Constraints Analysis in Adoption of Improved Dairy Farming Practices in Bundi District of Rajasthan

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Abstract
Dairying has been recognized as a remunerative source of income in India. But the productivity of dairy animals is very low. Despite widespread availability, adoption of these technologies in the dairy farming has been relatively sparse so far. The adoption of recommended dairy farming practices, therefore, becomes a pre-requisite for sustained growth and development of dairy farming. But low adoption of modern dairy farming technologies amongst farmers has been identified as one of the main reasons for the low productivity in the country. Realizing the fact present study was undertaken with the objective to gain new insight into constraints in adoption of improved dairy farming practices. The study was conducted in Bundi district of Rajasthan. Results of study showed that lack of knowledge, poor extension support, poor credit support, lack of proper communication system, non-availability of desired technology, complexity of practices, high cost of inputs, and lack of conviction were the major constraints perceived by farmers in adoption of improved dairy farming practices.

Introduction

Dairying has been recognized as a remunerative source of income in India. Milk production in India is predominantly the domain of small farmers in mixed farming system. Scientific dairy management helps the farmer to channelize his limited resources to maximize returns from his dairy farm. Dairying has been regarded as one of the activities that could contribute to alleviating the poverty and unemployment especially in the drought prone and rain fed areas. The importance of dairy is lies not only in products but also it brings about significant changes in socio-economic structure of rural economy. In India, dairying is recognized as an instrument for social and economic development. But, unfortunately in spite of several years of planed efforts, the pace of development is not uniform in different parts of the country [1]. The rapid growth of milk production in India has been mainly because of the increase in the number of animals rather than that of improved productivity [2]. The low animal productivity results due to reasons that the farmers do not adopt improved dairy management practices at the desired level. Despite widespread availability, adoption of these technologies in the dairy farming has been relatively sparse so far. In spite of serious efforts made to transfer the scientific dairy management practices to the farmers, various studies indicate that farmers have adopted only 30 percent of the technologies that too by resourceful farmers [3]. The adoption of recommended dairy farming practices, therefore, becomes a pre-requisite for sustained growth and development of dairy farming. But low adoption of modern dairy farming technologies amongst farmers has been identified as one of the main reasons for the low productivity in the country. Unraveling the reasons for the low technology adoption among farmers requires that the factors influencing their decisions to adopt or not to adopt modern production technologies be identified. Realizing the fact present study was undertaken with the objective to gain new insight into constraints faced by farmers in adoption of improved dairy farming practices in Bundi district of Rajasthan.

Methodology

The study was conducted in Bundi district of Rajasthan. The constraints in adoption of improved dairy farming practices were identified through a pilot study. The intensity of the identified constraints in the actual field situation was measured to prove their validity and find out the extent. In all 250 farmers were interviewed with the help of a

well-structured and pre-tested interview schedule developed for the study. The data thus, collected were tabulated and statistically analyzed to interpret the results.

The quantification of data were done by first ranking the constraints in adoption of improved dairy farming practices based on the responses obtained from the respondents and then calculating the Rank Based Quotient (RBQ) [4], which is as follows

$$R.B.Q. = \frac{\sum fi(n+1-i)}{N \times n} \times 100$$

Wherein, fi = Number of farmers reporting a particular problem under i^{th} rank, N = number of farmers, n = number of problems identified.

To assess the validity of constraints in adoption of improved dairy farming practices felt by farmers, 25 key informants were asked to read each constraint with their rational for its relevance and their opinion on possible relevance of these reasons was sought on a three point continuum of 'relevant', 'partial relevant' and 'irrelevent' with a score of 2, 1, and 0, respectively. Based on this assessment, the scientific relevance score for each constraint was estimated by using:

$$P = \frac{\sum_{i=1} X_i}{2N} \quad 0 \leq P_i \leq 1$$

where, N = Number of key informants, $X_i = 2$ if i^{th} reason is relevant, $X_i = 1$ if i^{th} reason is somewhat relevant, $X_i = 0$ if i^{th} reason is irrelevant

Result and Discussion
Socio economic characteristics of respondents

A profile of socio economic characteristics of respondent farmers is presented in **Table 1**. The majority (56.4 %) of the respondents belonged to middle age group followed by old age (28.8 %) and young age (14.8 %) group. Results revealed that majority of respondents were functionally literate (up to middle class) (58.0 %) followed by high school (26.0 %) and illiterate (9.2 %) whereas only 6.8 percent respondents had education higher than the high school level. It was observed that 44.8 percent farmers fell under the category of low knowledge and 39.6 per cent belonged to the category of medium knowledge about various aspects of livestock production. Out of total 250 respondents interviewed, 42.8 per cent had a low exposure to the mass media followed by 38.4 per cent and 18.8 per cent had medium and high exposure to the mass media respectively. Results on land holding show that nearly 80.00 per cent of respondents were marginal (33.6 %) to small and semi-medium (50.4 %) farmers. Further, it was also observed that majority of respondents were resource poor (54.4 %). The study also showed that the percentage of respondents having non descriptive animal was very high (66.8), whereas only 12.8 per cent of respondent had crossbred animals. Consequently the milk production of majority of the respondents fell under low level (55.2 %) to medium level (34.4 %).

Constraints

In order to take advantage of promising opportunities of dairy farming, the farmers need to overcome a number of impediments related to adoption of dairy farming practices. During the study it was observed that farmers are being faced an array of specific constraints in adoption of good dairy farming practices. The constraints in adoption of dairy farming practices reported by respondents presented in **Table 2** along with Rank Based Quotient (RBQ) for each constraint and respective rank.

Lack information

Lack of knowledge about various aspects good dairy farming practices including housing, breeding, feeding, health care and general care and management stand on the way of adoption of new technology. Lack of awareness and knowledge about certain technologies was the response given by the respondents with regards to adoption of

recommended technologies in their farm. Due to unawareness of existing technology and lack of knowledge about use of practices, farmer were not able to adopt in due time and it was identified as the major reasons of slow of adoption (Table 2). Based on RBQ (76.45) value, lack of knowledge was given first rank among various reasons of lack or slow adoption of dairy farming practices. Similarly, [1, 2, 5-8] also reported lack of knowledge as the major constraint in adoption of dairy farming practices.

Table 1 Socio economic profile of respondent farmers (n=250)

Variables	Category	Frequency	Percentage
Age (in years)	Young (<30)	37	14.8
	Middle (31-50)	141	56.4
	Old (>50)	72	28.8
Education	Illiterate	23	9.2
	Functional literate (up to middle class)	145	58.0
	High school	65	26.0
	Graduate and above	17	6.8
Knowledge level	Low	112	44.8
	Medium	99	39.6
	High	39	15.6
Mass media exposure	Low	107	42.8
	Medium	96	38.4
	High	47	18.8
Land Holdings (in ha)	Marginal (<1ha)	84	33.6
	Small (1-2 ha) & Semi-medium (2-4 ha)	126	50.4
	Medium (4-10 ha)	27	10.8
	Large (>10 ha)	13	5.2
Resourcefulness	Rich	47	18.8
	Medium	67	26.8
	Poor	136	54.4
Herd composition	Non descript	167	66.8
	Improved breed	51	20.4
	Both	32	12.8
Milk production	Low	138	55.2
	Medium	86	34.4
	High	26	10.4

Table 2: Different Reasons of Slow Adoption of Dairy Farming Practices (n=250)

Reasons	Ranks								R.B.Q	Overall Rank
	I	II	III	IV	V	VI	VII	VIII		
Lack of knowledge	71	59	42	29	17	19	13	0	76.45	I
Lack of proper communication system	29	27	34	36	41	41	15	27	57.45	IV
Poor extension support	57	47	31	32	23	23	27	10	67.80	II
Poor credit support	27	33	37	47	34	27	35	10	60.05	III
Non-availability of desired technology	17	26	29	37	41	33	34	33	52.05	V
High cost of inputs	19	23	27	22	27	23	41	68	45.60	VII
Lack of conviction	9	13	21	26	37	47	51	46	42.80	VIII
Complexity of practices	21	22	29	21	30	37	34	56	47.80	VI

Poor extension support

Weak extension activities at village level, lack of information supply and services offered by the State and Central Governments were the concerns expressed by the respondents. The respondents reported that the dairy farmers depend upon the technical persons for adopting technologies/practices including artificial insemination (AI), pregnancy diagnosis, vaccination, de-worming, diagnosis and treatment of animals. Un-availability of technical support at the time required adversely affected the adoption of improved dairy farming practices.

Based on RBQ (67.80) poor extension support was identified as second most important constraint in adoption of dairy farming practices. The results were in the line of the conformity with the results reported by [1, 9, 10]

Poor credit support

It was reported by respondents that many of the farmers do not had their own capital for purchase of new technology. They had to depend on borrowed capital. Very little farmers have access to institutional credit. The main reason of this inadequacy of bank credit, as reported by sample farmers, is their lack of collateral due to their poor asset base and complex loaning procedure. Most of the farmers, being poorly educated, do not know the procedure of borrowing from nationalized banks whereas non-institutional sources of capital are insufficient and bear exorbitant rates of interest. So, poor credit support reported as third most important constraint (RBQ, 60.05). These results are in close conformity with the findings of [9].

Lack of conviction

Lack of conviction in new technology was reported as one of the constraints by the respondents. Most of the respondents were not convinced about the merits of some of the dairy farming technologies and did not adopt them as they were unsure of proportionate increase in production. These results corroborated with the findings of [5].

Non-availability of desired technology

Non-availability of desired technology was seen as a constraint by the respondents in dairy farming. Non-availability of suitable high yielding breeds in local area was the most important concern reported by the respondents. [9, 5] also reported similar results.

High cost of inputs

High cost of inputs as a constraint was expressed by the respondents. High cost of concentrate and other feeds, high cost of high yielding breeds of animals and high cost of medicines reported as their constraints. [2, 9, 11] reported similar constraints perceived

Lack of proper communication system

Lack of proper communication system was reported as a constraint by the respondents. Due to the inadequacy of agricultural programmes on radio and television, print publications, farm and home visit etc., the respondents were not aware of production potential of technologies, yield gap and how to eliminate it. These results are in agreement with those reported by [9].

Complexity

Complexity of some dairy farming practices observed another important determinants in adoption by many farmers and given forth rank (Table 2). Many dairy farming practices are complex and require a detailed understanding of processes. Complexity makes the innovation more difficult to understand, and generally requires greater management skills [12].

Validation of constraints

Farmers reported number of constraints in adoption of good dairy farming practices. In order to testing validity of reasons behind constraints in adoption of good dairy farming practices, scientific relevance score for each constraint was calculated and presented in **Table 3**. The scientific relevance score indicates reasonable basis for reason of slow adoption of dairy farming practices.

It is evident from Table 3 that the scientific relevance score associated with lack of knowledge and poor extension support was found 0.74 and 0.75, respectively. Similarly, the scientific relevance score of all other reasons of slow adoption reposted by respondent farmers was found more the 0.5. This indicates reasonable basis behind slow adoption of dairy farming practices by the respondent farmers.

Table 3 Scientific relevance score of reasons of slow adoption

Reasons	Scientific Relevance Score
Lack of knowledge	0.74
Lack of proper communication system	0.54
Poor extension support	0.72
Poor credit support	0.64
Non-availability of desired technology	0.54
High cost of inputs	0.68
Lack of conviction	0.52
Complexity of practices	0.56

Conclusion

It may be concluded that lack of knowledge, poor extension support, poor credit support, lack of proper communication system, non-availability of desired technology, complexity of practices, high cost of inputs, and lack of conviction were the major reasons of non/slow adoption of dairy farming practices. Therefore, it was necessary to intensify the extension efforts to increase the knowledge level and adoption of recommended good dairy farming practices at farm level.

Reference

[1]   J. Kumar, B. Kumar, S. Kumar, Research Journal of Agricultural Sciences, 2011, 2(1): 142-145.
[2]   A. P. Patil, S. H. Gawande, M.P Nande, M.R. Gobade, Veterinary World, 2009, 2(3):111-112.
[3]   A. S. Murai, B. K. Singh, Indian Res. J. Ext. Edu., 2011, 11 (2):46-49.
[4]   V. E. Sabarathanam, Manuals of field experience training for ARS scientists, NAARM, Hyderabad, 1988.
[5]   P. K. Singh, J. G. Varshney, Indian Res. J. Ext. Edu., 2010, 10 (1) : 91:94.
[6]   M. Singh, A. Chauhan, Indian Journal of Dairy Science, 2006, 59(l) : 49–51.
[7]   A. K. Mohi, J. S. Bhatti, Journal of Dairying Foods and Home Sciences, 2006, 25(1): 47–50.
[8]   R. S. Rathore, R. Singh, R. N. Kachwaha, R. Kumar, Indian Journal of Animal Sciences, 2009, 79(5): 530–33.
[9]   M. A. Quddus, Bang. J. Anim. Sci., 2012, 41 (2): 124-135.
[10] B. L. Dhaka, K. Chayal, M. K. Poonia, Indian Journal of Animal Sciences, 2011, 81(1): 94–96.
[11] S. Veerasamy, C. Satpathy, G. A Rao, Indian J. Ext. Edu., 2003, 33 (142) 58-63.
[12] F. Vanclay, The social context of farmers' adoption of environmentally sound farming practices. In: G. Lawrence, F. Vanclay and B. Furze (Eds), Agriculture, Environment and Society, Melbourne, Macmillan, 1992.