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Research Article

IMPACT OF SCIENTIFIC DAIRY FARMING TRAININGS ON FARMERS KNOWLEDGE ABOUT BREEDING AND FEEDING PRACTICES

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ABSTRACT

A study was undertaken on 60 participants and 60 non-participants dairy farmers selected from two villages of Hisar district of Haryana state to assess the impact of training on knowledge level of farmers about scientific dairy farming practices. A well structured pre-tested interview schedule was developed for this purpose and data were collected from them through personal interview during 2014-15. The study revealed that majority of respondents of both categories possessed medium level of knowledge about breeding and feeding practices. However, the participant farmers had higher knowledge of breeding practices in comparison to non-participants. The farmers had more knowledge about gestation period of buffaloes, treatment of repeat breeders and anestrous, period of heat cycle, high yielding varieties of fodder and disadvantage of overfeeding whereas they had poor knowledge about prominent breeds of dairy animals, pregnancy diagnosis, method of hay or silage preparation, necessity of green fodder and quantity of concentrate to pregnant animals. The correlation analysis further revealed that mass media exposure, economic motivation, attitude towards dairy farming and market orientation of farmers had positive and significant relationship with their knowledge about breeding and feeding practices.

Key words: Knowledge of breeding and feeding practices, training, scientific dairy farming practices

Dairy development in India has played a major role in increasing milk production, improving the nutritional standards of the people, generating employment and improving income in rural areas. Improper dairy development may either be due to non-adoption of scientific farming practices or lack of knowledge. Knowledge level about scientific dairy practices may be increased by conducting trainings for dairy farmers on the latest dairy farming practices. Knowledge of scientific practices and its adoption may enhance the productivity of animals. Scientific dairy farming training programmes had been reported to have positive impact on adoption of technologies by dairy farmers and increase knowledge level (Murai and Singh, 2011; Singh *et al*., 2011; Yadav and Pareek, 2014). The Directorate of Extension Education, LUVAS organized 18 training programmes on-campus on scientific dairy farming during 2012-14 in which more than 1400 dairy farmers participated. It is important to assess the impact of these trainings on dairy farmers. Hence, the present study was carried out to assess the impact of scientific dairy farming trainings on the knowledge level of participants.

MATERIALS AND METHODS

The study was conducted in Hisar district of Haryana state keeping in view the fact that on-campus trainings on scientific dairy farming are organized at LUVAS, Hisar regularly. A list of successful participants was obtained from the Directorate of Extension Education who participated in one of the scientific dairy farming trainings. The list contained more than 70 participants from a single village (Gorchi). Sixty farmers were selected from them randomly as participant group. Same numbers of farmers (60) were selected from a neighboring village, Panihar, who did not participate in such trainings as non-participant group. Therefore, 120 dairy farmers constituted the sample size for the present study. The relevant independent variables included in this study were age, education qualification, land holding, total income, caste, farming experience, herd size, extension contact, social participation, mass media exposure, economic motivation, scientific orientation, attitude towards dairy farming and market orientation. A structured interview schedule was prepared on the basis of improved package of practices and expert opinions of the scientists. The data were collected through personal interview during 2014-15. Frequencies, percentage, mean, mean percent score, standard deviation, correlation and multiple regression were worked out for meaningful interpretation of the data.

RESULTS AND DISCUSSION

Knowledge Level Regarding Breeding and Feeding Practices: On the basis of score obtained from the analysis

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of knowledge on breeding and feeding aspects of scientific dairy farming, the respondents were categorized into three groups i.e. low, medium and high level of knowledge. A perusal of the data (Table 1) revealed that average knowledge about breeding was 23.67 and 22.03 in participant and non-participant respondents, respectively. About half of the respondents (51.67%) from participant category had medium level knowledge on breeding aspects, however, 65% had medium level of knowledge in non-participant category. The study revealed that there is not much variation in the knowledge level of dairy farmers in breeding areas. This may be due to the non use of such practices or perhaps the trainers have not identified the weak areas for reinforcement prior to training. These findings are contrary to the results of Singh *et al*. (2011) and are in accordance with the results of Sharma (2005) and Aulakh *et al*. (2011).

Data presented in Table 1 indicates that 61.67% of the participant respondents had medium level knowledge about feeding practices. On the other hand, 56.67% respondents in non-participants category had medium knowledge of feeding practices. Similar findings were also reported by Sharma *et al*. (2007), Sharma and Singh (2008), Meena *et al*. (2009) and Sabapara *et al*. (2013).

Item Wise Knowledge Level About Breeding Practices: The data (Table 2) reveal that among participant category, highest mean per cent score (97.67%) was obtained by the item 'gestation period of buffaloes' followed by 'treatment of repeat breeders and anestrous' and 'period of heat cycle' (87.67%). Non-participant dairy farmers obtained high mean percent score for items 'treatment of repeat breeders and anestrous' (94.33%) and 'gestation period of buffaloes' (92.33%). Items namely 'prominent breeds of dairy animals' and 'pregnancy diagnosis' were least known to the participants and non-participants. The findings get support from the observations of Sharma (2005).

Table 1
Level of knowledge of dairy farmers about breeding and feeding practices

Aspects	Category	Participants F (%)	Non-participants F (%)	Total F (%)	'Z' Value
Breeding practices	Low	12 (20.00%)	10 (16.67%)	22 (18.33%)	3.14**
	Medium	31 (51.67%)	39 (65%)	70 (58.33%)	
	High	17 (28.33%)	11 (18.33%)	28 (23.34%)	
	Mean	23.67	22.03	22.85	
	SD	3.04	2.68	2.98	
Feeding practices	Low	8 (13.33%)	14 (23.33%)	22 (18.33%)	1.38
	Medium	37 (61.67%)	34 (56.67%)	71 (59.17%)	
	High	15 (25%)	12 (20%)	27 (22.50	
	Mean	25.25	24.40	24.82	
	SD	2.88	3.80	3.40	

**P<0.01

Item Wise Knowledge Level About Feeding Practices: The data given in Table 3 reveal that among both categories, the respondents obtained highest mean per cent score (100%) for 'high yielding varieties of fodder'. The respondents of participant category possessed 86.67% knowledge about 'disadvantage of overfeeding' while non-participants possessed 82.67% knowledge of the same. It was then followed by 'ingredients of concentrate mixture' (82.67%) in participants and 'quantity of colostrum to newborn calf (76.67%) in non-participants group. Both participant and non-participant farmers had poor knowledge about 'method of preparation of hay or silage', 'necessity of green fodder' and 'quantity of concentrate to pregnant animals'. Insufficient knowledge about these aspects implies that the dairy farmers do not know the importance of these practices or they do not need it. The study is supported by the observations of Meena *et al*. (2009) and Singh *et al.* (2004).

Correlation and Regression Coefficients Between Personal Attributes and Knowledge of Dairy Farmers About Breeding Practices: It is clear from the data (Table 4) that among the participant group only two

Table 2
Item wise knowledge level of dairy farmers about breeding practices

Item	Knowledge level scores of dairy farmers								
	Participants			Non-participants			Overall		
	MS	MPS	Rank	MS	MPS	Rank	MS	MPS	Rank
Prominent breeds of dairy animals	1.68	56.00	VIII	1.38	46.00	IX	1.53	51.00	IX
Heat symptoms in buffaloes	2.05	68.33	VII	1.98	66.00	VI	2.02	67.33	VI
Proper time of insemination	2.18	72.67	VI	1.82	60.67	VII	2.00	66.67	VII
Period of heat cycle	2.63	87.67	III	2.38	79.33	IV	2.51	83.67	III
Time of insemination after calving	2.35	78.33	V	2.05	68.33	V	2.20	73.33	V
Pregnancy diagnosis	1.28	42.67	IX	1.02	34.00	X	1.15	38.33	X
Maturity age of heifers	2.47	82.33	IV	2.53	84.33	III	2.50	83.33	IV
Gestation period of buffaloes	2.93	97.67	I	2.77	92.33	II	2.85	95.00	II
Treatment of repeat breeders and anestrous	2.92	97.33	II	2.83	94.33	I	2.87	95.67	I
Characteristics of proven bull	2.05	68.33	VII	1.47	49.00	VIII	1.76	58.67	VIII

MS=Mean score, MPS=Mean percent score

Table 3
Item wise knowledge level of dairy farmers about feeding practices

Item	Knowledge level scores of dairy farmers								
	Participants			Non-participants			Overall		
	MS	MPS	Rank	MS	MPS	Rank	MS	MPS	Rank
High yielding varieties of fodder	3.00	100.00	I	2.85	95.00	I	2.92	97.33	I
Balance feeding	2.07	69.00	VII	1.63	54.33	X	1.85	61.67	VIII
Quantity of ration for milch animals	2.28	76.00	V	2.17	72.33	VI	2.22	74.00	VI
Necessity of green fodder	1.68	56.00	IX	1.50	50.00	XI	1.59	53.00	XI
Quantity of conc. to pregnant animals	1.62	54.00	X	1.90	63.33	VIII	1.76	58.67	X
Increase in utilization of fodder	1.85	61.67	VIII	1.80	60.00	IX	1.82	60.67	IX
Ingredients of concentrate mixture	2.48	82.67	III	2.25	75.00	V	2.37	79.00	III
Quantity of concentrate for dry animals	2.07	69.00	VII	2.08	69.33	VII	2.07	69.00	VII
Disadvantage of overfeeding	2.60	86.67	II	2.48	82.67	II	2.54	84.67	II
Use of mineral mixture	2.37	79.00	IV	2.27	75.67	IV	2.32	77.33	IV
Quantity of colostrum to newly born	2.23	74.33	VI	2.30	76.67	III	2.27	75.67	V
Method of preparation of hay or silage	1.17	39.00	XI	1.00	33.33	XII	1.08	36.00	XII

MS=Mean score, MPS=Mean percent score

variables namely attitude towards dairy farming (r=0.343) and market orientation (r=0.433) had positive and significant correlation with the knowledge level of the respondents while the rest of the variables had insignificant correlation. In non-participant category, mass media exposure (r=0.261) was the only variable that had positive and significant relationship and the rest of the variables were insignificant. Understandably, more mass media exposure means more exposure to the various information of dairy farming and hence, it may have attributed to the gain in knowledge. Favourable attitude towards dairy farming promotes the farmer's keen interest in gaining knowledge about dairy farming (Sharma, 2005). The data also revealed that out of 14 variables; age, attitude towards dairy farming and market orientation had positive and significant value of 'b' while mass media exposure was having negative and significant value of 'b'. This implied that increase of these variables will lead to increase in knowledge of dairy farmers.

The R^2 value revealed that all the 14 variables could jointly explain 59.6% of variation in the knowledge score of farmers of participant category about breeding. In case of non-participant group and overall, none of the variable was significant. These findings are similar to the findings of

Table 4
Correlation and regression coefficients between personal attributes and knowledge level about breeding and feeding practices

Independent variables	Breeding practices						Feeding practices					
	Participants		Non-participants		Overall		Participants		Non-participants		Overall	
	'r'	'b'	'r'	'r'	'b'	'r'	'b'	'r'	'b'	'b'	'r'	'b'
Age (X_1)	0.246	0.188*	-0.079	0.008	-0.086	-0.107	-0.224	-0.096	-0.082	0.086	-0.009	0.136
Education (X_2)	-0.081	0.432	0.030	0.037	-0.155	0.101	-0.183	0.089	-0.065	-0.396	0.007	-0.136
Land holding (X_3)	0.182	-0.096	0.113	0.070	0.189	0.140	0.368	0.098	0.189	-0.004	0.100	0.379
Total income (X_4)	-0.085	-0.004	0.061	0.219	-0.001	-0.001	0.001	0.069	-0.001	0.001	-0.044	-0.004
Caste (X_5)	-0.039	-0.976	0.151	0.231	1.902*	0.095	-0.194	0.146	1.609*	0.978	0.005	-0.017
Farming experience (X_6)	0.152	-0.076	-0.115	-0.006	0.043	-0.101	0.120	-0.104	0.049	-0.128	-0.083	-0.125
Herd size (X_7)	0.179	0.959	0.138	-0.041	-0.073	0.020	0.129	0.006	-0.243	0.360	0.178	0.697
Extension contact (X_8)	0.211	0.365	-0.044	0.043	-0.242	0.176	0.762	0.163	0.261	-0.164	0.197*	0.159
Social participation (X_9)	-0.005	-0.094	-0.052	0.204	2.152	0.055	0.918	0.101	1.031	-0.293	-0.035	-0.153
Mass media exposure (X_{10})	-0.131	-0.735**	0.261*	0.272*	0.303	0.284*	0.618	0.292**	0.417*	0.401	0.100	-0.030
Economic motivation (X_{11})	0.159	0.098	0.069	0.269*	0.136	0.065	-0.038	0.197*	0.096	-0.051	0.214*	0.083
Scientific orientation (X_{12})	0.208	0.004	0.202	0.164	-0.020	0.063	0.042	0.129	0.039	0.112	0.248**	0.152
Attitude towards dairy farming (X_{13})	0.343**	0.587**	-0.183	0.093	-0.210	0.043	0.209	0.116	-0.074	-0.108	0.218*	0.116
Market orientation (X_{14})	0.433**	1.152**	-0.106	0.287*	0.608	-0.080	-0.353	0.100	0.032	-0.333	0.231*	0.205
R^2		0.596			0.296		0.758		0.168	0.197		0.187
F		4.746**			1.352		0.191		1.516	0.788		1.729

*P<0.05; **P<0.01; r=Correlation coefficient; b=Regression coefficient; F=Value of F-test; R2=Coefficient of multiple determinants

Meena *et al*. (2009) and Sabapara *et al*. (2013).

Correlation and Regression Coefficients between Personal Attributes and Knowledge of Dairy Farmers About Feeding Practices: As evident from Table 4, knowledge about feeding practices was positively and significantly correlated with mass media exposure (r=0.272), economic motivation (r=0.269) and market orientation (r=0.287) in case of participant farmers. In case of non-participant category, mass media exposure (r=0.284) of the dairy farmers was positively and significantly correlated to knowledge level about feeding. A dairy farmer having high level of economic motivation generally take more interest in scientific dairy technology and tries to experiment the worth of such practices at his own animal farm for which he seeks more information. Among the participant dairy farmers, caste as an antecedent had positive and significant value of 'b' while in non-participant category, none of the 14 variables attained significant value of 'b'. Arora *et al.* (2006), Sharma and Singh (2008) and Meena *et al*. (2009) also reported positive and highly significant relationship of mass media exposure and extension contact with knowledge level of dairy farmers.

It can be concluded that there is not much variation in the knowledge level of dairy farmers in breeding and feeding areas but the 'Z' value was found significant for breeding practices which shows that average knowledge of participants was higher than average knowledge of non-participants.

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