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Research Article

DEMOGRAPHIC PROFILE AND MANAGEMENT PRACTICES OF DAIRY FARMERS IN NADIA DISTRICT OF WEST BENGAL

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ABSTRACT

The present research work was done in Nadia district in the State of West Bengal during January, 2011 to December, 2013. Livestock rearing provided employment and supplementary income to the vast majority of rural households, the majority of whom were landless and marginal farmers. Keeping in view of its association “a front line demonstration on feeding and housing management systems of dairy cattle” had been initiated by Nadia Krishi Vigyan Kendra, Bidhan Chandra Krishi Viswavidyalaya, Gayeshpur, Nadia with two specific objectives viz., (i) to study the demographic profile of the dairy farmers and (ii) to study the housing and feeding systems followed by the farmers for keeping dairy under village conditions. The data had been collected through face-to-face interview and by direct observation method. Analysis of the data revealed that the dairy farming was much popular amongst the SC (40.4%), followed by ST (25.2%) and OBC (22%), whereas only 12.4% of dairy farmers belonged to General caste. Women members of farmers’ family played a major role (61.2%) in the rearing of dairy. However, the male members of the family were also involved (38.8%) in rearing of the animals. From demographic profile, housing and feeding systems study, it could be concluded that dairy farming was still an occupation of poor community.

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INTRODUCTION

India is predominantly an agricultural country with about 70% of its population dependent on income from agriculture. Animal husbandry is an adjunct to crop agriculture and cattle is kept for milk production, motive power for various farm operations, village transport, irrigation, and production of manure. The animals are generally maintained on agricultural byproducts and crop residues. Animal rearing is done mostly by small and marginal farmers and landless labourers. Livestock rearing provides employment and supplementary income to the vast majority of rural households, the majority of whom are landless and marginal farmers. Keeping in view of its association “a front line demonstration on feeding and housing management systems of dairy cattle” is being initiated by Nadia Krishi Vigyan Kendra, Bidhan Chandra Krishi Viswavidyalaya,

Gayeshpur, Nadia with two specific objectives viz., (i) to study the demographic profile of the dairy farmers and (ii) to study the housing and feeding systems followed by the farmers for keeping dairy under village conditions.

MATERIALS AND METHODS

The present research work was done in Nadia district in the state of West Bengal during January, 2011 to December, 2013. The district Nadia is selected purposively. It lies between 22°52'30" and 24°05'40" parallels of North latitudes and 22°08'10" and 88°48'15" meridians of East Longitudes. Five villages of each of the two blocks have been considered for this study, viz., Mollabelia, Panpur, Kurumbelia, Nischintapur and Madhpur villages of Haringhata block and Gopalpur, Betnakutirpara, Muchiphulbari, Itabaria and Dhakuria villages of Hanskhali block. From each of the selected villages, 25 respondents have been selected randomly. In this way 250 respondents have been selected from 10 villages of the two blocks which have been constituted the sample of the present study.

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The climate of Nadia district is characterized by an oppressive hot summer, high humidity all the year round and well distributed rainfall (annual average rainfall 1419 mm). Average daily maximum temperature is 31.8°C, and minimum temperature is 21.3°C during the period of study. Humidity is high throughout the year, average being 61.5% (minimum) to 92.9% (maximum). The study area is located in hot-humid zone having three distinct seasons, viz., summer (March to June), monsoon (July to October) and winter (November to February). A pilot study has been carried out, and accordingly a structured interview schedule has been constructed. The data has been collected through face-to-face interview and by direct observation method. Data pertaining to farmers' demographic parameters, viz. caste, sex, education, occupation and annual income were recorded. Information on housing and feeding systems of dairy farming like housing duration, housing location, type of houses, type of floor, roofing pattern, feeding and grazing pattern were recorded. Data were analyzed following the standard statistical methods (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION

Demographic profile of the dairy farmers

The demographic profile of the dairy farmers in terms of caste, sex, education and income is presented in Table 1.

Table 1. Demographic profile of dairy farmers in selected villages of Nadia district of West Bengal

Variables	Category	Total number	Percentage (%)
Caste	General	31	12.4
	OBC	55	22.0
	Scheduled Caste	101	40.4
	Scheduled Tribe	63	25.2
Sex of farmers	Men	97	38.8
	Women	153	61.2
Education of farmers	Illiterate male	39	15.6
	Primary standard male	41	16.4
	Secondary standard male	17	6.8
	Illiterate female	67	26.8
	Primary standard female	69	27.6
	Secondary standard female	17	6.8
Occupation of farmers	Landless, small and marginal farmers	123	49.2
	Agricultural labourers	97	38.8
	Small business holders	21	8.4
	Service men	9	3.6
Annual income	Low income group (within Rs. 15000.00)	141	56.4
	Medium income group (Rs. 15000.00-25000.00)	81	32.4
	High income group (Above Rs. 25000.00)	28	11.2

Caste

Analysis of the data revealed that the dairy farming is much popular amongst the SC (40.4%), followed by ST (25.2%) and OBC (22%), whereas only 12.4% of dairy farmers belong to General Caste (Table 1). Parashari and Khan (2015) observed that OBCs have highest share of 41.33% followed by high castes with a proportion of 32.66% and SCs have least proportion of 27.33% in total people involved in dairy farming. In the OBCs 75.81% people involved in rearing while 9.68% people engaged in marketing and 8.06% people engaged in distribution and collection has least share of 6.45% to the total OBCs dairy farmers in Moradabad district of Uttar Pradesh. Sabapara *et al.* (2014) observed that the majority of the respondents (40%) were from OBC category followed by ST (39.33%), General category (13.67%) and SC (7%) in dairy husbandry practices. Gangasagare and Karanjkar (2009) reported that about 59% of the dairy farmers belong to General

category, 25% were OBCs and only 8% each of SC and ST in the milk pocket areas of eight districts of Marathwada region of Maharashtra.

Sex

Women members of farmers' family played a major role (61.2%) in the rearing of dairy. However, the male members of the family were also involved (38.8%) in rearing of the animals (Table 1.) Almost entire activities, so far as washing and cleaning of dairy sheds and feeding of dairy, were being performed by the women. Male members were used to take decision in selling or purchasing of cattle. Breeding of the dairy cows was mostly arranged by male members, while parturition was attended by the female members.

Rathod *et al.* (2011) reported that the farm women actively involved in cleaning of animal sheds (89.16%), feeding the animals (87%) and disposal of cow dung (86.66%). The farm women participation was least in farm record maintenance (52.5%) and getting loans or credits from the banks (49.16%). Singh and Srivastava (2012) reported that most of the decisions about breeding, feeding as management of cattle were taken jointly. In case of breeding decision related to no. of cattle (66.67%) were taken jointly whereas decisions related to breed of cattle (77.78%) and AI of cattle (69.44%) were taken by male members.

With regard to feeding, type and quantity of feed (50%) and storage of fodder (83.33%) were decided jointly whereas quantity of concentrate (55.55%) was decided by female members. Sarma and Payeng (2012) reported that farm women were involved in the decision making process in most of the activities viz., feeding, breeding, management, health care and processing of milk in dairy rearing in Sonitpur district of Assam either independently or jointly with the spouse.

Educational status

Results indicated that 42.4% dairy farmers under study were illiterate; out of which 15.6% were male and 26.8% were female (Table 1). Rathod *et al.* (2011) observed that the majority of the women were middle aged (55%) in joint families (65%) with 53.33% being literates. Rabbani *et al.* (2004) reported that about 49% rural people were illiterate

while 51% of them were literate in dairy enterprise in relation to their socio-economic characteristics in the selected village of Bangladesh. Singh and Datta (2013) observed that 54.28% heads of dairy households were literates, but only 1.83% heads of households had obtained formal training in agriculture. About 63% of the dairy farmers admitted that they liked agriculture as a profession. Sabapara *et al.* (2014) observed that the percent level of illiterate, upto primary, secondary and above secondary upto college level were 37.00, 29.67, 28.33 and 5.00 respectively in dairy husbandry practices in Surat district of Gujarat.

Occupation

Dairy farming is much popular amongst the landless, small marginal farmers (49.2%), followed by the agricultural labourers (38.8%), whereas, only 8.4% of small business holders and 3.6% of service men are involved in dairy husbandry (Table 1). Rathod *et al.* (2011) observed that the most of the respondent families were marginal farmers (33.33%) with low annual family income (60.83%) having agriculture (52.5%) as the major occupation.

Income of farmers' family

Annual income of most of the dairy farmers (56.4%) was within Rs. 15000, and 32.4% farmers earned medium annual income (Rs. 15000-25000), and only 11.2% farmers earned more than Rs. 25000 per year (Table 1). Islam *et al.* (2008) observed that the crossbred cows were more economical and gave higher yield than the indigenous cows, inclusion of a few crossbred cows can increase the income of a dairy entrepreneur and provide gainful and round the year employment of its family labour. Singh and Datta (2013) observed that majority of dairy farmers (70.12%) indicated that their principal source of income was only agriculture, with the average land holding size being 1.47 ha. The household size of half the dairy farmers was 1-5. The head of the household played an important role in the decision-making processes.

Dairy housing and feeding system

Dairy housing and feeding systems followed by the dairy farmers in the selected villages of Nadia district is presented in Table 2.

Table 2. Dairy housing and feeding systems followed by the dairy farmers in selected villages of Nadia district of West Bengal

Variables	Category	Total number of families rearing dairy	Percentage (%)
Housing duration	Night only	157	62.8
	Both day and night	59	23.6
	No housing	34	13.6
Housing location	With other animal	132	48.0
	With human	49	19.6
	Separately	69	27.6
Type of houses	<i>Kachcha</i>	167	66.8
	<i>Pucca</i>	26	10.4
	Partially <i>pucca</i>	57	22.8
Type of floor	Earthen floor	161	64.4
	Brick finished	57	22.8
	Cement floor	32	12.8
Roofing pattern	Covered	39	15.6
	Half covered	89	35.6
	Open	122	48.8
Feeding pattern	Grazing		
	Grazing from morning to noon	179	71.6
	Grazing separately in morning and afternoon	71	28.4
	Tethering		
	Adoption of tethering grazing	97	38.8
	Grazing without tethering	153	61.2
	Source of drinking water		
Grazing pattern	Pond water	131	52.4
	Well water	69	27.6
	Tube well water	50	20.0
	Individual	171	68.4
	Group or community	49	19.6
Others	30	12.0	

Parashari and Khan (2015) observed that the marginal farmers accounted for 14.67% whereas small farmers accounted for 20% to the total dairy farmers. The semi-medium dairy farmers have the highest participation *i.e.* 34.67% whereas the share of medium farmers is 22% in Moradabad district of Uttar Pradesh. Sabapara *et al.* (2014) observed that 36.00, 20.67, 10.33 and 33.00% of the respondents were falling under marginal, small, large farmer and landless, respectively in dairy husbandry practices in Surat district of Gujarat. Gangasagare and Karanjkar (2009) reported that the landless dairymen equally contributed with dairymen having (large) land; 13 landless dairymen comparable lactation yield with 8 dairymen holding 10 ha land in the milk pocket areas of eight districts of Marathwada region of Maharashtra.

Dairy housing system

Survey indicated that majority of farmers kept their dairy confined during night only (62.8%), some farmers kept their dairy confined during both day and night (23.6%) and no housing was provided to dairy in 13.6% cases. Farmers housed their dairy with other animals (48%) and with themselves in their dwelling places (19.6%); 27.6% farmers kept their dairy separately. Results indicated that 66.8% farmers housed their dairy in *kachcha* house, 10.4% in *pucca* and 22.8% in partially *pucca* house. Floor was found to be earthen floor (64.4%), brick finished (22.8%) and cemented floor (12.8%). Roofing pattern was found to be covered (15.6%), half covered (35.6%) and open (48.8%) (Table 2.) Sabapara *et al.* (2010) reported that close type of animal house was provided by 98% of the farmers.

Kaccha type of floor was observed in 87% of the houses. Earthen plates with thatched roof were present in 94% of the animal sheds and wooden poles were used to support roof in 85.5% of the houses. *Pucca* drainage facility of urine was found in only 6% of animal shed. Rathore and Kachwaha (2010) reported that all the cattle keepers had *kutchha* floor in shed and 58.50% kept their cattle near dwelling house. Thatched (70.50%) and single slope roof (45.50%) was also observed. Kamal *et al.* (2014) observed that during the summer season both thatch and agro-net shade material helped in better relieving the summer stress.

Dairy feeding system

From the survey data it was found that 71.6% farmers allowed their dairy for grazing from morning to noon, and 28.4% farmers allow animals to graze separately in morning and afternoon with a rest at noon. During critical period, very few farmers used mainly mineral mixture and concentrate feed along with fodder. About 38.8% of dairy farmers used to rear dairy by tethering where facilities for grazing are limited. This simple device has made possible of keeping dairy out of doors and at the same time on a limited area. Pond water as the source of water for dairy was found to be very common (52.4%) and in only 27.6% cases farmers used well water and 20% tube well water. Farmers reared the animals by individually (68.4%) as well as by group or community (19.6%) (Table 2). Sabapara *et al.* (2010) reported that paddy straw was used as dry fodder by 98% of farmers. All the farmers provided green natural border grasses of cultivated plots and grasses from fellow land. In addition to this 75% of farmers grew fodder crops. None of the farmers practiced silage making. Concentrates was fed to the animals after milking by 91% of the farmers. Mineral supplements were provided by only 30.5% of farmers to their milch animals. Rathore and Kachwaha (2010) reported that majority of the farmers followed group feeding (68.75%) and grazed in fallow/harvested field (65.25%). Home prepared concentrate mixture (60.50%) with soaking (78.50%) was prevalent in the area. Only 17.25 and 32.25% of the respondents incorporated mineral mixture and common salt in concentrate mixture, respectively.

Conclusion

From demographic profile, housing and feeding systems study, it can be concluded that dairy farming is still an occupation of poor community. For any dairy improvement programme, female members should be engaged in training programme. Training should be offered in such a way that illiterate people can follow this. Awareness programme should be strengthened in light of providing housing to the dairy as 13.6% family provided no housing for their dairy, which is essential for scientific dairy production management; dairy rearing away from human dwelling as they may transmit zoonotic diseases; and improving the condition of the dairy houses including floor and roof.

Due to warm and humid noon, it is better to reschedule the grazing pattern morning and afternoon. As a sizeable number of farmers provide pond water for drinking purpose, the quality of pond water should be taken care of to reduce the water borne diseases.

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