

## ADOPTION BEHAVIOUR OF DAIRY FARMERS ABOUT SCIENTIFIC ANIMAL HUSBANDRY PRACTICES

NARESH PRASAD, R. S. DALAL and S. P. SINGH\*

Department of Veterinary and Animal Husbandry Extension Education, College of Veterinary Sciences  
Lala Lajpat Rai University of Veterinary & Animal Science, Hisar-125 004

### ABSTRACT

A multistage random sampling technique was followed for selection of two blocks, eight villages and 240 dairy farmers in Jind district of Haryana during 2005-06. The study revealed that 46.67% of dairy farmers were in medium level of adoption of scientific animal husbandry practices followed by high (32.08%) and low (21.25%) categories. Category-wise analysis of respondents revealed that 55.45% of small herd size dairy farmers had medium level of adoption whereas only about 13.0% of them belonged to high level of adoption of scientific animal husbandry practices. In case of large herd size dairy farmers, all the respondents had medium and high levels of adoption. Most of the dairy farmers had medium level of adoption of breeding (46.25%), feeding (40.84%), health care (61.67%) and management (74.16%) practices, respectively. The background variables namely socio-economic status, occupation, education, social participation, herd size, annual income, extension contact and mass media exposure had positive and significant correlation with adoption of scientific animal husbandry practices. Age was negatively; risk orientation and cosmopolitaness-localiteness were positively but non-significantly correlated with adoption of scientific animal husbandry practices. Regression analysis revealed that occupation, education and herd size had significant influence on adoption of scientific animal husbandry practices by dairy farmers. All the 13 independent variables fitted in the regression equation had jointly explained about 35.40% variation in the adoption of scientific animal husbandry practices by dairy farmers.

**Key words:** Adoption, breeding, feeding, health care, management practices

Livestock contributes about 9% of the total GDP, which is over one-fourth of the GDP from agricultural sector. The dairy sector today provides triple benefits of nutritious food, supplementary income and employment to about 70 million families. Dairying is important for India because it is a rural set-up and land saving industry. It has been considered as a secure path and future of our rural development and is now becoming a commercial preposition (Gangasagare and Karanjkar, 2009). Adoption has been the central point of research endeavors in the field of extension education. But in real sense, adoption is a very complex phenomenon and is affected by a number of overt and covert factors. It is important in the field of animal husbandry because there is a wide gap between the recommended and followed practices (Kumar *et al.*, 2011).

The rate of adoption of various animal husbandry practices such as breeding, feeding, health care and management practices of milch animals determine largely the success or failure of a dairy enterprise. The adoption behaviour of the dairy farmers also depends on several factors such as education, knowledge, attitude, risk orientation and innovation proneness among the dairy

farmers (Ghosh *et al.*, 2008). The present study was thus undertaken to ascertain the adoption behavior of dairy farmers about scientific animal husbandry practices and to establish relationship between adoption behaviour and various background variables of dairy farmers.

### MATERIALS AND METHODS

Jind and Narwana blocks of Jind district of Haryana were selected for the present study as it has the highest concentration of cattle and buffalo population in the state. From each of the two blocks, four villages were selected randomly. From each of the selected village, 30 dairy farmers were selected randomly. In this way, 110 small, 90 medium and 40 large herd size dairy farmers having at least two milch animals comprising of total 240 respondents were selected by using probable proportionate to size technique (PPS).

The adoption behaviour of respondent was measured with the help of a scale developed by Mahipal (1983). The scale consisted of 24 practices: six practices in each of the domain area of breeding, feeding, health care and management practices of dairy farming innovations. The response from the dairy farmers was taken for each of the

\*Corresponding author: spsingh.vet@gmail.com

domain areas on a three point continuum representing 'mostly', 'sometimes' and 'never' and assigned scores of 3, 2 and 1, respectively. The maximum and minimum obtainable score of the each domain area was 18 and 6, respectively. The adoption score, according to scale, was derived for each livestock owner by adding all the score obtained by the respondents and the figure so obtained was then divided by the number of practices i.e. 6. The data were collected from the respondents in face to face situation with the help of the suitable interview schedule and subjected to correlation and regression analysis to study the relationship and prediction potentialities of the variables, respectively.

## RESULTS AND DISCUSSION

Majority of dairy farmers (46.67%) had medium level of adoption regarding breeding, feeding, health care and management practices followed by high (32.08%) and low (21.25%) (Table 1). Among different herd sizes; 31.82, 55.45 and 12.73% from small herd size and 17.78, 34.44 and 47.78% from medium herd size were found to have low, medium and high level of adoption, respectively. However, large herd size dairy farmers had 50% each medium and high level of adoption regarding these practices, respectively. It is clear from the data that with an increase in herd size, the level of adoption regarding various scientific animal husbandry practices also increased. These findings get support from the findings of Chugh and Chand (1996), Singh *et al.* (1998) and Singh *et al.* (2010).

**Adoption Behaviour of Dairy Farmers About Breeding Practices:** Majority of the dairy farmers (46.25%) had medium level of adoption of breeding practices followed by high (35.42%) and low (18.33%). In case of different herd sizes 24.55, 55.45 and 20.00% from small herd size, 17.78, 41.11 and 41.11% from medium herd size, and 2.50, 32.50

and 65.00% dairy farmers from large herd size had low, medium and high level of adoption of breeding practices, respectively. The data indicated that with an increase in herd size, the adoption of breeding practices also increased and in case of large herd size the adoption of breeding practices was the highest. More or less similar findings were also reported by Singh *et al.* (2010).

**Adoption Behaviour of Dairy Farmers about Feeding Practices:** Overall, majority of the dairy farmers (40.84%) had medium level of adoption of feeding practices followed by high (32.08%) and low (27.08%) (Table 2). In case of different herd sizes, 50.00, 38.18 and 11.82% from small herd size, 11.11, 47.78 and 41.11% from medium herd size and 0, 32.50 and 67.50% dairy farmers from large herd size were having low, medium and high adoption level of feeding practices, respectively. The data indicated that majority of small herd size dairy farmers had low level of adoption, majority of medium herd size dairy farmers had medium level of adoption and majority of large herd size dairy farmers had high level of adoption of feeding practices. It implies that as the herd size increases the extent of adoption of feeding practices also increases. These findings are in agreement with the findings of Singh *et al.* (2010).

**Adoption Behaviour of Dairy Farmers about Health Care Practices:** The overall analysis revealed that most of the dairy farmers (61.67%) had medium level of adoption of health care practices followed by low (28.33%) and high (10%). Among different herd sizes, 27.27, 69.09 and 3.64% from small herd size, 40, 56.67 and 3.33% from medium herd size and 5.00, 52.50 and 42.50% dairy farmers from large herd size had low, medium and high level of adoption of health care practices, respectively. The data indicated that with an increase in herd size, adoption of health care practices also increased. These findings get support from the observations of Singh *et al.* (2010).

**Adoption Behaviour of Dairy Farmers about Management Practices:** Most of the dairy farmers (74.16%) in case of overall analysis had medium adoption level of management practices followed by only 14.17 and 11.67% who had low and high level of adoption of management practices, respectively (Table 2). In case of different herd sizes 13.64, 72.73 and 13.64% from small herd size, 17.78, 71.11 and 11.11% from medium herd size and 7.50, 85.00 and 7.50% dairy farmers from large herd size

**Table 1**  
Adoption level of dairy farmers about scientific animal husbandry practices

Level of adoption	Score range	Dairy farmers having different herd sizes			Overall
		Small (n=110)	Medium (n=90)	Large (n=40)	
		Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
Low	<46	35 (31.82)	16 (17.78)	00 (00.00)	51 (21.25)
Medium	47-56	61 (55.45)	31 (34.44)	20 (50.00)	112 (46.67)
High	>56	14 (12.73)	43 (47.78)	20 (50.00)	77 (32.08)

**Table 2**  
**Adoption behaviour of dairy farmers about scientific animal husbandry practices**

Particulars of animal husbandry practice	Category	Score range	Dairy farmers having different herd sizes			
			Small (n=110) Freq. (%)	Medium (n=90) Freq. (%)	Large (n=40) Freq. (%)	Overall (n=240) Freq. (%)
Breeding	Low	<12	27 (24.55)	16 (17.78)	01 (02.50)	44 (18.33)
	Medium	13-15	61 (55.45)	37 (41.11)	13 (32.50)	111 (46.25)
	High	>15	22 (20.00)	37 (41.11)	26 (65.00)	85 (35.42)
Feeding	Low	<12	55 (50.00)	10 (11.11)	- (-)	65 (27.08)
	Medium	13-15	42 (38.18)	43 (47.78)	13 (32.50)	98 (40.84)
	High	>15	13 (11.82)	37 (41.11)	27 (67.50)	77 (32.08)
Health care	Low	<10	30 (27.27)	36 (40.00)	02 (05.00)	68 (28.33)
	Medium	11-13	76 (69.09)	51 (56.67)	21 (52.50)	148 (61.67)
	High	>13	04 (03.64)	03 (03.33)	17 (42.50)	24 (10.00)
Management	Low	<9	15 (13.64)	16 (17.78)	03 (07.50)	34 (14.17)
	Medium	10-13	80 (72.73)	64 (71.11)	34 (85.00)	178 (74.16)
	High	>13	15 (13.64)	10 (11.11)	03 (07.50)	28 (11.67)

were having low, medium and high adoption level of management practices, respectively. Similar findings were reported by Chugh and Chand (1996), Singh *et al.* (1998) and Singh *et al.* (2010).

**Correlation Analysis:** Overall analysis of the data indicated that socio-economic status, occupation, education, social participation, herd size, annual income, extension contact and mass media exposure had positive and highly significant correlation with adoption behaviour whereas, age was negatively and risk orientation, cosmopolitaness-localiteness were positively but non-significantly correlated with adoption behaviour of dairy farmers (Table 3). More or less similar findings have been reported earlier (Singh *et al.*, 1998).

In case of small herd size, socio-economic status, education level of respondent had positive and highly significant correlation and occupation, social participation, family education status had positive and significant correlation with adoption behavior. Whereas, age and extension contact were negatively and annual income, mass media exposure, risk orientation and cosmopolitaness-localiteness were positively but non-significantly correlated with adoption behaviour of dairy farmers.

In case of medium herd size, education level of respondent had positive and highly significant correlation and occupation had positive and significant correlation with adoption behavior. Whereas age, risk orientation, cosmopolitaness-localiteness were negatively and socio-economic status, social participation, family education status, annual income, extension contact, mass media exposure were

positively but non-significantly correlated with adoption behaviour of dairy farmers. Similar findings were reported by Chandra (1979) and Tyagi and Sohal (1984). In case of large herd size education level of respondent had positive and highly significant correlation with adoption behaviour whereas occupation had negative and all others background variables had positive but non-significant correlation with adoption behaviour of dairy farmers.

It implies that dairy farmers of different herd size with higher socio-economic status, occupation, education, social participation, annual income, extension contact and mass media exposure but younger age would possess more adoption behaviour about scientific animal husbandry practices. These findings are supported by Hundal (1976), Pawar (1979), Chand (1980) and Hazarika (1983).

**Table 3**  
**Correlation between background variables and adoption behaviour of dairy farmers**

Background variables	Correlation-coefficient 'r' value with adoption			
	Small (n=100)	Medium (n=90)	Large (n=40)	Overall (n=240)
Age	-0.197	-0.171	0.135	-0.079
Socio-economic status	0.294 **	0.115	0.006	0.363**
Occupation	0.190*	0.262*	-0.002	0.143*
Education level of respondent	0.448**	0.397**	0.436**	0.418**
Social participation	0.220*	0.182	0.057	0.173**
Family education status	0.217*	0.204	0.262	0.249**
Herd size	--	-	-	0.431**
Annual income from A.H.	0.040	0.038	0.130	0.311**
Total annual income	0.117	0.129	0.139	0.334**
Extension contact	-0.013	0.034	0.035	0.216**
Mass-media exposure	0.088	0.184	0.166	0.313**
Risk orientation	0.050	-0.067	0.089	0.119
Cosmopolitaness-localiteness	0.073	-0.089	0.107	0.045

\* Significant at 5% level; \*\* Significant at 1% level

**Table 4**  
**Regression analysis between background variables and adoption behaviour of dairy farmers**

Sl. No.	Background variables	Regression-coefficient 'b' value with adoption			
		Small (n=110)	Medium (n = 90)	Large (n = 40)	Overall (n = 240)
		b (S.E.) t	b (S.E.) t	b (S.E.) t	b (S.E.) t
1	Age	0.021 (0.044) 0.479	-0.036 (0.061) -0.594	0.122 (0.067) 1.822	0.008 (0.031) 0.280
2	Socio-economic status	0.160 (0.081) 1.970**	-0.051 (0.080) -0.637	-0.083 (0.099) -0.841	0.006 (0.046) 0.146
3	Occupation	1.123 (0.602) 1.866**	1.056 (0.710) 1.486	-4.873 (2.017) -2.415	0.804 (0.409) 1.968**
4	Education level of respondent	1.144 (0.318) 3.593*	0.808 (0.445) 1.817**	1.843 (0.477) 3.863*	1.038 (0.213) 4.884*
5	Social participation	0.757 (0.914) 0.828	-0.015 (1.027) -0.015	-2.962 (2.526) -1.172	0.702 (0.602) 1.167
6	Family Education status	-0.991 (0.569) -1.742	0.013 (0.769) 0.018	-1.294 (1.051) -1.231	-0.372 (0.389) -0.956
7	Herd size	-	-	-	3.599 (0.661) 5.441*
8	Annual income from A.H.	0.019 (0.048) 0.041	-0.049 (0.047) -1.049	0.025 (0.034) 0.723	-0.009 (0.021) -0.463
9	Total annual income	-0.014 (0.019) -0.794	0.017 (0.015) 1.129	0.003 (0.021) 0.163	0.005 (0.009) 0.628
10	Extension contact	-0.154 (0.282) -0.545	0.013 (0.340) 0.128	-0.234 (0.382) -0.613	-0.132 (0.180) -0.730
11	Mass-media exposure	-0.143 (0.281) -0.510	0.366 (0.353) 1.038	-0.293 (0.420) -0.697	0.035 (0.181) 0.197
12	Risk Orientation	-0.102 (0.154) -0.661	-0.124 (0.237) -0.523	0.228 (0.205) 1.018	-0.046 (0.107) -0.433
13	Cosmopoliteness-localiteness	0.083 (0.161) 0.520	-0.138 (0.221) -0.628	-0.139 (0.217) -0.640	-0.007 (0.109) -0.069
	R <sup>2</sup>	0.275	0.217	0.417	0.354
	F	3.066**	1.778**	1.612	9.531**

\* Significant at 5% level; \*\* Significant at 1% level

**Regression Analysis:** The regression coefficients (Table 4) depicted that in case of overall analysis all the background variables jointly accounted for 35.40% variation in the adoption behaviour of dairy farmers. The calculated 'F' value (9.53) was found to be highly significant with adoption behaviour. Further, it was observed that occupation, education and herd size had significant influence on adoption behaviour of dairy farmers. Hence, these three variables are important predictors of adoption behaviour of dairy farmers.

It can be concluded that significant proportion of dairy farmers had medium level of adoption of scientific animal husbandry practices (breeding, feeding, health care and management practices). Of the 13 independent variables; socio-economic status, occupation, education, extension contact, mass media exposure, risk orientation and cosmopoliteness-localiteness were found to have positive and significant correlation with adoption behaviour of dairy farmer. The R<sup>2</sup> value revealed that all the 13 independent variables fitted in the regression equation had explained about 42.00% variation towards adoption behaviour.

## REFERENCES

- Chand, R. (1980). Measurement of aspiration of dairy farmers of ICDP, Karnal with projective and non-projective techniques. Ph.D. thesis, NDRI, Karnal.
- Chandra, K. (1979). Differential adoption of dairy innovations by the farmers of Intensive Cattle Development Project, Karnal (Haryana). Ph.D. thesis, NDRI, Karnal.
- Chugh, M. and Chand, R. (1996). Adoption of scientific dairy farming practices by ex-servicemen. *Indian J. Dairy Sci.* **49**: 507-510.
- Gangasagare, P.T. and Karanjkar, L.M. (2009). Constraints in adapting animal husbandry practices by the dairy farmers in the Marathwada region of Maharashtra. *Vet. World* **2**: 347-349.
- Ghosh, R.K., Goswami, A. and Maitra, N.J. (2008). Adoption behaviour of the dairy farmers in co-operative farming systems. *Indian Res. J. Ext. Edu.* **8**: 31-35.
- Hazarika, P. (1983). A study of correlates of knowledge and adoption behaviour of dairy farmers under ICDP, Khanapara (Assam). M.Sc. thesis, NDRI, Karnal.
- Hundal, J.S. (1976). Differential adoption of improved dairy practices affecting some economic parameters of animals of milk suppliers area of Ludhiana milk plant, Punjab. M.Sc. thesis, NDRI, Karnal.
- Kumar, P., Rajak, S.K. and Meena, M.S. (2011). Prediction potentialities of socio-personal attributes on adoption level of dairy farmers. *Indian Res. J. Ext. Edu.* **11**: 122-123.
- Mahipal (1983). A study of socio-economic and psychological correlates in adoption of dairy innovations in the ORP area of NDRI, Karnal. Ph.D. thesis, NDRI, Karnal.
- Pawar, S.G. (1979). A study on training needs of members of primary milk producers society in Satara distt. (Maharashtra). M.Sc. thesis, NDRI, Karnal.
- Singh, S., Kumar, R. and Meena, B.S. (2010). Adoption level of scientific dairy farming practices by dairy farmers of Haryana. *Indian Res. J. Ext. Edu.* **10**: 45-48.
- Singh, S.P., Malik, R.S., Laharia, S.N., Hudda, R.S. and Narwal, R.S. (1998). Mass media exposure amongst extension personnel in Haryana. *Haryana Agric. Univ. J. Res.* **28**: 57-61.
- Tyagi, K.C. and Sohal, T.S. (1984). Factors associated with adoption of dairy innovations. *Indian J. Extn. Edu.* **XX**: 1-8