

RESEARCH NOTE

Measuring Farmers Knowledge Regarding Scientific Dairy Practices in Haryana

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ABSTRACT

Dairy farming provides substantial employment opportunities and supplementary income to the rural farmers. A study was conducted in three randomly selected districts of Haryana with sample size of 225 respondents with an objective to measure the knowledge level of farmers regarding Scientific Dairy Practices. Knowledge level was measured in six different areas – General management and housing, Nutrition and reproduction management, green fodder production, breeding man and health care management. The study revealed that average knowledge scores obtained by respondents were poor. The knowledge scores in the areas of health care management, breeding, reproduction management, nutrition, green fodder production, and general management and housing were in an ascending order. Knowledge scores were significantly associated with education, caste, occupation, size of land holding, mass media exposure and social participation. The degree of influence exerted by the different antecedent variables was uneven. Further studies to explore other correlated factors are suggested.

Key words: Dairy farming; Substantial employment; Rural farmers; Knowledge level;

India is predominantly an agrarian society where animal husbandry forms the backbone of national economy. Dairying provides millions of small and marginal farmers and landless labourers means of their subsistence also, the demand of milk is likely to reach 200 million tonnes by 2022 from 132 million tonnes in 2013 (Nayak, 2014). To bridge the likely gap between demand and supply, the production and productivity of milch animals will have to be improved significantly in the years to come. This gap can be reduced substantially by motivating the farmers to adopt improved dairy farming practices so as to facilitate higher animal productivity. A large majority of rural dairy farmers do not follow modern animal production practices. There is an urgent need to sensitize the farmers about the modern technologies and scientific interventions in dairy production in order to enhance milk yield from farm animals.

The idea that behavioural achievement depends jointly on motivation (intention) and ability (behavioural control) is by no means new (Ajzen, 1991). Consequently, one important factor to shift to improved production practices is the ability of the farmer to do

so. Such ability has to be both in terms of knowledge and resources. Thus, the knowledge of farmer about improved production practices is one of the most dominant variables in facilitating the adoption of such practices. Therefore, a systematic study was conducted in the Haryana state to measure the knowledge level of the farmers about scientific dairy farming practices.

METHODOLOGY

The study was conducted in three randomly selected districts of Haryana (Bhiwani, Karnal and Jhajjar). Out of these randomly selected districts, three villages each from a district were randomly chosen using simple lottery method. Thus, nine villages were selected for the study. Further, in each selected villages twenty five respondents were randomly chosen thus making it 225 respondents in total.

A schedule was developed to measure respondent's knowledge level regarding scientific dairy practices considering the package of recommended practice (CCSHAU) as the universe of content. Knowledge was measured in six different areas—General management and housing, Feeding

management, Reproduction management, Green fodder production and feed enrichment, Breeding and Health-care management. Five questions based on factual information were framed in the identified areas. Equal mark was designated to each such question thus making it a maximum of 30 with minimum being zero.

RESULTS AND DISCUSSION

The average knowledge scores of respondents was 10.4 indicating that the overall knowledge level was on poor side (Table 1). The standard deviation of the total knowledge scores was 4.61 indicating significant variations in the knowledge level. For further analysis the respondents were classified in three categories on the basis of knowledge scores. Surprisingly, a large majority of them (63.55%) were having poor knowledge scores. On the other nearly 4 per cent of the respondents were having a high knowledge level. Others workers have reported diverse results about the knowledge level of the farmers.

Persual of Table 1 revealed that farmers were having knowledge in the areas of health care management, breeding, reproduction management, nutrition, green fodder production, and general management and housing in an ascending order. In the areas of health care management the farmers obtained an average of 0.99 with a standard deviation of 0.92 indicating a very high degree of variation. It can be hypothesized that the information about healthcare management of animals is unlikely to be peer shared or is differentially deciphered given the degree of complexity involved. Further studies to understand the underpinning causes are suggested.

Effects of Antecedents Variables on Knowledge Level: The study explored the effect of antecedent variables on the knowledge level of farmers. The variables studied included age, education, caste, occupation, herd size, land holding, social participation, mass media exposure, economic motivation, extension contact and risk orientation. It was found that knowledge scores were significantly and negatively associated with age of farmers (Table 2). Others like *Sharma et al. (2009)* and *Shekhawat et al. (2013)* also reported that age of dairy animal owners was negatively and significantly co-related with their knowledge. It can further be seen that older people have ranked very poorly in terms of knowledge level about

Table 1. Mean Knowledge scores of respondents

Knowledge	Mean	SE	SD	Knowledge		
				Low	Medium	High
No,	-	-	-	143	73	09
%	-	-	-	63.55	32.44	04.0
Management and housing	2.62	0.06	0.95	2.13	3.31	4.66
Feeding	1.68	0.06	0.92	1.17	2.38	4.11
Reproduction	1.53	0.06	0.89	1.11	2.08	3.55
Green fodder production	2.24	0.06	0.95	1.82	2.75	4.66
Breeding	1.36	0.06	0.93	0.85	2.00	4.11
Health care	0.99	0.06	0.93	0.524	1.65	3.00
Total	10.4	.31	4.61	7.63	14.19	24.11

health care, breeding and reproduction management (Table 3). It is hypothesized that there is a certain degree of complexity associated with the information in these particular areas. Further studies to explore the observed differences can pave way for improved understanding of differential knowledge levels. In the meantime, it is suggested here that older people should be given greater emphasis in routine extension programmes. It can further be seen from Table 3 that education has profound influence on the knowledge level of farmers. Correlation coefficient indicates a strong, positive and significant association between knowledge level and formal education. This also goes with our earlier hypothesis that there is certain degree of complexity associated with the improved production technology. Similar findings have also been reported by *Sharma and Singh (2008)*, *Mande et al (2008)*, *Kumar et al (2009)*, *Sharma et al (2009)* and *Shekhawat et al (2013)*.

Perusal of Table 3 shows that ‘high’ category (caste) respondents were having fairly higher scores as compared to other categories. Similar finding was also reported by *Sharma and Singh (2008)*. These findings were in contrary to the findings of *Sharma et al (2009)*. Farmers with different castes are likely to have different information sources, communication behaviour, aspirations, aptitudes, etc thus leading to observed changes. It may be suggested that focused extension programmes for backward and schedule caste peoples should be considered with emphasis on their knowledge enhancement. Further, health-care, breeding and nutrition are the areas where knowledge level of lower caste people is rather poor. Higher caste people

Table 2. Correlation between Attitude of farmers and Independent Variables

Antecedents variables	"r" values
Age	-0.398*
Education	0.622*
Caste	0.58*
Occupation	0.59*
Size of Land holding	0.62*
Herd Size	0.137
Social Participation	0.561*
Mass media exposure	0.702*
Risk orientation	0.601*
Extension contact	0.83*
Economic Motivation	0.586*

*significant at 0.05 level of significance

were having, on the other hand, ranked fairly well in general management and housing, green fodder production and nutrition. Emphasis must be given on health care knowledge dissemination especially for lower and medium caste people. Respondents with higher occupation scores are likely to have better knowledge level. Perusal of the Table 3 further reveals that those falling in the high category i.e. those in agriculture, and service have significantly better knowledge scores as compared to other categories.

Positive association was found between land holding and knowledge (Table 2). Land less and small and marginal farmers were having considerably lesser average knowledge scores when compared with scores of high category respondents (Table 3). These findings

Table 3. Relationship of antecedents with Attitude of farmers towards Scientific Dairy Practices

Variables	categories	No. (%)	Knowledge scores	Knowledge about					
				Manag- ement & Housing	Nutrition /Feeding	Repro- duction	Green Fodder Production	Breeding	Health care
Age	Young	23 (10.23)	27.47	3.52	2.69	2.65	2.78	2.26	1.61
	Middle	112 (49.77)	23.05	2.76	1.86	1.79	2.47	1.58	1.14
	Old	90 (40)	20.78	2.41	1.41	1.14	1.90	1.02	0.76
Education	Illiterate	59 (26.23)	16.54	1.89	1.00	1.01	1.74	0.81	0.41
	Medium	65 (28.89)	20.29	2.48	1.39	1.27	2.00	0.94	0.76
	High	101 (44.89)	26.77	3.15	2.29	2.01	2.70	1.96	1.50
Caste	Low	57 (25.34)	6.64	1.81	0.912	1.03	1.70	0.82	0.37
	Middle	48 (21.34)	9.10	2.57	1.46	1.26	2.12	1.00	0.67
	High	120 (53.54)	12.77	3.03	2.14	1.87	2.54	1.76	1.42
Occupation	Low	54 (24)	7.12	1.95	1.03	1.01	1.81	0.87	0.44
	Medium	50 (22.23)	8.73	2.40	1.36	1.33	2.01	1.03	0.58
	High	121 (53.77)	13.51	3.17	2.28	1.97	2.64	1.85	1.58
Land holding	Low	64 (28.44)	7.12	1.95	1.03	1.01	1.81	0.87	0.43
	Middle	62 (27.55)	8.73	2.40	1.36	1.33	2.01	1.03	0.58
	High	99 (44)	13.51	3.17	2.28	1.97	2.64	1.85	1.58
Social participation	Low	45 (20)	6.37	1.91	0.89	0.89	1.73	0.80	1.16
	Middle	90 (40)	9.60	2.55	1.57	1.40	2.08	1.11	0.88
	High	90 (40)	13.14	3.03	2.17	1.95	2.63	1.84	1.45
Mass media exposure	Low	125 (55.55)	8.14	2.28	1.23	1.12	1.90	1.00	0.60
	Medium	49 (21.77)	10.25	2.53	1.66	1.80	2.15	1.11	1.02
	High	51 (22.66)	15.57	3.44	2.69	2.21	3.05	2.33	1.82
Risk orientation	Low	21 (9.33)	6.28	1.85	0.95	0.85	1.61	0.76	0.23
	Medium	106 (47.11)	8.14	2.24	1.25	1.15	1.92	0.93	0.63
	High	98 (43.55)	13.88	3.21	2.32	2.09	2.72	1.95	1.56
Extension contact	Low	82 (36.44)	6.95	1.90	1.07	0.98	1.72	0.82	0.43
	Medium	103 (45.77)	10.68	2.80	1.71	1.58	2.26	1.28	1.03
	High	40 (17.77)	16.87	3.62	2.87	2.50	3.25	2.62	2.00

are similar to the findings of *Mande et al. (2008)*, *Kumar et al. (2009)* and *Satyanarayan et al. (2010)*.

Similarly, positive but non significant association was observed between herd size and knowledge level of farmers (Table 2). This association seemingly suggests that knowledge of the dairy animal owners increased with increase in the number of animal holding. A similar finding was reported by *Sharma et al. (2009)*.

Moderate significant positive association was observed between social participation and knowledge level. Those respondents that were having higher social participation are likely to have higher knowledge level. The respondents falling in the high category had an average knowledge score which is almost double the average score of respondents lying in the low category (Table 3). It may be opined here that those with higher social participation are likely to be more cosmopolitan, with different information seeking behaviour and mobility. Probably these things might have contributed to the differences observed between respondents with lower and higher social participation.

The value of correlation coefficient between mass media and knowledge score was 0.702 indicating that mass media has a considerable influence on knowledge level of farmers (Table 2). *Sharma and Singh (2008)*, *Kumar et al. (2009)* and *Sharma et al. (2009)* also reported similar findings. Although Mass media cannot substitute the face to face communication in motivating people to adopt new technology but the role of mass media in knowledge enhancement is well proved. A closer look at Table 3 reveals that average knowledge score of respondents with higher mass media exposure was almost double the average obtained by respondents with low exposure. This further strengthens the proposition that mass media has a significant role to play in knowledge enhancement. It is therefore suggested that wider use of mass media be made for improving knowledge level of farmers.

The respondents falling in the high category had an average knowledge score which is almost double the average score of respondents of low category. The value of correlation coefficient observed between knowledge level and with economic motivation was 0.586 indicating a fairly moderate positive association (Table 2). It may be conjectured that people with higher economic motivation are likely to be innovative with better receptivity and scientific orientation. It is very

unlikely that people with higher economic motivation would restrict to traditional practices as suggested by finding of *Sawarkar (2001)*. On the other hand, it is probably the economic motivation that pushes an individual farmer to try out new things (innovations) and look for improved ways and means. The assumption is further strengthened by the fact that farmers lying in low category are classified on the basis of economic motivation rate poorly on knowledge level.

A closer look at Table 2 indicates that knowledge level of farmers had a strong association with extension contact. Perusal of Table 3 reveals that farmers lying in the high category had considerably higher knowledge level than other categories. This in turn, means farmers with greater extension contact could acquire knowledge much more easily. This adds strength to our long held belief that an effective extension system goes a long way in increasing the extent of adoption of technologies. Present findings are similar to the findings *Mande et al. (2008)*, *Sharma and Singh (2008)*, *Kumar et al. (2009)*, *Sharma et al. (2009)* and *Shekhawat et al. (2013)*.

A moderate positive association was found between risk orientation and knowledge level of respondents regarding scientific dairy practices which is indicated by the correlation coefficient 0.601 (Table 2). Similar findings were reported by *Sawarkar et al. (2001)*. Perusal of Table 3 indicates that those respondents with high risk orientation scores have considerably higher knowledge scores as compared to respondents lying in medium and low category. This gap in terms of knowledge scores is lesser between low and medium category. This perhaps has to do with the fact that innovations do generally involve risk. Scientific dairy practices require comparatively higher investments and this might be the cause of risk perception. A better dairy animal insurance system and a good veterinary support system would help minimize such risk perception. Moreover a good credit delivery system would also facilitate adoption of scientific dairy practices as otherwise poor farmers are unlikely to invest their little saving in the enterprise.

CONCLUSION

Association of knowledge level with adoption of improved practices is well understood. In fact, knowledge augmentation has been identified as the first step towards attaining a higher adoption of

recommended dairy practices. But the knowledge level of farmers in general is poor and variable. Specific programmes to enhance the knowledge level of farmers are the need of hour. It is suggested that target specific approach should be adopted. The extension agencies should identify the farmers whose knowledge is deficit in different areas and develop knowledge modules for such specific areas like (breeding, etc). The knowledge scores of different farmers across categories was variable indicating that the knowledge acquisition is a

complex process and depends, at least in part, on the perceived requirements of the farmers. The degree of influence exerted by the different antecedent variables on the knowledge scores is also variable. Further studies to explore other correlated factors are suggested. Also, studies to explore the knowledge acquisition as an active process on the part of the farmer can help improve the understanding of this complex process.

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