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ADOPTION OF IMPROVED ANIMAL HUSBANDRY PRACTICES BY DAIRY FARMERS OF KHEDA DISTRICT IN GUJARAT

B.S. Divekar[1*], M.M. Trivedi[2] and A.J. Dhami[3]
[1]Assistant Research Scientist, Livestock Research Station, [3]Professor & Head, Dept. of Gynaecology, College of Veterinary Science & AH, AAU, Anand,
[2]Professor & Head, Dept. of Animal Science, B.A. College of Agriculture, AAU, Anand, India
E-mail: bsdivekar@aau.in (**Corresponding Author*)

Abstract: The study was conducted in Kheda district of Gujarat, with a view to find out the adoption of improved animal husbandry practices by the dairy farmers. The data were collected from 100 respondents belonging to Kheda, Matar, Mahudha and Mahemdavad talukas of Kheda district with the help of structured interview schedule containing questionnaire about improved animal husbandry practices, through personal interview technique. Majority of respondents (65.00 %) were having medium adoption, whereas 17.00% had low and 18.00% had high adoption. Higher extent of adoption was observed in reproductive management (81.40 %) followed by healthcare (81.33), feeding (77.00 %) and calf management (62.00 %) practices, while lower extent of adoption was seen in milking (37.60 %) and general (37.33 %) management practices. The lower extent of adoption found in milking and general management practices indicated the need to educate the dairy farmers on these practices. The extent of adoption on calf management was found to be lower as compared to other major dairy management practices. The overall extent of adoption of improved animal husbandry practices was found to be 62.78%.
Keywords: Dairy farmers, Adoption rate, Animal husbandry practices, Kheda, Gujarat.

Introduction

India is predominantly an agrarian country with animal husbandry playing significant role in accelerating the growth of rural economy and thus it is backbone of agricultural based farming sector. Out of the total agricultural GDP of India, livestock sector contributed about 27.25% during 2012-13, of which maximum contribution was from dairy sector (Anonymous, 2014). India ranks first in the world with annual milk production of 155.5 million tones. Most of the milk produced is by animals reared by small and marginal farmers and landless laborers. The per capita availability of milk was an average of 337 g per day in India and 545 g per day in Gujarat (TOI, 2016). For more and more smallholder and landless farmers, livestock are becoming an increasingly important source of income. These activities have contributed to the food basket, nutrition security, and household income of the farmers

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and play a significant role in generating gainful employment in the rural areas. Timely management and healthcare like preventive measures vaccination, de-worming and timely treatment ensure proper health of animals that promotes their productivity (Singh *et al.,* 2007). Understanding the livestock management practices adopted by the farmers is necessary to identify the strength and weakness of the rearing systems and to formulate suitable intervention policies (Gupta *et al*., 2008). Hence, the present study was undertaken to document information regarding management practices adopted by the dairy farmers of the Kheda district of Gujarat.

Materials and Methods

The present investigation was carried out in Kheda district of middle Gujarat. Kheda district was selected purposively because AMUL Dairy, a co-operative milk union, is functioning in this district. Animal husbandry is the very important economic activity of rural area in this district and in recent past Kheda district was bifurcated to form new district, i.e. Anand district. Four talukas selected from Kheda district and five villages from each taluka were randomly selected. Thus, total twenty villages were included in the study. From each village, five respondents/dairy farmers were randomly selected, making a total 100 for the investigation. The data were collected through the personal interview on the extent of adoption of improved dairy husbandry practices by the farmers in the study area. To estimate the extent of adoption of improved animal husbandry practices, various recommended dairy husbandry practices were detailed and divided into six major aspects of husbandry practices, viz., feeding management, milking management, health management, reproductive management, calf management and general management. The scale contained 29 practices, five practices from each of feeding management, reproductive management, milking management and calf management; and six practices from health management and three from general management. Adoption index is the degree to which a respondent actually adopts practices. Against each of the practice, there were two column representing “adopted” and “not adopted”. Each of them was given a score of 1 for scientifically “adopted” practices and 0 for scientifically “not adopted” practices. The minimum and maximum scores respondents could get were 0 and 29.

The adoption index was calculated through following formula:

$$\text{Adoption index} = \frac{\text{Number of practices adopted}}{\text{Total number of practices}} \times 100$$

Results and Discussion

Various organizations like state agricultural universities, state animal husbandry departments and co-operative dairy unions act at different level to transfer the technologies to dairy farmers. However, adoption of improved animal husbandry practices has been found variable. Therefore, present study focused on extent of adoption of animal husbandry practices and factors associated with it in Kheda district. The information collected is depicted in Table 1.

Table 1: Extent of adoption of improved animal husbandry practices by the farmers

Sr. No.	Practices	Adoption Rate (%) (N=100)	Rank
Feeding management			
1	Feeding of chopped fodders to animals	65	V
2	Balanced concentrate on the basis of milk production	75	III
3	Feeding of mineral mixture	85	II
4	Pregnancy allowances	74	IV
5	Use of high yielding variety of fodder	86	I
Milking management			
1	Washing of hands before milking	70	II
2	Washing of udder and teats before milking	75	I
3	Full hand method of milking	23	III
4	Testing for mastitis detection	07	V
5	Post milking dipping of teats	13	IV
Reproductive management			
1	Artificial insemination	95	II
2	Having buffalo/cow served within 90 days after calving	49	V
3	Pregnancy diagnosis done 60-90 days after services	75	IV
4	Treatment of reproductive disease by veterinarian	90	III
5	Proper disposal of placenta	98	I
Healthcare management			
1	Vaccination against infectious diseases (HS/FMD/ Brucellosis)	100	I
2	Prompt reporting of outbreak of a contagious disease to the local veterinarian	68	VI
3	Treatment of sick animals by the veterinary doctor only	96	II
4	Isolation of sick animals from the healthy ones in a	74	IV

	separate house/shed/place		
5	Control measures of ecto-parasites	81	III
6	Deworming of adult animals	69	V
Calf management			
1	Feeding of colostrum to newborn calves within one hour of birth	56	III
2	Use of sterilized scissors/knife for cutting naval cord and application of tincture iodine on the naval cord	45	V
3	Disbudding of calves	52	IV
4	Cleaning of calves after birth	77	II
5	Deworming of calves	80	I
General management			
1	Maintaining farm records	39	II
2	Purchasing animals from reliable source based on scoring/weightage on milk production	73	I
3	Purchasing animals after consulting veterinary officers	00	III

Feeding management practices

It has been observed that majority of the respondents adopted practices like use of high yielding variety of fodder (86.00 %), feeding of mineral mixture (85.00 %), feeding of balanced concentrate mixture on the basis of milk production (75.00 %), pregnancy allowances to advance pregnant animals (74.00 %) and feeding of chaffed fodder to the animals (65.00 %). Khatri *et al.* (2016) reported similar adoption rates for above mentioned practices. Overall adoption rate for feeding management practices was 77.00 % in Kheda district.

Calf management practices

Perusal of data revealed that majority of the respondents had adopted practices like cleaning of calves after birth (77.00 %), deworming of calves (80.00 %) and feeding of colostrums to newborn calves within one hour of birth (56.00 %). Comparable adoption rates for these practices have also been documented by Sunilkumar and Mishra (2011), Rathore *et al.* (2010) and Balusami (2015). Less than 50.00 % respondents from Kheda district adopted practice of using sterilized scissor/knife for cutting the naval cord and application of tincture iodine. Overall adoption rate for calf management practices was 62.00 % in Kheda districts.

Milking management practices

Higher adoption rates were observed for washing of udder & teats (75.00 %) and washing of milkers' hands before milking (70.00 %). Rathore *et al*. (2010) reported cent per cent adoption for both the above-mentioned practices, which confirmed the present findings. However, very low adoption rate was found for full hand milking (23.00 %), post-milking dipping of teats (13.00 %) and testing for mastitis detection (7.00 %). Sunilkumar and Mishra (2011) reported even less adoption (only 2.50 %) for full hand method of milking. Traditionally since generations, farmers had adopted knuckling method of hand milking due to swiftness in milking with lesser strain on muscles. Cost involved in dipping of teats and mastitis testing seems to be the reason for their lower adoption rate. This is in consonance with the study of Kishor *et al.* (2013) in which only 5.00 % respondents were using teat dipping and mastitis testing procedures. Thus overall adoption rate for milking management practices was found low in Kheda district (37.60 %).

Healthcare management practices

All the dairy farmers had adopted vaccination to prevent infectious diseases like HS, FMD and Brucellosis, and majority (96.00 %) of respondent preferred services of veterinary doctors only for treatment of their sick animals. This attributed to good network of veterinary health services of AMUL dairy functional in this district and veterinary dispensaries of state animal husbandry department. Most of the dairy farmers adopted practice for control of ecto-parasites (81.00 %), isolation of sick animals from the healthy ones in a separate house/ shed/place (74.00 %), deworming of adult animals (69.00 %) and prompt reporting of outbreak of a contagious disease to veterinary doctor. Higher adoption rate for vaccination practice was also reported in many earlier studies (Munish Kumar, 2015; Prajapati *et al*., 2015 and Sabapara *et al.,* 2015). Further dairy farmers had adopted practices for control of ecto-parasites (70.50 %), isolation of sick animals (66.00 %) and deworming of adult animals (61.50 %) to a greater extent.

Reproduction management practices

Proper disposal of the placenta, artificial insemination and treatment of reproductive diseases by veterinarian were the practices adopted by 98.00, 95.00 and 90.00 % of dairy farmers, respectively. Rao *et al.* (2014) reported similar adoption for artificial insemination. Similarly, the finding of Munish Kumar (2015) regarding proper disposal of the placenta was in agreement with the present study. Nearly 75.00 % of dairy farmers went for pregnancy diagnosis of their animals between 60 to 90 days of service.

General management practices

Nearly 40.00 % of dairy farmers maintained farm records. Higher adoption rate (73.00 %) was for purchase of animals from reliable sources. However, none of them got the animals checked by veterinarian prior to purchase. Present finding is in agreement with Kumawat *et al*. (2016), who also reported that only 42.86 % farmer's maintained milk production records in Bikaner.

Table 2: Distribution of the farmers according to the adoption of improved animal husbandry practices

Sr. No.	Practices	Kheda (N= 100)	Rank
1	Feeding management	77.00	III
2	Milking management	37.60	IV
3	Reproductive management	81.40	I
4	Healthcare management	81.33	II
5	Calf management	62.00	IV
6	General management	37.33	VI
	Overall	62.78	--

The overall extent of adoption of the respondents in different aspects of improved animal husbandry practices in the study area is depicted in Table 2. It indicates the extent of adoption of the recommended practices in six major aspects of dairy husbandry, viz., feeding, milking, reproduction, healthcare, calf management and general management were found to be 77.00, 37.60, 81.40, 81.33, 62.00 and 37.33 %, respectively. Higher extent of adoption was observed in reproductive, healthcare and feeding management practices, while lower extent of adoption was in milking and general management practices. It indicated the need to educate the dairy farmers on different aspects of dairy husbandry practices in milking and general practices of the dairy animals in particular area. The extent of adoption on calf management was found to be lower as compared to other major dairy management practices. Prajapati (2011) reported comparable adoption rate for calf management practices. Similarly Rizwan *et al.* (2015) found parallel adoption rate to that of present study in breeding (reproduction) management practices. Overall 62.78 % of the respondents adopted improved animal husbandry practices.

Perusal of the data presented in Table - 3 clearly revealed that majority of the respondents in Kheda (65.00 %) district had medium level of adoption. The present findings are in

agreement with the earlier studies (Hamdani, 2008; Rizwan *et al.,* 2015). Average adoption index was 65.10 ± 1.89. The data implied that still farmers of Kheda district are not adopting 35.00 % of improved animal husbandry practices.

Table 3: Levels of the adoption index of improved animal husbandry (AH) practices by the dairy farmers

Sr. No.	Adoption index of improved AH practices	**N**	**Percentage**
1	Low (< 48.53)	17	17
2	Medium(48.54 to 81.67)	65	65
3	High (>81.67)	18	18
	TOTAL	100	100

Mean=65.10, S.D. =18.88

Conclusions

The study revealed that the overall extent of adoption of improved animal husbandry practices in the study area was found to be only about 62.78%. Extent of adoption of the recommended practices of dairy husbandry, viz, feeding, milking, reproductive, healthcare, calf management and general management were found to be 77.00, 37.60, 81.40, 81.33, 62.00 and 37.33 %, respectively. Higher extent of adoption was observed in reproductive, healthcare and feeding management practices, while lower extent of adoption was in milking and general management practices indicating the need to educate the dairy farmers on these practices. The extent of adoption on calf management was found to be lower as compared to other major dairy management practices.

References

[1] Anonymous (2014). Annual Report 2013-14, Department of Animal Husbandry, Dairying and Fisheries, Govt. of India. New Delhi.

[2] Balusami, C. (2015). Study on managemental practices and mortality pattern of buffalo calves in Tamil Nadu. *Int. J. Food, Agri. and Vet. Sci.,* **5**(1): 66-70.

[3] Gupta, D.C., Suresh, A and Mann S. (2008). Management practices and productivity status of cattle and buffaloes in Rajasthan. Indian J. Anim. Sci., **78** (7): 769-774

[4] Hamdani, S.A. (2008). Adoption pattern of improved dairy farming practices in Jammu district. M.V.Sc. *Thesis;* Sher-e-Kashmir University of AST of Jammu, J&K, India.

[5] Khatri, S., Rajpura, R. and Trivedi, M. (2016). Feeding practices of dairy animals in "Deesa" tahsil of Banaskantha district Gujarat. *In Proc. International Livestock conference & Expo on "Innovative Designs, Implements for Global Environment & Entrepreneurial Needs*

Optimizing Utilitarian Sources, INDIGENOUS" and 23rd Annual Convention of Indian Society of Animal Production & Management", Hyderabad, India, 28-31, January 2016

[6] Kishore, K., Mahender, M. and Harikrishna (2013). A study on buffalo management practices in Khammam district of Andhra Pradesh. *Buffalo Bull.,* **32**(2): 97-107.

[7] Kumawat, S., Goswami, S.C. and Chaudhary, V.K. (2016). Traditional milking and shelter management practices followed by the Livestock farmers in Bikaner district of Rajasthan**.** *In Proc.International Livestock conference & Expo on "Innovative Designs, Implements for Global Environment & entrepreneurial Needs Optimizing Utilitarian Sources, INDIGENOUS" and 23rd Annual Convention of Indian Society of Animal Production & Management*", Hyderabad, India, 28-31, January 2016.

[8] Munish Kumar (2015). Buffalo healthcare management practices followed by the farmers of Ferozpur district of Punjab, India. *Indian J. Anim. Res*., **49** (3): 413-415.

[9] Prajapati, J.V. (2011). Adoption of no-cost and low-cost technologies of animal husbandry by tribal dairy farmwomen. *M.V.Sc. thesis*, Anand Agricultural University, Anand, India.

[10] Prajapati, V.S., Singh, R.R., Kharadi, V.B. and Chaudhary, S.S. (2015). Status of breeding and health care management practices of dairy bovines in the rural and urban areas of South Gujarat of India. *J. Anim. Sci. Adv*., **5**(11): 1514-1521.

[11] Rao, T.K.S., Patel, N.B., Singh, R.R. and Sabapara, G.P. (2014). Breeding, health care and milking management of dairy animals in tribal area of high rain coastal India. *In Proc. National Seminar on "Revisiting Management Policies and Practices for Indigenous Livestock & Poultry Breeds as Eco-Friendly Economic Producers"* Vanbandhu College of Veterinary Science & AH, NAU, Navsari, Gujarat, India, 9-11 October, 2014.

[12] Rathore, R.S., Singh, R., Kachwaha, R.N. and Ravinder Kumar (2010). Existing management practices followed by the cattle keepers in Churu district of Rajasthan. *Indian J. Ani. Sci*., **80**(8): 798-805.

[13] Rizwan, J., Shafkat, A., Mohd Younas, B., Pranav Kumar and Bhadwal, M. (2015). Adoption of improved animal husbandry practices by Gujjars of Jammu and Kashmir. *Indian J. Dairy Sci*., **68**(3): 287-292.

[14] Sabapara, G.P., Fulsoundar, A.B. and Kharadi, V.B. (2015). Milking and health care management practices followed by dairy animal owners in rural areas of Surat district. *Sch. J. Agric. Vet. Sci.,* **2**(2A): 112-117.

[15] Singh, M., Chouhan, C.A.S. and Garg, M.K. (2007). Studies on housing and healthcare management practices followed by the dairy owners'. *Indian J. Anim. Res.,* **41**(2): 79-86.

[16] Sunilkumar and Mishra, B.K. (2011). Existing calf rearing and milking management practices followed by dairy farmers in Uttarakhand. *J. Hill Agri.,* **2**(1): 79-84.

[17] TOI (2016).Times of India, Report, 23.07.2016.