each selected village five respondents having more than two dairy animals (cattle/buffalo/both) were chosen with the help of members of village council/village dairy cooperative, which constituted a total of 200 respondents from rural area.

Further, twenty five respondents were selected from urban area of each taluka which constituted a total of 100 respondents. Hence, finally 300 selected respondents were interviewed and the desired information was collected with the help of pre-designed and pre-tested questionnaire. All the responses recorded in the interview schedule were tabulated in the master sheet and comparison was made to find out level adoption of various aspects of breeding and health care management practices among the respondents of the study area on the basis of percentage.

Results and Discussion

Milch animal herd of these respondents comprised of indigenous (Gir, Dangi, nondescript), crossbred cattle and buffalo (Mehsana, Surti, Jaffarabadi, nondescript).

Optimum post-partum interval to estrus, proper heat detection, timely breeding of the animals and lesser number of insemination/mating etc affects service period and calving period which in turn affects the overall profitability from the dairying. The results of various breeding management practices followed by dairy animal owners in the study area are presented in Table 1.

Table 1: Distribution of the dairy farmers according to the breeding practices followed (%).

Breeding management practices	Navsari Rural (200) Percent	Navsari Urban (100) Percent	Overall Navsari (300) Percent
Methods of heat detection			
Symptoms	100 (200)	88 (88)	96 (288)
Teaser	0 (0)	12 (12)	4 (12)
Signs of heat			
Mucus discharge	31.5 (63)	14 (14)	25.6 (77)

Mucus discharge + Bellowing	59 (118)	72 (72)	63.3 (190)
Low milk yield on the day of heat	0 (0)	0 (0)	0 (0)
Mucus discharge + low milk yield on the day of heat	9.5 (19)	14 (14)	11 (33)
Breeding of females			
A.I.	88 (176)	70 (70)	82 (246)
N.S.	7.5 (15)	24 (24)	13 (39)
A.I. + N.S.	4.5 (9)	6 (6)	5 (15)
Insemination or mating of females after heat detection			
Within 12-18 hrs.	98 (196)	95 (95)	97 (291)
After 18 hrs.	2 (4)	5 (5)	3 (9)
Breeding after calving			
2-3 months	75.5 (151)	66 (66)	72.3 (217)
3-5 months	22 (44)	30 (30)	24.6 (74)
After 5 months	2.5 (5)	4 (4)	3 (9)
Pregnancy diagnosis			
No	22.5 (45)	10 (10)	18.3 (55)
Yes	77.5 (155)	90 (90)	81.6 (245)
Own judgment	8.3 (13)	20 (20)	13.4 (33)
Qualified veterinarian	13.54 (21)	72 (72)	37.95 (93)
LI or AI worker	78.6 (121)	8 (8)	52.6 (129)
Calving interval			
Crossbred cow	21.2	66.6	35.2
12 - 13 months	(30)	(30)	(60)
13 - 15 months	60.2 (85)	33.3 (15)	58.8 (100)
More than15 months	7.8 (10)	0 (0)	5.8 (10)
Indigenous cow			
13 - 15 months	80 (32)	76.9 (40)	78.2 (72)
More than15 months	20 (8)	23 (12)	21.7 (20)
Buffalo			
16 - 18 months	87.6 (85)	89.2 (75)	88.3 (160)

More than 18 months	12.3 (12)	10.7 (9)	11.6 (21)

Figures in parentheses indicates number of respondents

Methods of Heat Detection

It was observed that majority of the respondents (96%) relied on behavioural signs for the detection of heat and only 4 % of the respondents used teaser for the detection of heat. Similar findings were reported by Sabapara *et al.*, (2010). All respondents in rural areas and 88 % of the respondents in the urban areas ascertained heat on the basis of behavioural signs exhibited by the animals and only 12 % of respondents in urban areas used teaser animal for the heat detection.

Signs of Heat Detection

It was found that 63.3 % farmers considered mucus discharge and bellowing as the signs of estrus, whereas 25.6 and 11 % farmers observed only mucus discharge, mucus discharge with low milk yield on the day of oestrus as a sign of heat. Mucus discharge and bellowing, only mucus discharge, mucus discharge with low milk yield on the day of oestrus was considered as sign of heat by 59, 31.5 and 9.5 % of the respondents in the rural areas and 72, 14 and 14 percent of the respondents in the urban areas, respectively. Finding of this study was in accordance with the findings of Patel *et al.*, (2005), Chowdhry *et al.*, (2006) and Sabapara *et al.*, (2010).

Breeding of Females

It was observed that 82% of the respondents used scientific method of artificial insemination (A.I.) for conceiving their dairy animals while 13 % respondents used natural service and 5 % of the respondents have opted for both artificial insemination and/or natural service.

About 88 % of respondents in the rural areas and 70 % in the urban areas used scientific method of artificial insemination (A.I.) for conceiving their dairy animals while remaining 7.5 and 4.5 % farmers in the rural areas and 24 and 6 % of the farmers in the urban areas used either natural service and both artificial insemination and/or natural service for conceiving their dairy animals. Similar findings were reported by Patel *et al.*, (2005), Malik *et al.*, (2005) and Chowdhry *et al.*, (2006) in their respective area of study. Further, higher number of dairy farmers from rural area opting A.I. for breeding of their animals than the urban area might be due to the fact that higher proportion of crossbred cattle was present there whereas in urban area buffalo was more and farmers opted A.I. for cattle and natural service for buffaloes.

Insemination or Mating of Females after Heat Detection

About 97 % of respondents allowed their female animals for breeding through A.I. or N.S during 12–18 hrs after heat detection and only 3 % respondents allowed their animals after 18 hrs of heat detection. In the rural area 98 % and in the urban areas 95 % of respondents allowed their female animals for breeding through A.I. or N.S between 12–18 hrs after heat detection while remaining 2 and 5 % of respondents allowed their animals after 18 hrs of heat detection in the rural and the urban areas, respectively. This shows awareness of farmers regarding breeding time as breeding of dairy animals between 12–18 hrs from onset of estrus results in better conception. Similar findings were reported by Hazarika and Anand (1984), Ingole *et al.*, (1987) and Sabapara *et al.*, (2010).

Breeding after Calving

It was observed that 72.3, 24.6 and 3 % respondents rebred their dairy animal after 2-3 months, 3-5 months and after 5 months of calving, respectively. In the rural areas about 66, 30 and 4 % of the respondents while 75.5, 22 and 2.5 % of the respondents in the urban areas rebred their dairy animal after 2-3 months, 3-5 months and after 5 months of calving, respectively.

Similar findings were reported by Gupta *et al.*, (2008). Breeding of dairy animals 2-3 months postpartum by higher proportion of dairy farmers may be due to fairly high level of awareness in respondents as they are under a milk shed of co-operative milk producer union.

Pregnancy Diagnosis

It was found that 81.6 % of the respondents practiced pregnancy diagnosis in their dairy animals whereas 18.3 % of the respondents did not follow this practice.

In the rural areas 78.6 and 13.5 % of respondents used the services of livestock inspectors or A.I. workers and qualified veterinarian for pregnancy diagnosis at about three months after breeding while in the urban areas 8 and 72 % of respondents used the services of livestock inspectors or A.I. workers and qualified veterinarian for pregnancy diagnosis at about three months of pregnancy, respectively. In both rural and urban areas about 8.3 and 20 percent of the respondents ascertained pregnancy in their dairy animals based on their own judgement (non-return to estrus). Similar findings were reported by Shirsat *et al.,* (1994), Jagdale *et al.,* (2000), Gupta *et al.,* (2008) and Yadav *et al.,* (2009).

Calving Interval

It was found that calving interval was 12 to 13 months and 13 to 15 months in 35.29 and 58.8% of crossbred cows whereas majority of indigenous cows (78.2%) had 13 to 15 months of calving interval. In buffaloes 88.3 and 11.6% of animals had 16 to 18 months and more than 18 months calving interval, respectively. Similar findings were reported by Patel *et al.,* (2005) and Chowdhry *et al.,* (2006) and Sabapara (2009).

Healthcare Practices

Vaccination against Foot and Mouth Disease (FMD) and Hemorrhagic Septicemia (HS)

Perusal of data revealed that 90.3 % of the respondents practiced regular vaccination of their animals against Foot and Mouth disease and Haemorrhagic septicaemia, while, only 9.6 % of the respondents did not follow vaccination practice of their animals against these diseases (Table 2). Around 86.5 percent of respondents in the rural area and 98 % in the urban areas followed this practice while remaining respondents of rural (13.5%) and urban (2%) didn't follow this practice.

Table 2: Distribution of the dairy farmers according to the health care practices followed (%).

Health care practices	Navsari Rural (200)	Navsari Urban (100)	Overall Navsari (300)
	Percent	Percent	Percent
Vaccination against Foot and Mouth Disease (FMD) and Hemorrhagic septicemia (HS)			
Yes	86.5	98	90.3
	(173)	(98)	(271)
No	13.5	2	9.6
	(27)	(2)	(29)
Deworming of milch animal			
Regular	49.5	78	59
	(99)	(78)	(177)
Occasional	22.5	7	17.3
	(45)	(7)	(52)
Not practiced	28	15	23.6
	(56)	(15)	(71)
Deworming of calves			
Regular	52.5	80	61.6
	(105)	(80)	(185)
Occasional	27.5	9	21.3
	(55)	(9)	(64)
Not practiced	20	11	17
	(40)	(11)	(51)
Practices to control ecto-parasites			
Followed	63	78	68
	(126)	(78)	(68)
Not followed	37	22	32

	(74)	(22)	(96)
Treatment of Sick animal by			
Livestock inspector	80.5	38	66.3
	(161)	(38)	(199)
Veterinary doctor	19.5	62	33.6
	(39)	(62)	(101)
Grooming practice of cattle			
Yes	84.5	97	88.6
	(169)	(97)	(266)
No	15.5	3	11.3
	(31)	(3)	(34)
Placement of diseased animals			
Separately	12.5	37	20.6
	(25)	(37)	(62)
Together with others	87.5	63	79.3
	(175)	(63)	(238)

Figures in parentheses indicates number of respondents

This is indicative of fairly high level of awareness among the dairy farmers of the Navsari district regarding protecting the animals by vaccination. Findings of this study are in accordance with the findings of Pawar *et al.,* (2006), Kalyankar *et al.,* (2008); Gill and Saini (2008) and Sabapara *et al.,* (2010) where they reported that majority of the farmers were practiced vaccination to their animals.

Deworming of Milch Animal

It was observed that 59 % of the respondents practiced deworming to their milch animals at regular intervals while 17.3 % followed it occasionally and remaining 23.6 % of respondents didn't followed this practice. Around 49.5 % of the of respondents in the rural and 78 % in the urban areas practiced deworming to their milch animals at regular interval whereas 22.5 and 28 % of respondents in the rural and 7 and 15 % in the urban areas practiced occasional and not practiced deworming, respectively. Findings of this study are comparable with the findings of Pawar *et al.,* (2006) and Sabapara *et al.,* (2010). Thus the results indicated high level of awareness in dairy animal owners of this area.

Deworming of Calves

It was observed that in order to control the endo-parasites, about 61.6, 21.3 and 17 % of the respondents dewormed their calves at regular interval, occasionally and not practiced at all, respectively. Around 27.5, 52.5 and 20 % of respondents in the rural and 9, 80 and 11 % in the urban areas dewormed their calves at regular interval, occasionally and not dewormed at all, respectively. Findings of this study are in concurrence with the findings of Sabapara (2009).

Practices to Control Ecto-Parasites

Perusal of data revealed that 68 % of respondents followed various practices (dusting, spraying, injectable drugs) for the control of ecto-parasites, while 32 % of respondents did not follow any practice to control ecto–parasites. However, in the rural areas 63 % and in the urban areas 78 % of the respondents followed various practices for control of ecto-parasites while remaining 37 and 22 % did not follow any practice to control ecto-parasites in the rural and the urban areas, respectively. Similar findings were reported by Malik and Nagpaul (1999), Pawar *et al.,* (2006), Deshmukh *et al.,* (2009). Sinha *et al.,* (2010) reported that in urban 71.1 % of the respondents and rural 77.8 % of the respondents followed various practices for the control of ecto-parasites.

Treatment of Sick Animal

It was observed that 66.3% of the respondents availed services of livestock inspectors for the treatment of their sick dairy animals while remaining 33.6, % of them availed the services of

qualified veterinarians for the treatment of their animals. Majority of respondents (80.5%) in rural area availed the services of livestock inspector while in urban areas majority (62%) of them availed the services of qualified veterinarian for the treatment of their sick animals. It might be due to the non-availability of a qualified veterinarian of a veterinary dispensary which is established at taluka place. Similar findings were reported by Kokate and Tyagi (1991), Malik *et al.*, (2005), Meena *et al.*, (2008) and Sabapara (2009).

Grooming Practice of Cattle

It was observed that majority of the (88.6%) respondents followed grooming practices while remaining 11.3 % of the respondents did not follow this practice. Around 84.5 of respondents in the rural and 97 % in the urban areas followed grooming practices while 15.5 % of the respondents in rural areas and only 3 percent of the respondents in urban areas did not followed this practice. Similar findings were reported by Gill and Saini (2008).

Placement of Diseased Animals

It was observed that about 79.3 % of the respondents of Navsari district kept diseased animals together with healthy ones while remaining 20.6 of the respondents kept these two categories of animals separately. About 87.5 of respondents in the rural and 63 % in the urban areas kept diseased animals together with healthy animals while 12.5 and 37 % of respondents kept them separately in rural and urban areas, respectively. It might be due to low level of knowledge of the knowledge of the dairy farmers about the isolation and segregation process to be adopted in order to control the spread the disease in the herd or may be due to less availability of space so that even if they are knowing the practice but couldn`t do it due to paucity of the space. Similar findings were reported by Meena *et al.*, (2008) and Gill and Saini (2008).

Conclusions

Based on findings of this study it can be concluded that the overall approach of dairy animal owners of urban area was satisfactory in relation to adopting recommended scientific management practices. However, there is still scope of improvements in areas like isolation of sick animals, availability of services of qualified veterinarians, deworming of calves at regular interval, methods of heat detection particularly in rural area.

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