

TECHNOLOGICAL GAP IN ADOPTION OF IMPROVED DAIRY MANAGEMENT PRACTICES

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ABSTRACT

The present study was undertaken in selected villages from two Panchayat Samities i.e. Akola and Barshitakli of Akola district in Maharashtra State with a random sample of 100 dairy farmers, those who have five years of experience in dairy farming and have more than four milch animal. The results reported that the more than half of the dairy farmers (55%) observed in medium level category of technology adoption gap about improved dairy management practices. The age of the respondent was found positive and highly significantly correlated with their technological adoption gap. Whereas, all other variables except dairy farming experience that are education, land holding, annual income, herd size, family type, family size socio-economic status, economic motivation, scientific orientation and knowledge were having negative and highly significant correlation with technological gap in adoption of improved dairy management practices. The negative trend indicated that as these variables score decreased, the technological adoption gap was increased. Majority of the dairy farmers were perceived as main constraints in adoption of improved dairy management practices like lack of veterinary services in villages for quality milk production (98%), High cost of feed and fodder (90%), Lack of finance to invest in dairy business for quality milk production (84%), Lack of green fodder round the year (78%), Non availability of grazing land (75%), Poor knowledge about scientific animal husbandry practices and dairy farming (75%), Less interest shown by the youth in dairy farming (74%) and non-availability of government schemes for dairy cattle rearing.

Keywords: *technological gap, knowledge, adoption, dairy farmers, dairy management practices*

INTRODUCTION

Dairying is a potential source of gainful employment, creating additional income to rural people, particularly landless farm labourers, marginal and small farmers who are resource deficit. India has made remarkable strides in the area of dairy development. India has largest livestock population in the world. India is continued to remain the largest producer of milk in the world.

The rapid growth of milk production in India has been mainly because of the increase in the number of animals rather than that of the improved productivity. However the maximum milk is produced from selected pockets of the most of the states of the country. It is also reported that Maharashtra state generates about 1.6 crore litres of milk every day, out of which Kolhapur district of western Maharashtra alone is producing about 20 lakh litres of milk. As against this, Vidarbha region produces only 80,000 litres of milk per day. To overcome this situation Maharashtra Govt. launched Vidarbha Development Programme Package (VDPP) in the year 2004 to increase the milk production in Vidarbha region. Therefore, it is necessary to examine the technological gap in adoption of improved dairy management practices by the

dairy farmers and also to find out the constraints faced by them in adopting improved dairy management practices.

OBJECTIVES

- (a) To know the profile of dairy farmers
- (a) To identify the technological gap in adoption of improved dairy management practices

METHODOLOGY

An exploratory design of social research was used in the present investigation. The present investigation was carried out in the five villages of Akola Panchayat Samiti and five villages of Barshitakali panchayat samiti under Akola district of Maharashtra state. From each selected village, ten dairy farmers were randomly selected as respondents, who are adopting dairy farming continuously since last five years and have more than four milch animals. In all, total 100 dairy farmers were randomly selected from ten villages of Akola and Barshitakali panchayat Samiti of Akola district of Maharashtra state.

The technology adoption gap was operationally

defined as the difference between the recommendation and actual adoption of improved dairy management practices by the dairy farmers. For ascertaining the technology adoption gap about dairy management practices, 20 practices recommended by Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, the technologies related to dairy management practices were considered. The responses were collected from individual respondents on 20 important dairy management practices to find out the adoption level on three pint continuum with score 2 for complete adoption, score 1 for partial adoption and score 0 for no adoption. The scores of all the practices were added together and considered as an individual score. On the basis of the score obtained for technologies adopted, the technological adoption gap index (TAGI) for each practice was worked out by using following formula.

$$\text{TAGI} = \frac{R - A}{R} \times 100$$

Where R= Total Recommended practices score (Maximum adoption score)

A= Actually adopted practices score by the individual dairy farmer

Finally on the basis of technological adoption gap index, the respondents were categorized into three categories i.e. high, medium and low by using equal interval method as under.

Sr. No.	Category	Index Range
1	Low	Upto 33.33
2	Medium	33.34 to 66.66
3	High	Above 66.66

RESULTS AND DISCUSSION

Profile of Dairy Famers

Table 1 : Distribution of dairy farmers according to their Profile

n=100

Sr. No.	Category	Number	Percent
(1)	Age (Years)		
i)	Young (upto 35)	16	16.00
ii)	Middle (36 to 50)	44	44.00
iii)	Old (Above 50)	40	40.00
2	Education		
i)	Illiterate	07	07.00
ii)	Primary (1 st std. to & 4 th std.)	24	24.00
iii)	Middle (5 th std. to & 7 th std.)	22	22.00
iv)	High school (8 th std. to 10 th std.)	34	34.00
v)	College	13	13.00
(3)	Land holding (ha)		
i)	Marginal (upto 1 ha)	01	01.00
ii)	Small farmers (1.01 to 2.0 ha)	25	25.00
iii)	Semi-medium (2.01 to 4.0 ha)	48	48.00
iv)	Medium (4.01 to 10.00 ha)	25	25.00
v)	Large (Above 10.00 ha)	01	01.00
(4)	Annual income (₹)		
i)	Upto ₹ 50,000	45	45.00
ii)	₹ 50,001 to ₹ 1,00,000	44	44.00
iii)	₹ 1,00,001 to Above	11	11.00
(5)	Dairy Farming Experience		
i)	Upto 6 years	23	23.00
ii)	7-12 years	66	66.00
iii)	Above 12 years	11	11.00
	Mean= 9.31	SD=3.45	
(6)	Herd size		
i)	Upto 4 herds	19	19.00
ii)	5-10 herds	74	74.00

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iii)	Above 10 herds	07	07.00
	Mean= 6.52	SD=3.38	
(7)	Family Type		
i)	Nuclear family	44	44.00
ii)	Joint family	56	56.00
(8)	Family Size		
i)	Upto 5	31	31.00
ii)	6-11	42	42.00
iii)	Above 11	27	27.00
	Mean= 8.44	SD=3.40	
(9)	Economic Motivation		
i)	Low (Below 19)	28	28.00
ii)	Medium (19-24)	64	64.00
iii)	High (Above 24)	08	08.00
	Mean= 20.87	SD=2.93	
(10)	Scientific Orientation		
i)	Low (Below 17)	22	22.00
ii)	Medium (17-25)	60	60.00
iii)	High (Above 25)	18	18.00
	Mean= 21.24	SD=4.19	

The data from the Table 1 indicated that, 44 per cent of respondents were of middle aged category (i. e. 36 to 50 years) followed by 40 per cent of them were old age group category of above 50 years. The respondents in young category i.e. upto 35 years in age were 16.00 per cent. In all, the 84 per cent of the dairy farmers were found more than 36 years age old. That means the youth (i.e. below 36 years) are less interested in the dairy farming. With respect to education, it could be observed that seven per cent of respondents were illiterate and remaining 93 per cent were literates. Within literates 34 per cent dairy farmers were educated upto high school followed by 24 per cent of the dairy farmers having education upto primary school level, 22 per cent have middle school and remaining 13 per cent had education upto college level.

It could be noticed that nearly half of the respondents (48%) were in semi-medium land holding group. The equal per cent of the respondents were in small and medium land holding category i.e. 25.00 per cent. Only one respondent was each in the large and marginal category of land holding. As regarding annual income, It is revealed from Table 1, that near about equal percentage (45% and 44%) of the dairy farmers having annual income of Rs. 50,000 and in between Rs. 50,001 to Rs. 1,00,000, respectively. The remaining 11 per cent of the dairy farmers belonged to annual income group of Rs. 1,00,000 and above.

It could be seen from Table 1, that majority of the respondents (66.00%) having dairy farming experience between 7 to 12 years, followed by 23 per cent of them having

upto 6 years dairy farming experience. The remaining 11 per cent of the dairy farmers having 12 years and above dairy farming experience. The data regarding herd size revealed that majority of the respondents (74.00%) having herd size between 5-10 herds, followed by 19 per cent of them were having upto 4 herds and remaining seven per cent having more than ten herds.

The data with respect to family type revealed that majority of the respondents (56.00%) were in joint family type and 44 per cent were in nuclear family type. The data regarding family size revealed that majority of the respondents (42.00%) having 6 to 11 members in their family, followed by 31 per cent of them were having upto 5 members in their family and remaining 27 per cent having more than 11 members in their family. The data regarding economic motivation, it is revealed that more than two third of the respondents (64.00 per cent) had medium level of economic motivation, followed by nearly one third of them (28.00 per cent) were had low level of economic motivation. Very less number of respondents (08.00 per cent) belonged to high category of economic motivation.

A perusal of Table 1, that majority of the respondents (60.00%) having medium level of scientific orientation, followed by 22 per cent of them were having low level of scientific motivation and remaining 18 per cent belonged to high level of scientific orientation category. Similar findings reported by Bindakatti, J.S, *et. al.*(2012), Lokhande *et. al.* (2012), Vaidya et al (2016) and Rupeshkumar and Chandawat (2011).

Technological adoption gap**(a) Practicewise Technological gap in adoption of improved dairy management practices**

The practice wise technological adoption gap about improved dairy management practices in Table 2, revealed that majority of the respondents (90%) were not adopting the separate shed for milking, followed by 85 per cent of them not adopted the feeding of pregnant animal (12 to 15 kg green fodder, 5 to 6kg dry fodder & 1.5 concentrates mixtures) and 82 per cent not adopted the vaccination of cow/buffalo. The technology gap in adoption of feeding of buffalo/cow 1st four days after calving (2 kg wheat bhusa, 1.5 kg jiggery, 5 kg green fodder, 5 kg dry fodder reported by 80 per cent dairy farmer and the practice of direction of cattle shed (North-

South) not adopted by 80 per cent of the dairy farmer.

Equal per cent of the dairy farmers (75%) were not adopted the practices proper feeding to pregnant animals, quantity of green fodder (15 to 20 kg) and number of cattle in flock (10 to 20), respectively. The improved dairy management practices were not adopted by the dairy farmers were grooming of cattle (72%), proper time of artificial insemination (2 months after calving (70%), detection of systems of heat period of buffalo (65%), quantity of colostrum should be fed (1/10 of body weight (65%), detection of heat period (urination frequency, bellowing excitement, mounting on other animals, restlessness) (56%) and space required for adult cow (15 to 12 sq ft) (56%).

Table 2 : Distribution of respondents according to their technological gap in adoption of improved dairy management practices n=100

Sr. No.	Name of improved dairy management practices	Technology Gap Index
A. Selection of Breed		
1	Descript breed for -dairy -Nagpuri, Murhah, Jersey	20
2	Descript breed for -milk production -Nagpuri, Murhah, Jersey	25
B. Breeding Management		
3	Breeding age of cow/buffalo (2.5 to 3 years)	30
4	Proper time of pregnancy diagnosis (60 to 90 days after services)	45
5	Detection of heat period (urination frequency, bellowing excitement, mounting on other animals, restlessness)	56
6	Proper time of artificial insemination (2 months after calving)	70
7	Proper feeding to pregnant animal (Additional feed supplements and mineral mixtures)	75
8	Detection of systems of heat period of buffalo	65
C. Feeding Management		
9	Feeding of pregnant animal (12 to 15 kg green fodder, 5 to 6 dry fodder & 1.5 kg concentrates mixtures)	85
10	Quantity of colostrum should be fed (1/10 of body weight)	65
11	Proper time to fed colostrum (after 2 to 3 hours of newly calf born)	22
12	Feeding of buffalo/cow 1 st four days after calving (2 kg wheat, 1.5 kg jiggery, 5 kg green fodder, 5 kg dry fodder)	80
13	Quantity of green fodder (15 to 20 kg)	75
D. Housing Management		
14	Direction of cattle shed (North-South)	80
15	Separate shed for milking	90
16	Sprinkler water on body of cow/buffalo in summer season (twice in a day)	45
17	Space required for adult cow (15 sq ft) and buffalo (18 sq ft)	56
18	Number of cattle in flock (10 to 20)	75
E. Health Management		
19	Vaccination of cow/buffalo (HS, BQ, FMD)	82
20	Grooming of cattle	72

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Less than half of dairy farmers were not adopted the proper time of pregnancy diagnosis (60 to 90 days after services) (45%), sprinkler water on body of cow/buffalo in summer season (twice in a day) (45%), Breeding age of cow/buffalo (2.5 to 3 years) (30%), descript breed for–milk production-Nagpuri, Murhah, Jersey (25%),proper time to fed colostrum (22%) and descript breed for -dairy -Nagpuri, Murhah, Jersey (20%).

(b) Technology Adoption Gap level

The efforts have been made to find out the distribution of the respondents based on their level of existing technological gap in adoption of improved dairy management practices and data in this regard presented in the Table 3.

Table 3. Distribution of respondents according to the technological gap in adoption of improved dairy management practices n=100

Sr. No.	Category	Number	Percentage
1	Low (Upto 33.33)	21	21.00
2	Medium (33.34 to 66.66)	55	55.00
3	High (66.67 and above)	24	24.00

It is evident from Table 3, that majority of respondents (55%) belonged to medium category of technology adoption gap about improved dairy management practices, followed by 24 per cent of them who were observed in high level of technological gap, and remaining 21 percent of the respondents belonged to low level of technological gap.

Relationship between independent variable and dependent variable

The discussion about the relationship of profile of the respondents with dependent variable technological adoption gap is presented as below.

The data in Table 4 reported that age of the respondents was positive and highly significantly correlation with their technological adoption gap. Whereas, all other variables except dairy farming experience that are education, land holding, annual income, herd size, family type, family size socio-economic status, economic motivation, scientific orientation and knowledge were having negative and highly significant correlation with technological gap in adoption of improved dairy management practices. The negative trend indicated that as these variables score decreased, the technological adoption gap was increased.

Table 4: Coefficient of correlation of selected characteristics of the farmers’ with their Technological Adoption Gap n=100

Sr. No.	Independent variables	r value
X ₁	Age	0.278**
X ₂	Education	-0.341**
X ₃	Dairy Farming Experience	0.012NS
X ₄	Land holding	-0.440**
X ₅	Annual Income	-0.763**
X ₆	Herd Size	-0.511**
X ₇	Family Type	-0.287**
X ₈	Family Size	-0.308**
X ₉	Socio Economic Status	-0.653**
X ₁₀	Economic Motivation	-0.443**
X ₁₁	Scientific Orientation	-0.526**
X ₁₂	Knowledge	-0.473**

** Significant at 0.01 level of probability

* NS - Non Significant

The probable reason might be for understanding and adoption of the improved dairy management practices, dairy farmers may be lacking in proper education level, more land holding, high annual income, more numbers of milch animals, joint family or more number of members in family, higher socio-economic status, economic motivation, scientific orientation and most important knowledge about improved dairy management practices. This could be a reason for negative correlation between these variables of the dairy farmers and their adoption of improved dairy management practices.

CONCLUSION

It can be concluded that the more than half of the dairy farmers (55%) observed in medium level category of technology adoption gap about improved dairy management practices. The age of the respondent was found positive and highly significantly correlated with their technological adoption gap. Whereas, all other variables except dairy farming experience that are education, land holding, annual income, herd size, family type, family size socio-economic status, economic motivation, scientific orientation and knowledge were having negative and highly significant correlation with technological gap in adoption of improved dairy management practices. The negative trend indicated that as these variables score decreased, the technological adoption gap was increased.

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