Adoption Level of Scientific Dairy Farming Practices by Dairy Farmers of Haryana

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ABSTRACT

A study on adoption level of scientific dairy farming practices by dairy farmers of Haryana state was conducted with a sample of 200 cooperative dairy farmers who were the regular members of Milk Producers' Co-operative Societies for the last three years. The study was confined in the Kurukshetra and Karnal Co-operative Milk Producers' Union Limited, Karnal at Kurukshetra. The study reveals that majority of the farmers (69.50 %) had medium level of overall adoption of scientific dairy farming practices. However, the maximum percent of adoption by the dairy farmers (80.91 %) were found to be in case of the animal feeding practices followed by breeding practices (68.41 %), health care practices (67.12 %) and management practices (66.45 %) with the overall mean adoption of 70.75 per cent of overall scientific dairy farming practices. The further analysis of variance indicated that there was a significant difference (F-value=3.390) of adoption between various dairy farming practices groups, viz., dairy breeding, dairy feeding, dairy health care and dairy management practices.

Key words : *Adoption; Breeding; Dairy farmer; Feeding; Health care; Management;*

Majority of Indian masses are still dependent on agriculture and a large proportion of them are categorized as marginal (58.1%) farmers (*Bansil, 1990*). A good proportion of landless rural population works and produces milk by feeding their animals the by-products of agriculture. With the growing pressure of human population, dairying has to be developed in a scientific manner so as to harness maximum potentiality of milch animals within available land. The Indian dairy industry has performed well during the last two decades. India's milk output during the year 2007-08 reached the level of 102 million tonnes, providing per capita availability of 246 g per day (*Bhasin, 2009*). 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.

The prime concern before the nation is still to improve the economic condition of the rural poor to fulfill the national commitment. It is only in the recent past that the relative importance of dairying has been realized as an instrument in changing socio-economic conditions of poorer sections of the predominantly rural India. Dairying has been identified as one of the most potential and viable occupations for small, marginal farmers and agricultural labourers. In the emerging agriculture scenario, livestock production in general and dairying in particular has a special place as an instrument for enhancing the income of small farmers and reducing unemployment among the landless. Any attempt to tap this vast potential must depend on efficient management which, in turn, needs updated economic and technical information. Various recent studies and data suggest that dairying has enormous potential to improve the socio-economic status of the large percentage of rural population.

Dairying in India has been considered to be playing a crucial role in Indian economy. The level and speed of adoption of dairy innovation by farming community has been far from satisfactory though it has direct bearing on dairy farm production. The slow pace of

adoption of improved dairy practices is attributed to various factors. A first hand knowledge of these factors to the extension personnel would create the speedy adoption of dairy innovations in the villages. Therefore, a study entitled *"Adoption Level of Scientific Dairy Farming Practices by Dairy Farmers of Haryana"* was conducted to assess the level of adoption of dairy farmers regarding scientific dairy farming practices.

METHODOLOGY

The study was conducted in Haryana on 200 dairy farmers who were a regular member of Milk Producers' Co-operative Societies (MPCSs) for the last three years. A multistage stratified random sampling technique was employed to select ultimate units, i.e., chilling centres, milk collection routes, MPCSs and respondents. The Kurukshetra and Karnal Co-operative Milk Producers' Union Limited, Karnal at Kurukshetra was stratified into two erstwhile milk unions, namely Kurukshetra Milk Union and Karnal Milk Union. From Kurukshetra Milk Union, Kurukshetra Chilling Centre being the older one and from Karnal Milk Union, the only chilling centre, Karnal Chilling Centre was selected. From each selected chilling centre, two milk collection routes were selected randomly. From each selected route, two Milk Producers' Co-operative Societies (MPCSs), which were older were selected. From each selected MPCSs, a list of member milk producers who were supplying milk to the MPCSs at least for 180 days in a year and having at least one milch animal was prepared. Finally, 25 members from each selected MPCS i.e. a total of 200 respondents were selected using Random Sampling technique for the present investigation. The respondents were personally interviewed to collect the relevant information.

The adoption index was calculated with the following formula

$$\text{Adoption index} = \frac{\text{Mean score obtained}}{\text{Expected maximum score}} \text{ X } 100$$

RESULTS AND DISCUSSION

Distribution of Dairy Farmers based on adoption of Scientific Dairy Farming Practices: The adoption scores, so computed, were classified into low, medium and high level of adoption for each practice, namely breeding, feeding, health care and dairy management alongwith overall scientific dairy farming practices. The different categories of dairy farmers, namely landless, small, medium and large were then distributed into low, medium and high level of adoption which is presented in the Table 1.

Landless : A perusal of figures in the Table 1 indicates that a large per cent age (72.73%) of landless dairy farmers had medium level of adoption of breeding practices followed by low (15.15%) and high (12.12%). There were 27.27, 54.55 and 18.18 per cent landless dairy farmers in low, medium and high level of adoption of feeding practices, respectively. In case of health care practices again a vast majority (78.79%) of landless dairy farmers belonged to medium level of adoption followed by high (12.12%) and low (9.09%). Whereas in case of dairy management practices, majority (57.58%) of the landless dairy farmers were having medium level of adoption followed by equal proportion (21.21%) having low and high. As far as adoption of all the dairy innovations is concerned, a maximum proportion (63.64%) of landless dairy farmers were found to have medium level of adoption followed by equal proportion (18.18%) having low and high.

Small : It is evident from the table-1 that 19.12, 63.23 and 17.65 per cent of small dairy farmers had low, medium and high level of adoption of breeding practices, respectively. A little more than three-fourth (77.94%) of small dairy farmers had medium level of adoption of feeding practices followed by low (20.59%). It is interesting to mention that a very few (01.47%) small dairy farmers belonged to the category of high adoption level of feeding practices. In case of health care practices, again majority (80.88%) of the small dairy farmers had medium level of adoption followed by low (11.77%) and high (07.35%). Whereas, in case of dairy management practices, a maximum proportion (60.30%) of small dairy farmers had medium level of adoption followed by high (30.88%) and low (08.82%). As many as 64.70 per cent of the small dairy farmers had medium level of adoption of overall scientific dairy practices as against 17.65 per cent each having high and low level of adoption of overall scientific dairy farming practices.

Medium **:** It could be visualized from Table-1 that a large majority (80.00%) of the medium dairy farmers had medium level of adoption of breeding practices followed by low (18.33%) and high (1.67%). As far as feeding practices are concerned, a very large proportion (90.00%) of medium dairy farmers had medium level

of adoption. It is important to mention that none of the medium dairy farmers was found to have high adoption level of feeding practices. In case of health care practices, a maximum proportion (81.67%) of medium dairy farmers had medium level of adoption followed by low (10.00%) and high (8.33%). Whereas, majority (53.33%) of the medium dairy farmers had medium level of adoption of dairy management practices as against low (30.00%) and high (16.67%) level of adoption. Again, majority (73.33%) of the medium dairy farmers had medium level of adoption of overall scientific dairy farming practices followed by low (15.00%) and high (11.67%).

Table 1. Distribution of different categories of dairy farmers according to their level of adoption of scientific dairy farming practices (SDFPs)

S. No.	Dairy Farmer's Category	Level of adoption	Adoption areas of different SDFPs				
			Breeding	Feeding	Health care	Dairy management	Overall SDFPs
1.	Landless (n=33)	Low	05 (15.15)	09 (27.27)	03 (09.09)	07 (21.21)	06 (18.18)
		Medium	24 (72.73)	18 (54.55)	26 (78.79)	19 (57.58)	21(63.64)
		High	04 (12.12)	06 (18.18)	04 (12.12)	07 (21.21)	06 (18.18)
2.	Small (n=68)	Low	13 (19.12)	14 (20.59)	08 (11.77)	06 (08.82)	12 (17.65)
		Medium	43 (63.23)	53 (77.94)	55 (80.88)	41(60.30)	44 (64.70)
		High	12 (17.65)	01 (01.47)	05 (07.35)	21 (30.88)	12 (17.65)
3.	Medium (n=60)	Low	11 (18.33)	06 (10.00)	06 (10.00)	18 (30.00)	09 (15.00)
		Medium	48 (80.00)	54 (90.00)	49 (81.67)	32 (53.33)	44 (73.33)
		High	01 (01.67)	00 (00.00)	05 (08.33)	10 (16.67)	07 (11.67)
4.	Large (n=39)	Low	04 (10.26)	03 (07.69)	06 (15.39)	11 (28.21)	04 (10.26)
		Medium	32 (82.05)	30 (76.92)	30 (76.92)	23 (58.97)	30 (76.92)
		High	03 (07.69)	06 (15.39)	03 (07.69)	05 (12.82)	05 (12.82)
5.	Overall	Low	33 (16.50)	32 (16.00)	23 (11.50)	42 (21.00)	31 (15.50)
		Medium	147 (73.50)	155 (77.50)	160 (80.00)	115 (57.50)	139 (69.50)
		High	20 (10.00)	13 (06.50)	17 (08.50)	43 (21.50)	30 (15.00)

Figures in parenthesis indicate percentages.

Large : A quick glance at the Table 1 indicated that a vast majority (82.05%) of large dairy farmers had medium level of adoption of breeding practices followed by low (10.26%) and high (7.69%). In case of feeding practices, again majority (76.92%) of the large dairy farmers had medium level of adoption followed by high (15.39%) and low (7.69%). There were 15.39, 76.92 and 7.69 per cent large dairy farmers who had low, medium and high level of adoption of health care practices, respectively. Whereas, little more than half (58.97%) of large dairy farmers had medium level of adoption of dairy management practices followed by low (28.21%) and high (12.82%). Again majority (69.24%) of the large dairy farmers were in medium category of level of adoption of overall scientific dairy farming practices as against 15.38 per cent each in low and high categories of level of adoption of overall scientific dairy farming practices.

Overall : It can further be seen from Table 1 that a large majority (73.50%) of the medium dairy farmers had medium level of adoption of breeding practices followed by low (16.50%) and high (10.00%). As far as feeding practices are concerned, a large proportion (77.50%) of medium dairy farmers had medium level of adoption followed by low (16.00%) and high (06.50%).In case of health care practices, a maximum proportion (80.00%) of medium dairy farmers had medium level of adoption followed by high (11.50%) and low (08.50%). Whereas, majority (57.50 %) of the medium dairy farmers had medium level of adoption of dairy management practices as against low (21.50%) and high (21.00%) level of adoption. Again, majority (69.50%) of the medium dairy farmers had medium level of adoption of overall scientific dairy farming practices followed by low (15.50%) and high (15.00%) level of adoption. The finding are inline of *Sinha (1997)* who stated that maximum adoption was found in case of feedings (36.42%). Management practices was found to be 36.91 per cent. Overall adoption was found 31.21 per cent.

From the above results, it is concluded that majority of the dairy farmers in all the categories, viz., landless, small, medium and large had medium level of adoption of scientific dairy farming practices including breeding, feeding, health care and dairy management practices.

Comparison of Mean Adoption Scores of Scientific Dairy Farming Practices of different Categories of Dairy Farmers: The data was subjected to ANOVA with a view to ascertain whether the differences in the adoption levels between the different categories of dairy farmers, namely, landless, small, medium and large, and the differences between each component of scientific dairy farming practices (group), namely breeding, feeding, health care and dairy management practices were significant or not. The results of ANOVA are presented in Table 2.

Table 2. Analysis of Variance

S. No.	Source of variation	D.F.	M.S.S.	F-value
1.	Between categories	3	120.473	1.907^{NS}
2.	Between groups	3	214.193	3.390*
3.	Error	9	63.178	-
4.	Total	15	Correction factor : 78096.49	

* Significant at 10 per cent level of probability,

NS=Non-significant

The analysis revealed that the differences between the groups of scientific dairy farming practices of dairy farmers were significant as indicated by the significant F-value (3.390).

Extent of percent adoption score of various scientific dairy farming practices of different categories of dairy farmers : The Table 3 depicts that the overall adoption levels of scientific dairy farming practices were 59.34, 70.61, 74.09, 75.48 and 70.75 per cent by landless, small, medium, large and total respondent dairy farmers, respectively.

The Table 3 further indicates that landless dairy farmers had significantly higher adoption in health care as compared to other dairy farming practices like breeding, feeding and dairy management. In case of other categories of dairy farmers (small, medium and large), the highest adoption was obtained in scientific feeding practices of dairy animals. It is interesting to mention here that landless dairy farmers had minimum adoption of feeding practices as they were not growing green fodder of their own due to paucity of land available to them. However, the health care service was provided to them freely and easily due to better infrastructure facilities, and hence, they were availing better health care facilities to their dairy animals.

Table 3. Extent of percent adoption score of various scientific dairy farming practices of different categories of dairy farmers

S. N.	SDFPs*	Extent of adoption (% score)				
		L. less (n=33)	Small (n=68)	Medium (n=60)	Large (n=39)	Total (N=200)
1.	Breeding	60.60	66.54	71.80	73.07	68.41
2.	Feeding	50.00	85.17	87.63	89.31	80.91
3.	Health care	64.89	66.17	67.50	70.08	67.12
4.	Dairy mgt.	61.86	64.33	69.44	69.44	66.45 5.
	Overall	59.34	70.61	74.09	75.48	70.75

* Scientific Dairy Farming Practices

CONCLUSION

Based on the various findings of this investigation, it was concluded that the landless category of dairy farmers had lowest level (59.34%) of overall adoption of scientific dairy farming practices, whereas, all other categories viz., small, medium and large dairy farmers had fairly higher level of adoption as 70.61, 74.09 and 75.48 per cent respectively. The further analysis concludes that the dairy farmers had highest adoption in case of dairy feeding practices (80.91%), although the landless dairy farmers had lowest level (50.00%) of adoption in case of feeding practices. The main reason attributable for the low level of adoption of dairy feeding practices by the landless dairy farmers were the poor economic condition and mainly based on feeding of roadside grasses and leftover agricultural waste.

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