

Existing housing and breeding management practices adopted by dairy farmers in Tarai region of Uttarakhand, India

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ABSTRACT

A field survey was conducted to collect the information on existing housing and breeding management practices followed by the dairy animal owners in Tarai region of Uttarakhand. The results revealed that 91.25 per cent of farmers adopted group housing system for their animals. *Kuccha* type of floor and asbestos roof was observed in 79.38 per cent and 26.25 per cent of animal houses respectively. Poor drainage facility was observed in 41.50 per cent of animal sheds. About, 89.38 per cent farmers provided their animals with provision of shade from trees. Around, 87.50 per cent farmers considered body weight as the main criteria to consider first time mating and 83.00 per cent farmers relied on mucus discharge along with bellowing as most important signs of heat detection. 98.12 per cent of farmers preferred artificial insemination over natural service as method of mating in their animals, but only 9.00 per cent farmers relied upon the views given by experienced veterinarians. About, 88.13 per cent of farmers practiced mating through A.I or natural service between 8 to 12 hours after heat detection. Pregnancy diagnosis was preferred by only few of farmers 6.00 per cent however, it was performed by qualified veterinarian in 2.50 per cent cases. All of the farmers adopted the practice of maintenance of breeding records of their animals.

Key words: Breeding, Dairy animals, Dairy farmers, Housing, Management practices.

INTRODUCTION

Housing along with breeding management plays a very significant role in exploiting real potential of dairy animals (Sinha *et al.*, 2009). Proper housing reduces the energy wastage in maintaining thermo-neutral zone as well as reduces the incidence of diseases (Sabapara *et al.*, 2010a). Understanding of livestock management practices followed by the farmers is crucial to identify the strengths and weakness of the animal rearing system and to devise appropriate intervention policies (Sabapara *et al.*, 2010b). Proper heat detection, timely insemination and pregnancy diagnosis in the dairy animals affects the overall profitability from the dairying (Prajapati *et al.*, 2015). The state of Uttarakhand is located in Western Himalayan region and is one of the geographically smallest state of the country. The livestock sector in the state provides livelihood to majority of the people (Pundir *et al.*, 2014). Although, U.S. Nagar district in Tarai region contributes to highest livestock production in the state of Uttarakhand but still there is an ample gap between the livestock population and their corresponding production level because, the farmer's adopt different types of husbandry practices based on their knowledge. Hence, the present study was purposely carried out with the aim to gather information regarding the existing

housing and breeding management practices followed by the dairy husbandry owners.

MATERIALS AND METHODS

Information pertaining to farmer's adoption pattern regarding housing and breeding practices for dairy animals was collected from around 30 villages under five A.I centers namely Pantnagar, Gadarpur, Bajpur, Kiccha and Sitarganj using a questionnaire comprising of important questions from housing and breeding practices of scientific dairy husbandry from 200 dairy animal owners by regular field visits. Udham Singh Nagar district comprising of 7 blocks and 7 tehsils was selected as the locale for the present study. While selecting respondents due care was taken to ensure that they were evenly distributed in the village and truly represented animal management practices prevailing in the area.

RESULTS AND DISCUSSION

Existing housing management practices: The results of existing housing practices are presented in Table 1. Most of the farmers 91.00 per cent followed group housing system where the animals were not housed individually and their feeding, resting, milking etc. occurred in common premises. Remaining, 9.00 per cent of the farmers followed individual

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Table 1: Housing management practices adopted by dairy farmers

Particulars	Farmers	
	Frequency	Per centage
Type of animal housing followed		
(a) Individual	18	9.00
(b) Group	182	91.00
Type of animal house		
(a) <i>Kuccha</i>	159	79.50
(b) <i>Pucca</i>	41	20.50
Type of floor in animal sheds		
(a) <i>Kuccha</i>	83	41.50
(b) <i>Pucca</i> (cement/concrete)	48	24.00
(c) <i>Pucca</i> (bricks)	71	35.50
Shape of roof		
(a) Flat/Horizontal	70	35.00
(b) Slopy	95	47.50
(c) Gabled	35	17.50
Roof material used		
(a) Thatched	51	25.50
(b) Cemented	46	23.00
(c) Asbestos sheets	52	26.00
(d) G.I sheets	51	25.50
Ventilation observed		
(a) Good	44	22.00
(b) Satisfactory	124	62.00
(c) Poor	32	16.00
Drainage observed		
(a) Good	45	22.50
(b) Satisfactory	18	9.00
(c) Fair	54	27.00
(d) Poor	83	41.50
Shed cleaning per day		
(a) Once	54	27.00
(b) Twice	84	42.00
(c) Thrice	8	4.00
(d) Whenever required	54	27.00
Provision of shade from trees		
(a) Yes	179	89.50
(b) No	21	10.50

housing of animals which may be due to their good economic condition or awareness amongst farmers through different sources of media etc. Most of the farmers, 79.50 per cent had *kuccha* type of animal housing while, remaining 20.50 per cent farmers had *pucca* type of houses for their animal. The results were in agreement with the findings of Kalyankar *et al.*, (2008); Sabapara *et al.*, (2010a) and Sabapara *et al.*, (2015). As far as the type of floor in animal sheds is concerned 41.50 per cent farmers had *kuccha* flooring followed by *pucca* 35.50 per cent of bricks and 24.00 per cent of cement/concrete) flooring. This may be due to high cost of cement/concrete flooring and due to the fact that cement flooring are generally slippery thus requiring regular maintenance also they have comparatively higher chances of occurrence of hoof disorders. The findings were in accordance with (Bhardwaj *et al.*, 2003; Deoras *et al.*,

2004; Meena *et al.*, 2008; Sabapara *et al.*, 2010a and Kumar *et al.*, 2011).

Maximum of respondents, 26.00 per cent under the present study had asbestos sheet, followed equally by thatched roof, 25.50 per cent and galvanised iron (G.I) sheets, 25.50 per cent and remaining, 23.00 per cent had cemented roofs respectively. The maximum animal houses had asbestos sheets, which might be due to its easy availability, cheap cost and comparatively lower maintenance. Similar results were reported by (Singh *et al.*, 2007; Varaprasad *et al.*, 2013; Singh *et al.*, 2014 and Sabapara *et al.*, 2015) in their respective survey regions.

Slope roofs were mostly preferred by the farmers, which may specific to the region similar results were reported by Kour, (2013). Majority of farmers, 62.00 per cent had satisfactory ventilation arrangements in their animal shed followed by good ventilation, 22.00 per cent and poor ventilation, 16.00 per cent. Present findings were in agreement with the findings of (Sharma and Singh, 2003; Pawaret *et al.*, 2006; Kumar, 2011 and Sabapara *et al.*, 2015). On the contrary Ahiwar *et al.*, (2009) reported that 70.33 per cent of respondents provided inadequate ventilation in animal houses of rural areas of Indore district of Madhya Pradesh which, might be due to the lack of awareness of dairy farmers.

Around 41.50 per cent farmers were having fair drainage, however, 22.50 and 9.00 per cent farmers were having good and satisfactory drainage facilities respectively in the study area. The present findings were in agreement with the findings of Sabapara *et al.*, (2015) who reported that 36.33 per cent of animal sheds had provision of *pucca* drainage facility of urine while remaining 63.67 per cent had no drainage facility in the survey area and Singh *et al.*, (2015) who reported 59.45 per cent of animal shed had poor drainage system. The present results were in contrast with the findings of Sharma, (2011), who reported that proper drainage was recorded in 31.00 per cent of animal houses in their study.

42.00 per cent farmers followed the practice of cleaning animal shed twice a day followed by 27.00 per cent of farmers who followed cleaning of sheds once a day or cleaning of sheds when required and remaining farmers, 4.00 per cent followed cleaning of shed thrice a day. The results are in line with Kour, (2013) and Singh *et al.*, (2015). Most of the farmers, 89.50 per cent had provision of shade from trees for their animals, while the rest, 10.50 per cent did not provide their animals a provision of shade from trees. This shows that the farmers are aware about protecting their animals from heat stress, by adopting the practice of tying their animals under shady trees. The results are in close agreement with the findings of Bhardwaj *et al.*, (2003) and Sabapara *et al.*, (2010a).

Existing breeding practices of dairy animals: The results of existing breeding practices of dairy animals are presented in Table 2. Majority, 87.50 per cent of the farmers considered body weight as the main criteria to consider first time mating. This may be due to proper orientation of farmers regarding the importance of body weight than the age of animal, in various *kisan-gosthis* and training camps etc. It was observed that, 83.00 per cent of farmers considered mucus discharge and bellowing as the most important and reliable behavioural signs of heat detection. Mucus discharge, frequent urination and mounting were considered as sole symptoms of heat by rest of the farmers. Similar findings were reported by Chowdhry *et al.*, (2006); Sabapara *et al.*, 2010b; Prajapati *et al.*, (2015) in Navsari district of Gujarat. Most of the farmers, 92.50 per cent detected heat in their herd by themselves, whereas the remaining, 7.50 per cent farmers hired labours for detection of heat symptoms in their herd. This may be due to more trust of the farmers on themselves in comparison to any hired labour or may be due to irregularity in the availability of labours for animal care and high labour charges etc. in the study area of Uttarakhand. It was found that most of the farmers, 65.50 per cent preferred estrus synchronization in their herd only when required. Remaining, 7.00 per cent farmers revealed that they always used estrus synchronization in their herd. This may be due to lack of knowledge of farmers about the advantages of estrus synchronization and at the same time due to inadequate facilities for successful accomplishment of synchronized estrus in the herd. Majority of farmers, 98.00 per cent preferred artificial insemination over natural service as method of mating their animals. This may be due to knowledge of farmers regarding the advantages of artificial insemination over natural insemination, given by local veterinarians and extension agents during various trainings, *kisan-gosthis* and exhibitions etc. The results are in close agreement with Sabapara *et al.* (2010b) and Kumar *et al.* (2014). However the findings were contrary to the findings of Mathur and Panwar, (2001), who found that majority of the farmers bred their animals by natural means in arid western plain zone of Rajasthan, (Singh *et al.*, 2004) who observed that natural breeding method was preferred by farmers and cattle, 83.90 per cent and buffalo. All, 100.00 per cent owners adopted natural breeding in Tarikhet block of Kumaon hills of Uttarakhand, Meena *et al.*, (2008) who reported that the breeding of animals is mainly through natural service with available bulls and the artificial insemination service was at primitive level, 21.00 per cent in Nainital district of Uttarakhand. Meena *et al.*, (2012) reported that artificial insemination in dairy animals was adopted by only 18.75 per cent dairy farmers of Udaipur district of Rajasthan. About 91.00 per cent-farmers performed Artificial Insemination in their animals by para-vet and rest 9.00 per cent was performed by a qualified and experienced veterinarian or an experienced A.I worker for better results,

Table 2: Breeding management practices adopted by dairy farmers

Particulars	Farmers	
	Frequency	Per centage
Criteria considered for first time mating		
(a) Age	11	5.50
(b) Body weight	175	87.50
(c) Both	14	7.00
Symptoms of heat detection		
(a) Mucus discharge	18	9.00
(b) Mucus discharge + bellowing	166	83.00
(c) Frequent urination + mounting	16	8.00
Own judgments		
(a) Self	185	92.50
(b) Hired labour	15	7.50
Estrous synchronization in the herd		
(a) Always	14	7.00
(b) When required	131	65.50
(c) Never	55	27.50
Method of breeding adopted		
(a) Natural service	4	2.00
(b) Artificial Insemination	196	98.00
Artificial Insemination is done by		
(a) Qualified veterinarian	18	9.00
(b) Para-vets	182	91.00
Correct time of insemination after heat		
(a) 1-4 hrs	3	1.50
(b) 4-8 hrs	15	7.50
(c) 8-12 hrs	176	88.00
(d) 12-16 hrs	6	3.00
Pregnancy diagnosis is performed		
(a) Always	12	6.00
(b) When required	188	94.00
Pregnancy diagnosis is done by		
(a) Qualified veterinarian	5	2.50
(b) Para vets	195	97.50
Housing of animal before breeding		
(a) Individual	0	0.00
(b) Group	200	100.00
Housing of animal after breeding		
(a) Individual	3	1.50
(b) Group	197	98.50
Maintenance of breeding records		
(a) Yes	200	100.00
(b) No	0	0.00

this may be due to unawareness of farmers regarding this practice. Major proportion of the farmers, 88.00 per cent preferred mating in their animals 8 to 12 hours after showing of heat symptoms by the animals. On the contrary, (Sabapara *et al.*, 2010b) documented that 98.00 per cent respondents allowed their female animals for breeding through AI or natural service between 12 and 18 hours after heat detection. A large chunk, 94.00 per cent farmers performed pregnancy diagnosis in their dairy animals, whenever required, while the remaining, 6.00 per cent of the farmers performed the practice, only when it was required. Similar findings were reported by Sabapara *et al.*, (2010b) and Prajapati *et al.*,

(2015). Similarly Rathore *et al.*, (2010), Meena *et al.*, (2012) and Tanwar *et al.*, (2012) found that majority of farmers did not adapt the practice, which might be due to the low level of awareness of dairy owners in the survey areas. Among pregnancy diagnosis practice adopted, 97.50 per cent of pregnancy diagnosis was done by para-vets and only 2.50 per cent preferred-qualified veterinarian which might be due to lack of veterinary services of a qualified veterinarian in the survey area.

All of the farmers preferred group housing for their animals of various age group over individual housing before breeding, while majority of the farmers, 98.50 per cent preferred group housing over individual housing after breeding in their animals, while the remaining, 1.50 per cent of the total farmer's preferred individual housing after breeding in their animals. More inclination of farmers for group housing may be due to lack of housing space for the animals, secondly due to economic constraints of the farmers and thirdly may be due to negligence of the farmers for improved housing practices. All farmers adopted the practice of maintenance of breeding records of their animals, this is

because of increased awareness of the farmers for maximization of profit in their herd and analysing at the same time what is the actual status of their farm enterprise, *i.e.* whether the farm is in net profit or net loss by analysing of the reproductive efficiency of their animals. However, Meena *et al.*, (2012) reported majority of the farmers maintained dairy management records.

CONCLUSION

It can be concluded that the adoption of overall existing housing and breeding practices was good except for *kuccha* floor, poor drainage facility in the animal sheds and availability of veterinary services of a qualified veterinarian was poor and needs to be improved. Awareness camps and training programmes regarding scientific animal housing and breeding management practices will help in improving the husbandry practices in future.

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