

RESEARCH ARTICLE

Adoption of Scientific Management Practices by Dairy Farmers during Transition Period of Dairy Animals

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ABSTRACT

In order to assess the level of adoption of various transition period management practices by dairy farmers, the study was conducted in five blocks of Mathura district and the necessary data was obtained. Out of these five blocks, 2 villages were selected randomly and 10 respondents from each village were selected for obtaining the information. The result state that the extent of adoption for management practices, feeding practices, healthcare practices and breeding practices were 46.86 per cent, 53.20 per cent, 46.00 per cent and 51.00 per cent respectively. The extent of adoption of recommended management practices were highest in full hand milking method(62.00%), concentrate mixture feeding to dairy animals(76.00%),timely deworming of animals (54.00%), andbreeding of animal by artificial insemination (72.00%) while, it was least for the practices such as balanced ration feeding to dairy animals (20.00%),Selection of dairy animals for breeding and production (26.00%), Treatment of sick animals by veterinarians (36.00%) and Breeding record maintenance (18.00%). The rate of adoption of practices is highly correlated with socio economic factors like education, income, herd size, milk production etc. of the farmers. Also, sources of information play important role inmaking farmers aware and increasing the rate of adoption of improved practices by them.

Key words: Adoption; Dairying; Transition period; Uttar Pradesh

Dairy farming is integral part of Indian economy as well as many developing countries since so many years. It plays an important role in upliftment of rural farmers by providing stable income source in the form of milk. Majority of the dairy farmers are and landless and marginal who are illiterate and are not aware of economic aspect of milk production (Singh and Sastry, 2002). Other developmental aspects such as poverty alleviation, prevention of malnutrition, reduction of hunger index can be significantly achieved by means of dairy farming. India is the highest milk producing country in the world but the average productivity of each animal is very less i.e., average daily milk yield of buffaloes, cross breed cattle, indigenous cattle was 6.01, 5.79, and 5.45 litres/day/animal respectively (Meena et al., 2016). This low productivity of Indian animals is may be due to the lack of awareness and adoption of improved dairy management practices to the farmers. The modern aspects of dairy farming are mainly based on the improved practices like, balanced ration feeding,

selection of the dairy animals for productive and reproductive purposes and proper healthcare measures. The present study was therefore carried out to assess the adoption level of improved dairy management practices by the farmers.

METHODOLOGY

The locale of the study was Mathura district of Uttar Pradesh. Mathura is purposively selected as it is among the high milk producing districts of the state. There are total 10 blocks in Mathura district out of which, 5 blocks namely Mathura, Raya, Chhata, Govardhan, Farah were selected randomly. The total number of respondents were 100 as from each block 2 villages and from each village 10 respondents were selected for the study. While selecting the respondents the criteria were that the responding farmer should be involved in dairy farming, should have at least one year of experience of following transition period practices and he/she should be possessing at least one calf. To

study the adoption level of improved dairy farming practices during transition period by dairy farmers, interview schedule was developed. The respondents were asked to give opinion about the use of practices (adoption) during transition period on three points viz; fully adopted, partially adopted, not adopted and the numbers 2, 1 and 0 were assigned respectively. Extent of adoption was calculated based on these scores. The adoption score obtained by individual respondent was converted into adoption index. The weighted mean score of the statement was calculated and the statements were ranked accordingly.

$$\text{Adoption Index} = \frac{\text{Total Obtained Score}}{\text{Total Obtainable score}} \times 100$$

RESULTS AND DISCUSSION

Adoption of scientific practices about transition period was studied and results (Table 1) state that overall extent of adoption of practices among respondents was found to be 49.26 per cent. The adoption rate of newer technologies varies from place to place and region to region which is chiefly depends upon the socio-economic status of the community and community participation *Surkaret al., (2014)*. Result state that the extent of adoption for management practices, feeding practices, healthcare practices and breeding practices were 46.86 per cent, 53.20 per cent, 46.00 per cent and 51.00 per cent respectively.

The extent of adoption of recommended management practices were tabulated in Table 2. The results state that the extent of adoption of recommended management practices were highest in full hand milking method (62.00%) and washing of udder before milking (58.00%). It was also seen that lowest adoption was observed in practices like selection of dairy animals for breeding and production (26.00%) and separation of advanced pregnant animals from other animals (38.00%). *Asiya and Girigan (2019)* found out during their study that none of the respondents were milking their animals in separate and dry places. However,

Table 1. Rate of adoption of various practices by the respondents during transition period of dairy animals

Practices	Adoption index
Management	46.86
Feeding	53.20
Healthcare	46.00
Breeding	51.00
Overall	49.26

all respondents were regularly washing udder before milking, while *Surkaret al. (2014)* observed that about 60.83 per cent respondents do not clean animals and their shed before milking.

Inadequate nutrition is one of the single largest factors responsible for low milk production in animals. Therefore, the adoption of scientific practices should be appropriate. The results about the adoption of feeding practices were tabulated in Table 2.

The extent of adoption of concentrate mixture

Table 2. Ranking of the management practices based on the calculated adoption index

Item	Adoption index	Rank
<i>Management practices</i>		
Full hand milking method	62	I
Udder cleaning before milking	58	II
Deworming of calves	54	III
Removal of fore milk during milking	48	IV
Application of antiseptic to the naval of calf after birth	42	V
Separation of advanced pregnant animals from other animals	38	VI
Selection of dairy animals	26	VII
<i>Feeding practices</i>		
Concentrate mixture feeding to dairy animals	76	I
Feeding of colostrum to newborn calves	62	II
Mineral mixture feeding	60	III
Feeding of extra concentrates to pregnant animals	48	IV
Balanced ration feeding to dairy animals	20	V
<i>Healthcare practices</i>		
Timely deworming of animals	54	I
Separation of diseased animals from healthy ones	52	II
Prevention and control of ticks and mite infestation	52	III
Vaccination of animals	44	IV
Treatment of anestrus, repeat breeding and other reproductive disorders by veterinary practitioner	44	V
Cutting of naval cord and antiseptic solution application	40	VI
Treatment of sick animals by veterinarians	36	VII
<i>Breeding practices</i>		
AI practice	72	I
Seeking help from veterinarian in case of difficult parturition	54	II
Pregnancy diagnosis	52	III
Appropriate period of AI after calving	52	IV
Estrus detection methods in animals	22	V
Breeding record maintenance	18	VI

feeding to dairy animals was 76.00 per cent, feeding of colostrum to newborn calves was 62.00 per cent and mineral mixture feeding was 60.00 per cent respectively. The practices having low adoption were feeding of extra concentrates to pregnant animals (48.00%) and balanced ration feeding to dairy animals (20.00%). Similar findings were made by *Meena et al. (2012)* that feeding colostrum to new born calf is highly adopted management practice among all management practices. Likewise, *Singh et al. (2021)* also stated that mineral mixture and concentrate feeding are least practised and are fed only after the recommendation by Veterinary doctor or any other person. *Kumawat and Yadav (2012)* reported that the maximum adoption was found relating to 'Feeding of balanced ration' and on the other hand, the poor adoption was found with regard to 'Feeding practices mineral mixture'. The results agree with the results of *Deepanka et al. (2021)*, who's study related to feeding practices revealed that the highest adoption was observed for feeding of concentrate mixture to dairy animals (88.33%) followed by colostrum feeding to the new born calves (87.50%).

The adoption of healthcare practices (Table 2) revealed that majority of the respondents had adopted the practices like timely deworming of animals (54.00%), separation of diseased animals from healthy ones and prevention and control of ticks and mite infestation (52.00%) respectively. On the contrary, the study of *Sathiadhas (2003)* in Kerala observed that extent of adoption of disease prevention measures is 33.33 per cent which is much less as compared to the findings of this study.

The extent of adoption regarding recommended breeding practices was presented in Table 2. The extent of adoption regarding recommended breeding practices state that breeding of animal by artificial insemination (72.00%), seeking help from veterinarian in case of difficult parturition (54.00%) and regular pregnancy diagnosis (52.00%) practices were ranked as first, second and third respectively. The study of *Yadav and Naagar (2021)* revealed that majority of the dairy farmers (85.8%) had adopted artificial insemination for breeding of their animals. While the study of *Jadav et al. (2021)* indicated that more than half of the dairy farmers (55.00%) had not adopted the practice of treatment of infected animal by a veterinarian. Likewise, *Sachanet al. (2016)* stated that treatment of repeat breeding and anoestrous cases by veterinarians was least adopted and burying dead animals after death by contagious disease was second least adopted with the adoption rate of only 2.50 per cent and 3.33 per

cent respectively.

Table 3 reveals the adoption of practices by the respondents is positively correlated with the independent variables like education, income, herd size and milk production of the respondents. Therefore, it can be stated that, with increase in the income, herd size and milk production of the animals there will be higher adoption of recommended scientific practices by the farmers. While *Lohakare et al. (2013)* indicated that with increase in age, there was co-responding decrease in adoption level of respondent about animal husbandry practices. On the other hand, higher is the milk marketed by cattle owners greater is the increased annual dairy income which enable to farmers to adopt high-cost technologies. They also reported that utilization of information sources showed positive and highly significant relationship with the adoption of animal husbandry practices.

The similar findings also recorded by *Yadav and Naagar (2021)* who observed that the adoption of dairy farming technologies was positively and significantly related with Age, Education, Family size, dairy experience, organization participation, land holding, livestock possession, annual income, economic motivation, market orientation, scientific orientation and knowledge of improved dairy management practices. The study of *Garai et al., (2020)* also revealed that variables like educational status, operational land holding, milk production, mass media exposure and adoption of improved dairy farming practices had significant influence on the knowledge level of the respondents. Similarly, *Panchabhai et al. (2017)*, reported that out of all

Table 3. Correlation between various socio-personal variables and adoption behaviour of the respondents

Variables	'r' Value
Age	0.143
Education	0.744*
Experience	0.222
Income	0.642*
Land holding	0.234
Herd	0.530*
Milk production	0.504*
Milk consumption	0.272
Milk sale	0.234
Personal localite information sources	0.019
Personal cosmopolite information sources	0.456

** Significant at 0.01 level of probability,

* Significant at 0.05 level of probability

the selected characteristics of dairy farmers, social participation exerted highest positive correlation coefficient ($P < 0.01$) with extent of adoption of animal husbandry practices. Variables like education, herd size and sources of information had positive significant relationship ($P < 0.05$) with extent of adoption whereas age, family size, annual income and risk orientation had positive non-significant relationship with extent of adoption of animal husbandry practices on the contrary Sharma *et al.* (2009) reported positive and significant relationship of age with adoption.

CONCLUSION

Even though India stands first in milk production, the adoption level of improved dairy farming practices among the selected dairy farmers in this study is low. The rate of adoption is highly dependent on the socio-economic factors like education, income, herd size, milk production etc. So, to improve the rate of adoption of the improved practices by the farmers, the policy makers/ extension personnel/ government and non-government organisations should focus on providing non- formal education like farmers trainings, method demonstration, result demonstration etc. for raising their educational and income level and ultimately motivating them to adopt improved dairy management practices. Efforts of local Veterinary Officers, Livestock Supervisors and extension workers would be crucial. Farm Field schools on scientific dairy farming may be helpful to inculcate new knowledge to farmers in management practices and adoption rate will be high since the farmers get convinced by seeing the results of improved practices.

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