Adoption of Dairy Farming Technologies by the Farmers of Nagaur District of Rajasthan

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ABSTRACT

The present study was conducted in Nagaur district of Rajasthan to know the adoption level of farmers regarding dairy farming technologies. In all 180 farmers were selected randomly from three block of the Nagaur district. The result of the study indicated that adoption level of farmers regarding improved breed of buffalo (45 %), Dry fodder (86 %) feeding of concentrate during lactation (45%) chaffing of fodder (58 %) colostrums feeding to newly born calves (47 %), and drinking water (72%) were quite high. The adoption of dairy farming technologies was positively and significantly related with thirteen independent variables *viz.* Age, Education, Family size, dairy experience, organization participation, land holding, livestock possession, annual income, economic motivation, market orientation, scientific orientation and knowledge of improved dairy management practices at 0.01 level probability.

Key words: Adoption, dairy management practices

INTRODUCTION

Dairying is a major occupation in rural India providing substantial employment and income. It acts as a means to supplement the income of the poor households to ensure stable income. In India, government introduced several programmes to improve the status of dairy farming. Dairy farming has become a commercial enterprise now and helps farmers to improve their economic condition. India's milk output during the year 2011-12 reached the level of 127.9 million tonnes, providing per capita availability of 291 g per day. This has not only placed India on top in the world but it also represents sustained growth in the availability of milk and milk products for the burgeoning population of the country. Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities. Various established organizations like universities, research stations, state directorates of animal husbandry and livestock extension services act at different levels in order to generate and transfer the technologies amongst livestock farmers. Despite these efforts adoption of recommended technologies in dairy farming sector has not been as widespread as it was anticipated. While reviewing the adoption research, Loganandhan and Singh (2003) and Khyalia, *et. al.* (2015) reported that adoption behaviour of farmers is influenced by their socio-economic characteristics such as education, land holding, social participation and communication skills etc. in organic farming practices. The reason for poor adoption of dairy farming technologies amongst livestock farmers all over the world is not fully understood. Keeping this in view a study was conducted with the specific objective to study the adoption of dairy farming technologies by the farmers as well as to study the factors associated with adoption of dairy farming technologies.

METHODOLOGY

The study was conducted in Nagaur district of Rajasthan. From the district three Panchayat samities namely Mundwa, Ladnun and Nagaur were purposely selected where maximum animal husbandry activities were conducted by KVK and department. From each Panchayat samities three villages were selected randomly. The list of animal rearing farmers was collected and from each village twenty farmers were randomly selected for study purposes. Semi structured interview schedule was used to collect the data, using personal interview method. In all, 180 respondents were finally selected for the study.

The socio personal traits, socio-economic and psychological variables of livestock farmers were taken as independent variables for the study purpose.

The knowledge and adoption level of animal rearing farmers were measured. Adoption of dairy farming

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technologies was the dependent variable. Artificial Insemination in cattle, vaccination against contagious disease, feeding green fodder, feeding concentrate and common dairy farming technologies were technologies considered in the present study. To study adoption level scores obtained by each individual adopters were categorized into three groups as partly (score 1), to some extent (score 2) and fully (score 3). The summation of scores of respondents over these technologies plus score of four common dairy farming technologies was the overall adoption score of livestock owners in dairy farming technologies. Variety of statistical techniques like frequency distribution, percentage, means, standard error, T-test, product moment correlation were used to analyze the data.

RESULTS AND DISCUSSION

Knowledge level of animal owner farmers:

Table 1 indicated that knowledge level of farmer's in case of breeding of dairy animals regarding buffalo non-descript/ improved was found maximum (88.8%) as compare to the artificial insemination (86.1%) breeding of cows (83.3%) and pregnancy diagnosis (66.6%), castration of the male animals (52.7%). in case of feeding practice 'drinking water' and 'dry fodder' were known by cent percent respondents followed by colostrums feeding (95.5%), use of mangers (94.4 %), chaffing of fodder (90.0%), green fodder (86.1%), feeding of concentrates during lactation (86.1%), balanced concentrate (36.1%). feeding of concentrates during pregnancy and minerals mixture (25.0%).

The knowledge of the respondents regarding health & hygiene, approximately 45 per cent of the respondents were aware about the cleaning/ grooming (66.6%), cleaning of cattle shed (55.6%) deworming (52.7%), and proper time of vaccination (30.5%). The knowledge level of farmers about all the aspects included in clean milk production i.e. methods of milking, cleaning of udder and cleaning of hands & utensils were known by the 82.2, 82.2 and 83.3 per cent respondents, respectively.

Table 1 also indicated that knowledge of animal owners Farmers regarding Marketing practices was observed for Regular selling of milk (69.4%), followed by Selling of value added products (63.8%), The overall results revealed that the farmers were found to more familiar to all animal husbandry practices (45 to 75%). Similarly Juned Akhter, Asiwal, BL and Hussain, Akter (2013) observed the more or less same results.

Table 1: Knowledge and adoption of animal management practices
n=180

Particular practices	Knowledge (%)		Adoption (%)		
	Yes	No	Full	Partial	No
Breeding					
Breeding of dairy animals					
Cow : cross / local	83.3	16.7	19.4	41.8	38.8
Buffalo: non- descript/ improved	88.8	11.2	44.4	38.8	16.8
Artificial insemination	86.1	13.9	30.5	41.6	27.9
Pregnancy diagnosis	66.6	33.4	25.0	27.7	47.3
Castration	52.7	47.3	21.1	45.5	33.4
Average	75.5	24.5	28.0	39.08	32.84
Feeding					
Balance ration					
Green fodder	86.1	13.9	22.2	36.1	41.7
Dry fodder	100	00.0	86.1	13.9	00.0
Balance concentrate	36.1	63.9	26.6	36.1	37.3
Feeding of concentrates during pregnancy	25.0	75.0	15.5	23.3	61.2
Feeding of concentrates during lactation	86.1	14.9	45.5	37.6	16.9
Minerals mixture/ common salt	25.0	75.0	16.6	27.7	55.7
Chaffing of fodder	90.0	10.0	58.3	33.3	08.4
Use of mangers	94.4	06.6	22.4	48.8	28.8
Colostrums feeding to newly born calves	95.5	04.5	47.2	33.3	19.5
Drinking water	100	00.0	72.2	27.8	00.0
Average	73.8	26.3	41.2	31.79	26.95
Health & hygiene					
Cleaning/ grooming	66.6	33.4	27.7	55.5	16.8
Proper time of vaccination	30.5	69.9	13.8	36.1	50.1
Hygiene steps before milking	38.8	61.2	19.4	26.6	54.0
Cleaning of cattle shed	55.6	44.4	30.5	41.6	27.9
Deworming	52.7	47.3	33.3	22.2	44.5
Isolation of sick animals	25.0	75.0	13.8	25.0	16.2
Average	44.9	55.2	23.1	34.5	34.9
Marketing practices					
Regular selling of milk	69.4	30.6	33.3	50.0	16.9
Selling of value added products	63.8	36.2	16.9	33.3	50.0
Average	66.6	33.4	25.1	41.65	33.45

Extent of adoption of animal husbandry practices by animal owner

Breeding Practices:

The data presented Table 1 indicated that 19.40 per cent of farmers had adopted crossbred cow and 44.4 per cent farmers adopted improved/superior buffalo. It was further observed that non-descript breeds of milch animals are pre-dominant in the study area.

Artificial Insemination (A.I.) is best technique for the purpose of animal breeding. But practice of artificial insemination in dairy animals had adopted by 30.5 per cent dairy farmers. Only 25 per cent dairy farmers made pregnancy diagnosis of their animals. The castration of animal was followed by 21 per cent farmer. Thus, it can be concluded that adoption of A. I. practice, rearing of crossbred and superior milch animals, and pregnancy diagnosis of their animals was poor. This might be due to unawareness of farmers about importance of improved milch animals. Artificial Insemination, animal breeding and pregnancy diagnosis of their animals in hospital, further distant location of hospitals and A.I. centres in the study area.

Feeding practices:

Scientific feeding schedule that provides a higher plane of nutrition ensures better growth and an attainment of puberty resulting in quicker economic returns. From Table 1 it is clear that majority of farmers do not used the recommended feeding practices. Although, feeding of green fodder, dry fodder and concentrate are important inputs in milk production. Around 22 per cent of farmers fed green fodder to animals. But quality of green fodder was very poor because most of farmers were collected green grasses from common property resources like forests, wastelands, common grazing land, roadside and banks of ponds. All the farmers fed required quantity of dry fodder to animals due to easily availability of dry fodder. About 26.6 per cent dairy farmers fed their animals with concentrates. Extra doses of concentrate are required for pregnant and lactating animals. But practices of extra doses of concentrate to pregnant animals were adopted only by 15.5 per cent farmer whereas during lactation was 45 per cent adoption in the study area. Use of mineral mixtures/ common salt improves palatability and feed intake by animals. But practice of feeding of mineral mixtures/common salt was adopted by only 16.6 per cent farmers. Chaffed fodder became palatable for animal feeding. About 58 per cent farmers feed chaffed fodder to their animals. To protect the newly born calves from diseases the colostrums feeding is required. Colostrums feeding to the newly born calves were adopted by 47 percent farmers. Whereas only 22 per cent farmers feeding to the animals in manger. This might be due to lack of knowledge of importance of feeding.

Health and hygiene

The present Table 1 showed that less number of farmers were found to regular clean and groom (27.7 %), vaccinate their animals against contagious diseases (13.8 %), hygienic step before milking (19.4 %) and timely cleaning of cattle shed (30.5 %), deworming & dehorning of calves (33.3 %). Thus, it can be concluded that many of farmers were not aware of practices such as and isolation of sick animals. Further, few percentage of farmers adopted "no cost" practices such as regular cleaning/ grooming, vaccination against contagious disease, hygienic step before milking and timely cleaning of cattle shed. This might be due to lack of knowledge of farmers towards these practices. Similarly Meena, *et. al.* (2012) observed the same results.

Marketing practices:

The practice of regular selling of milk and selling of value added dairy products were followed by 33.3 per cent and 16.9 per cent of farmers, respectively. The irregular selling of milk and non-existence of dairy cooperative society in the study area might be due to low production of milk at individual farmer's level. Similarly Meena, *et. al.* (2012) observed the same results.

Table 2: Relationship between Independent variables and adoption of dairy farming technology

Variables	'r' values	't' values
Socio – personal characteristics		
Age	0.8691	21.38**
Education	0.8670	9.99**
Family size	0.8146	8.07**
Dairy experience	0.5744	4.03**
Organization participation	0.8679	10.04**
Socio-economic characteristics		
Land holding	0.6273	4.63**
Livestock possession	0.8741	10.34**
Annual income	0.8146	8.07**
Credit behaviour	-0.1227	-0.71NS
Material possession	0.2771	1.66NS
Psychological characteristics		
Economic motivation	0.7801	7.16**
Market orientation	0.6951	5.55**
Scientific orientation	0.8222	8.30**
Knowledge of improved dairy	0.8019	7.71**
Management Practices	0.7292	6.12**

** Significant at 0.01 level of probability, NS - None significant

Correlation of adoption of dairy farming technology with independent variables:

The assumption that adoption of dairy farming technology is inclined by socio-personal, economic and psychological traits, the relationship of these traits were analyzed. To assess the relationship between adoption of dairy farming technology and selected variables the coefficient of correlation was worked out and illustrated in Table 2. The data revealed that the correlation coefficient of thirteen variables *viz.*, Age, Education, Family size, dairy experience, organization participation, land holding, livestock possession, annual income, economic motivation, market orientation, scientific orientation and knowledge of improved dairy management practices were found to have positive and significant relationship with adoption of dairy farming technology at 0.01 level of probability. However, Material possession is positively non-significant and credit behaviour had negative and non-significant relationship with adoption of dairy farming technology at 0.01 level of probability. Similar result were observed by Patel *et. al.* (2014)

CONCLUSION

It may be concluded from the study that adoption of scientific dairy technologies such as breeding, feeding, health & hygiene, and marketing in study area was quite

low to medium and unsatisfactory for development in dairy sector. The adoption of dairy farming technologies was positively and significantly related with Age, Education, Family size, dairy experience, organization participation, land holding, livestock possession, annual income, economic motivation, market orientation, scientific orientation and knowledge of improved dairy management practices at 0.01 levels significant. This could consider as the great opportunity and wide scope for scientist to know reasons behind adoption as well as for extension workers to disseminate scientific dairy practices to farmers. Therefore, scientists, KVK, Veterinary officers, Dairy Development officers must periodically conduct training and awareness programmes with respect to Vaccination/ Deworming/Health aspect camps, feeding, breeding, health care and management etc. to boost up level of adoption of tribal farmers in the scientific dairy husbandry practices.

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