



Adoption of Improved Cattle Management Practices in Dairy Cooperative Societies among Women Farmers in Arid Region

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Authors' contributions

This work was carried out in collaboration between all authors. Authors SS and JPL designed the study, wrote the protocol and supervised the work. Authors SS and JPL carried out all laboratories work and performed the statistical analysis. Author SS managed the analyses of the study. Authors SS and LSB wrote the first draft of the manuscript. Authors SS and MK managed the literature searches and edited the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

The present study was conducted in the Bikaner district of Rajasthan to find out the extent of adoption of improved cattle management practices by the women. A list of women engaged in cattle management practices was procured from Uttari Rajasthan Sahkari Dugdh Utpadak Sangh Limited (URMUL). The respondents were selected by using proportionate random sampling procedure from 18 dairy co-operative societies of 6 selected milk procurement routes. Therefore, a total number of 120 women respondents of dairy co-operative societies were drawn for the present investigation. Data were collected with the help of pre-tested semi-structured interview schedule. The findings of the study revealed that majority (56.67%) of women respondents were in medium

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adoption category followed by low (28.33%) and high (15.00%) adoption groups. Relatively more number of cross-breed cattle owners fell in medium adoption group as compared to indigenous cattle owners. Both type of respondents adopted, management, breeding and feeding practices to a large extent. Minimum adoption was found in health care aspect of improved cattle management practices.

Keywords: Animal husbandry; adoption; dairy cooperative societies; URMUL.

1. INTRODUCTION

India is a vast country with diversified agro-climatic conditions. Majority of farm families are engaged in agricultural operations for about 8-9 months in a year but agriculture alone is unable to provide necessary employment and income to the people. Under such conditions, dairying constitutes an important activity of the rural population, mostly a subsidiary occupation. Most of the work involving livestock management is considered as the traditional responsibility of women. The feeding, cleaning and milking of dairy animals, the care of young animals, and administration of medicines are done mostly by women. In Rajasthan, agricultural and livestock management operations are generally performed by farm women. She cleans the animals and animal shed, arranges feed and water for them. Dairying has become an important secondary source of income for millions of rural families and has assured the most important role in providing employment and income generating opportunities particularly for women farmers. Rajasthan has about 6.09 per cent of country's cattle population and contributes over 10 per cent of total milk production [1]. India ranks world's first milk producer country with annual milk production of 132.43 million tonnes during 2012-13 [2]. According to a report of World Bank [3], it has been estimated that about 86 per cent of the total rural women are working for various agricultural operations. Women accounted for 93 per cent of total employment in dairy production in India. It is established beyond doubt that women always participated in dairy and animal husbandry activities in addition to their daily household chores [4]. Rajasthan Co-operative Dairy Federation (RCDF) is biggest federation as far as milk production and procurement are concerned in the state. This federation consists of 21 milk unions. Out of these, Uttari Rajasthan Sahkari Dugdh Utapadak Sangh Ltd. (URMUL) is situated in Bikaner district of Rajasthan. At present the URMUL dairy union has divided into six milk procurement routes by which the milk is to be collected from the dairy cooperative societies. Therefore, the present study was conducted to find out the extent of adoption of

improved cattle management practices in Dairy Cooperative Societies among women farmers in arid region.

2. MATERIALS AND METHODS

The present study was undertaken in Bikaner district of Rajasthan. The investigation was concerned with URMUL dairy which is the largest milk collecting union in arid region in north Rajasthan. The head office of URMUL is situated at Bikaner. URMUL Bikaner stands sixth in Rajasthan terms of milk collecting union. The URMUL is consist of six milk units (Bikaner, Loonkaransar, Chattergarh, Khajuwala, Dungargarh and Bajju). Each milk unit consists of 5 to 12 milk collection routes. All the six milk units selected for the study. From each milk unit one milk collection route was selected randomly. This way six milk collection routes were selected for the proposed study. Each milk route consists 15 to 37 dairy cooperative societies, out of them three dairy cooperative societies were selected randomly from each routs and this way 18 dairy cooperatives societies were selected for the study. For selection of the respondents, proportionate random sampling procedure was adopted to make a sample size of 120 respondents. For measuring extent of adoption of improved cattle management practices by the women respondents, an adoption Performa each for indigenous cattle breed and cross breed cattle breed was developed. Four major component related to both breed (indigenous and cross breed) i.e. Breeding, feeding, management, health care were included in the Performa. To measures various aspects of the research study, an interview schedule was developed. On the basis of objective formed for the study, a suitable tool was developed. The data were collected through personal interview method. In order to test the validity of results, various hypotheses were formulated and appropriate statistical tests were applied. The statistical tests applied were chi-square, 'z' test and rank correlation. The level of significance for acceptance or rejection of hypothesis was 5 per cent and 1 per cent.

The adoption behavior was calculated by using following formula:

$$\text{Adoption} = \frac{\text{Obtained score} \times 100}{\text{Total obtainable score}}$$

3. RESULTS AND DISCUSSION

The ranges of adoption scores obtained by the respondents were found wide spread. In order to have a closer look, the range of score was divided into three categories and data were reset to find out the frequency and percentage in each category. The data have been reported in Table 1. If we look the Table 1 as whole irrespective of indigenous and cross breed cattle owners, the data revealed that majority (56.67%) of the respondents belonged to medium adopter category followed by low adopter and high adopter categories with 28.33 and 15.00 per cent respondents, respectively.

Majority (55.84%) of the respondents belonged to medium adopter category followed by low adopter and high adopter categories of cattle

rearing practices with 33.77 and 10.39 per cent respondents on the basis of cattle rearing practices, respectively. On the other hand, in case of cross-breed cattle owners, majority (58.14%) of the respondents belonged to medium adopter category followed by high adopter and low adopter category with 23.26 per cent and 18.60 per cent respondents on the basis of cattle rearing practices, respectively. The findings are in line with the findings [5] who reported that 58.9 per cent of the respondents were in medium adoption category followed by high (27.8%) and low (13.3%) level of adoption of improved livestock management practices.

3.1 Practice Wise Extent of Adoption of Improved Cattle Management Practices by Women Respondents

The Table 2 shows that indigenous cattle owners had very good extent of adoption (above 57 per cent) of management and feeding practices. Further, they had good adoption of (above 45 per cent) breeding and health care practices of cattle management.

Table 1. Distribution of women cattle rearing respondents on the basis of their adoption level

S. no.	Extent of adoption	Indigenous cattle owners (n= 77)		Cross breed cattle owners (n = 43)		Overall (N = 120)	
		F	%	F	%	F	%
1	Low (below 14 score)	26	33.77	08	18.60	34	28.33
2	Medium (15 to 28 score)	43	55.84	25	58.14	68	56.67
3	High (above 28 score)	08	10.39	10	23.76	18	15.00

F = Frequency, % = Per cent

Table 2. Practice wise extent of adoption of improved cattle management practices by women respondents

S. no.	Improved practices	Indigenous cattle owners (n= 77)		Cross breed cattle owners (n = 43)		Overall (N = 120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Breeding	54.17	III	66.78	III	58.69	III
2	Feeding	57.14	II	68.11	II	61.07	II
3	Management	57.70	I	70.43	I	62.26	I
4	Health care	49.13	IV	58.14	IV	52.36	IV
	Overall	53.77		65.12		57.83	

r_s 1.00**

t value 0.99

r_s = Rank correlation

**significant at 1% level of significance

Table 3. Comparison of adoption of indigenous and cross-bred cattle respondents about improved cattle management practices

S. no.	Improved practices	Indigenous cattle owners (n= 77)		Cross bred cattle owners (n = 43)		'Z' value
		Mean	± SD	Mean	± SD	
1	Breeding	3.79	1.75	4.67	1.67	2.73**
2	Feeding	4.00	1.73	4.77	1.70	2.36*
3	Management	8.08	3.41	9.86	3.59	2.66**
4	Health care	2.95	1.22	3.49	1.26	2.28*
	Overall	4.70	1.81	5.70	1.86	2.83**

** Significant at 1 per cent level of significance, SD= Standard deviation

The Table 2 further revealed that cross-breed cattle owners had very good adoption of management, feeding and breeding practices with 70.43, 68.11 and 66.78 MPS, respectively and they had good extent of adoption of health care practices with 58.14 MPS. On overall basis, women respondents had excellent adoption of management and feeding practices with 62.26 and 61.07 MPS, respectively. They were also having good extent of adoption of breeding and health care practices with 58.69 and 52.36 MPS, respectively. The value of calculated rank order correlation (r_s) was 1.00 which is positive and highly significant leading to conclusion that there was similarity in prioritization of cattle management practices by the indigenous and cross-breed cattle owners though there was difference in magnitude of extent of adoption by the respondents. The findings are in line with the findings of [6] who found that minimum technological adoption gap that (59.55%) was obtained in the case of feeding practices followed by the improved breeding (66.91%), management (69.55%) and health care (77.68%). The results revealed that technological information is needed by all the farmers in recommended animal husbandry practices.

3.2 Comparison of Extent of Adoption of Improved Cattle Management Practices between Indigenous and Cross-bred Cattle Respondents

It is clear from the data presented in Table 3 that calculated value of 'z' was greater than its tabulated value at 5 per cent level of significance for all the four practices of improved cattle management. This calls for rejection of null hypothesis leading to conclusion that significant difference exists in level of adoption between indigenous and cross-breed cattle owners regarding all the four practices of improved cattle management in the study area.

H₀: There is no significant difference in the adoption between indigenous and cross-bred cattle respondents about improved cattle management practices.

H₁: There is a significant difference in the adoption between indigenous and cross-bred cattle respondents about improved cattle management practices.

Thus, this is proved evidently that the adoption of improved cattle management practices was more among cross breed cattle owners compared to indigenous cattle owners. The significant difference between indigenous cattle and cross-breed cattle respondents about improved cattle management practices was not unexpected. It may be due to the facts that cross breed owners beings in continuous touch with the dairy personnel's and they might have acquired sufficient skills pertaining to improved cattle management practices. Thus, they are more likely to practices the learnt skills in their dairy business. The findings are in conformity with that of [7] who found that the members of dairy cooperative society were high adopters than the non-members in different area of improved animal husbandry practices.

4. CONCLUSION

From the above research findings it may be concluded that majority of women respondents were in medium adoption category followed by low and high adoption groups. Relatively more number of cross-breed cattle owners fell in medium adoption group as compared to indigenous cattle owners. Both type of respondents adopted, management, breeding and feeding practices to a large extent. Minimum adoption was found in health care aspect of improved cattle management practices. There was similarity in prioritization of various practices of improved cattle management practices on the basis of adoption by the indigenous and cross-

breed cattle owners. There was significant difference in the extent of adoption of improved cattle management practices by indigenous and cross-breed cattle respondents. The extent of adoption about improved cattle management practices especially of health care and breeding aspects was found very low. Though, it needs to be enhanced by creating veterinary services in the villages. The training should be organized on these aspects.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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