IMPACT OF BARODA DUGDH UTPADAK SAHAKARI SANGH LTD. IN THE ADOPTION OF IMPROVED ANIMAL HUSBANDRY PRACTICES IN CHHOTAUDEPUR DISTRICT OF GUJARAT

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ABSTRACT

The present study was conducted in Chhotaudepur District of Gujarat to measure the existing knowledge interviewing 144 respondents i.e. 72 members and 72 non-member of dairy co-operative society. It was found that 70.83% of members and 59.72% of non-members were grouped in medium knowledge category, while the overall knowledge possessed by them was 65.28. Similarly, 79.17% of members and 81.95% of non-members were grouped in medium adoption category. The Feeding Practices of animals were adopted up to 97.00 and 82.00 by the member and Non member respectively and 93.43% by member farmers adopted good milking practices in the study area. It was suggested that member of dairy co-operative society were having more knowledge and adopting more improved animal husbandry practices as compared to non-member farmers in the study area. In the world, about 2445 million people are economically involved in agriculture, out of which about three-fourth are partially dependent on livestock farming. In our country, about 70 per cent of the population is engaged in agriculture and rearing of livestock (mainly cattle and buffaloes) which is complementary to agriculture. Livestock production in India is of backyard type. The gap between achievable and achieved in livestock productivity with existing resources and infrastructure is wider than any other enterprise (Gandhi and Sharma, 2001). In India dairy cooperatives were formed only after 1912. The real beginning was made only after the Second World War. The Kaira district co-operative Milk Union Ltd., popularly known as AMUL, was the first producer oriented dairy organized in 1946. This milk union has proved that dairying can be best conducted in production. Processing and marketing are owned and operated by the farmers themselves. The dairy cooperatives are organized with a three tier structure. This structure is evolved by the National Dairy Development Board (NDDB) and is known as "Anand Pattern" the milk production has increased substantially with the efforts of the NDDB's operation flood programme started in 1970.

Keywords*: improved animal husbandry practices, adoption level knowledge level*

INTRODUCTION

India has about 276.6 million cattle which contributes 44.29 per cent of Asian and 15.67 per cent of the world cattle population. The current buffalo population of 165.3 million accounts for 57 per cent of Asia and 55 per cent of the world buffaloes (NDDB, 2013-14). In Gujarat about 9787 thousand milch animal out of which 4141 thousand cattle and 5646 thousand buffalo population. But majority of these cattle, due to economic status of livestock owners, is reared under sub optimal condition. Despite constraint, India has optimal conditions. Despite this constraint, India has now become a largest producer of milk in the world. The development of dairy industry in our country has been acknowledged the world over as one of the most successful development programmes in world.

This represents a sustained growth in availability of milk and milk products for the growing population Dairying has become an important secondary source of income for millions of rural households engaged in agriculture. The success of the dairy industry has resulted from the integrated co-operative system of milk collection, transportation, processing and distribution, conversion of the same to milk powder and products, to minimize seasonal impact on suppliers and buyers, retail distribution of milk and milk products, sharing of profits with the farmer, which are ploughed back to enhance productivity and needs to be

emulated by other farm produce/producers.

Table 1: Year wise milk production and per capita availability of milk in India

Year	Milk production (in million tonnes)	Per capita availability (gms/day)
1950-51	17.00	124
1960-61	20.00	124
1970-71	22.00	112
1980-81	31.60	128
1990-91	53.90	176
2000-01	80.60	220
2010-11	121.85	281
2011-12	127.90	290
2012-13	132.43	299
2013-14	137.69	307
2014-15	146.31	322

Source : Economic survey 2015-16

Considering the rapid increased in the human population of our country. Achieving minimum per capita level is a real challenge. Not only we have to increase our milk production in near future, but also we have to concentrate our efforts on improving the quality of milk and milk production with better management.

The population of Gujarat is 6.04 crore (according to 2011 census) out of this about 57.40 per cent Population (Gujarat Population Census data 2011) live in rural areas and their main sources of income are farming and livestock raising.

Table 2: The milk production in different states in India during 2014-15

Sr. No.	State	Total milk production (in 'MT)	Ranks
1	U.P.	23.33	I
2	Rajasthan	13.94	II
3	Andhra Pradesh	12.762	III
4	Gujarat	10.315	IV
5	Punjab	9.714	V
Total of all states of country		**146.3**	**-**

Sources: - Dairy year book 2014-15

The per capita availability of milk was 322 gm/day in 2014-15. The total milk production of Gujarat in 2014-15 was 10.315 million tonnes and rank Fourth after U.P. (23.33 MT.) , Rajasthan(13.94 MT) and AP(12.762 MT).

At present private and co-operative organization are engaged in the production, procurement, processing and milk marketing in rural areas. The milk producers who sell their milk through private local traders are always exploited. The private traders have been interested in maximizing their own profits and are least concerned in improving the productivity of dairy farming. The burden has therefore, fallen on the co-operative sector. Primary milk co-operative societies have been organized to help dairy farmers in developing dairy as an industry.

Table 3: The milk production and per capita availability (year wise) of milk in Gujarat is shown here under

Year	Milk production (in 000 tonnes)	Per capita availability (gms/day)
2010-11	9321	435
2011-12	9817	445
2012-13	10315	476
2013-14	11112	506
2014-15	11691	-

Sources: - National dairy development board (NDDB) 2014-15

METHODOLOGY

The present study was confined with Co-operative Dairy comprised of 16 milk unions in Gujarat State. Out of 16 milk unions of Co-operative Dairy, one milk union *i.e*. Baroda Cooperative dairy which covers two districts i.e.Vadodara and Chhotaudepur), was purposively selected for the study.

Baroda dairy consists of 86 milk collection and procurement routes by which milk is to be collected from dairy co-operative societies. Out of this route 27 route in Chhotaudepur District. Twelve routes were selected randomly for the present investigation.

For selection of dairy co-operative societies, a comprehensive list of all the dairy co-operative societies was prepared from the identified milk collection routes. Two dairy co-operative societies were selected randomly from each selected milk collection routes. Thus, total 24 dairy co-operative societies have been taken for the study.

Three members were selected randomly from each selected dairy co-operative societies, there by making a sample of 72 members as the study group. A control group of 72 non-members (3 cattle owner respondents from each dairy co-operative society's area) were selected randomly for the comparative study.

RESULTS AND DISCUSSION

Measurement of knowledge level of members and non-members about improved animal husbandry practices

(A) Knowledge level of dairy member respondents about improved animal husbandry practices

Table 1 : Knowledge level of dairy member respondents about improved animal husbandry practices

n=72

Knowledge score	Knowledge level	Member of DCSs	Per cent
Below 67.35	Low	05	06.94
From 67.35 to 81.11	Medium	51	70.83
Above 81.11	High	16	22.23

Mean=74.23 $\sigma = 6.88$

The data in Table 1 reveals that majority of dairy members (70.83 per cent) had medium knowledge level, whereas 6.94 per cent and 22.23 per cent dairy members were having low and high knowledge level about improved animal husbandry practices, respectively.

Knowledge level of non-member respondents about improved animal husbandry practices

Table 2: Knowledge level of non-member respondents about improved animal husbandry practices

n=72

Knowledge score	Knowledge level	Non-member of DCSs	Per cent
Below 44.12	Low	21	29.17
From 44.12 to 59.26	Medium	43	59.72
Above 59.26	High	08	11.11

Mean =51.69, $\sigma = 7.57$

Table 2 reveals that 59.72 per cent of the total respondent's possessed medium knowledge level, whereas, 29.17 per cent and 11.11 per cent respondents were having low and high knowledge level about improved animal husbandry practices respectively.

Table 3: Total distribution of member and non-member respondents on the basis of knowledge levels about improved animal husbandry practices

n=144

Sr. No.	Knowledge level	Member of DCSs		Non-member of DCSs		Total	
		No.	Percent	No.	Percent	No.	Percent
1	Low	05	6.94	21	29.17	26	18.05
2	Medium	51	70.83	43	59.72	94	65.28
3	High	16	22.23	08	11.11	24	16.67

Table 3 shows that majority of the respondents in both the categories possessed medium knowledge level about improved animal husbandry practices. It was further concluded that the existing knowledge of member respondents about improved animal husbandry practices was comparatively higher than the non-member respondents.

Knowledge level of member and non-member respondents about improved animal husbandry practices in terms of MPS

Individual practice wise knowledge of member and non-member respondents was measured in mean percent score (MPS) was calculated. As many as six practices were included to assess the knowledge level of respondents as given in Table 4.

The Table 4 indicates that both (member and non-member respondents) type of respondents possessed maximum knowledge about milking of animals with mean per cent score 81.34 and 69.32, respectively and ranked first by both the categories of respondents. Similarly they possessed less knowledge about improved breeds of animals with mean per cent score 51.99 and 39.16 respectively and ranked six by both the categories of respondents.

The table also indicates that knowledge of member respondents regarding other aspects like breeding, management; health care and feeding were found to be 76.16, 68.89, 67.72 and 65.46 MPS, respectively.

Table 4: Knowledge level of member and non-member respondents about improved animal husbandry practices in terms of MPS   n=144

Sr. No.	Improved practices	Members of DCSs (n=72)		Non-members of DCSs (n=72)	
		MPS	Rank	MPS	Rank
1	Improved breeds	51.99	VI	39.16	VI
2	Breeding	76.16	II	46.19	III
3	Feeding	65.46	V	53.31	II
4	Management	68.89	III	42.63	IV
5	Milking	81.34	I	69.32	I
6	Health care	67.72	IV	41.84	V
	Overall	68.59		48.74	

In case of non-member respondents 53.31, 46.19, 42.63 and 41.84 MPS of knowledge were reported with regard to feeding, breeding, management and health care, respectively.

The overall knowledge of member and non-member respondents about improved animal husbandry practices was 68.59 and 48.74 MPS, respectively.

(D) Comparison of knowledge level among member and non-member respondents about improved animal husbandry practices

The data related to level of knowledge of both member and non-member respondents incorporated in Table 5 showed that calculated 'Z' value was higher than the tabulated value at 1 per cent level of significance in all the six improved practices of animal husbandry.

Table 5: Comparison of knowledge level among member and non-member respondents about improved animal husbandry practices   n=144

Sr. No	Improved practices	Members of DCSs (n=72)		Non-members of DCSs (n=72)		'Z' value
		Mean	± SD	Mean	± SD	
1.	Improved breeds	7.76	1.36	5.94	1.34	7.94**
2.	Breeding	25.94	3.29	16.19	3.947	16.46**
3.	Feeding	14.18	1.78	11.94	1.36	8.75**
4.	Management	10.13	2.04	6.53	1.95	11.26**
5.	Milking	5.64	0.66	4.97	0.83	5.67**
6.	Health care	11.57	1.65	7.29	2.12	13.45**

** Significant at 1% level of significance,

The Conclusion that there is significant difference in knowledge level with regard to all six improved practices of animal husbandry in member and non-member respondents. In other words, there is no similarity between the level of knowledge of member and non-member respondents about all the improved animal husbandry practices.

The mean value further indicates that members of DCSs had higher knowledge mean than non-member respondents in all improved animal husbandry practices. This reveals that member respondents possessed more knowledge than non-member respondents about all improved animal husbandry practices.

To judge adoption level of co-operative society members about improved animal husbandry practices

Adoption is a mental process. In the modern era many new things are being invented by our agricultural scientists but all the innovations are not being adopted by many of the members of the social system. Adoption of an innovation depends on many factors *viz.*, awareness and knowledge of adopters, complexity and visibility of the innovations. It is generally assumed that if an individual has more knowledge about different aspects of technologies he is likely to adopt the innovations early. The results regarding the extent of adoption of improved animal husbandry practices are narrated here under:

(A) Distribution of dairy co-operative society's members according to the judge adoption level.

Table 6 : Distribution of dairy co-operative societies members under different categories   n=72

Adoption score	adoption level	No. of respondents	Per cent
Below 37.07	Low	06	08.33
From 37.07 to 45.25	Medium	57	79.17
Above 45.25	High	09	12.50

Mean = 41.16   σ = 4.09

The data in Table 6 show that majority of members (79.17 per cent) were found to be medium adopters, while 8.33 percent members were low adopters and 12.50 per cent of the members were high adopters.

(B) Distribution of non-members of DCSs according to the adoption level.

Table 7: Distribution of non-members of DCSs under different categories   n=72

Adoption score	Adoption level	No. of respondents	Per cent
Below 26.29	Low	07	09.72
From 26.28 to34.59	Medium	59	81.95
Above 34.59	High	06	08.33

X = 30.44   σ = 4.15

The data in Table 3.7 show that majority of non-members (81.95 per cent) were found to be medium adopters, while 9.72 per cent non-members were low adopters and 8.33 per cent of the non-members were high adopters.

Table 8: Total distribution of member and non-member respondents on the basis of to judge adoption level about improved animal husbandry practices   n=144

Sr. No.	Adoption level	Members of DCSs (n=72)		Non-members of DCSs (n=72)		Total	
		No.	Percent	No.	Percent	No.	Percent
1	Low	6	8.33	7	9.72	13	9.03
2	Medium	57	79.17	59	81.95	116	80.55
3	High	9	12.50	6	8.33	15	10.42

The data in Table 8 indicates that 80.55 per cent of total respondents were in the medium adoption group and 10.42 per cent respondents in the high adoption group, while, 9.03 per cent were observed in the low adoption group.

(C) To Judge Adoption level of member and non-member respondents about improved animal husbandry practices in terms of MPS

Individual practices wise adoption level was work out. For this, mean per cent scores were calculated for each practices and the statistical data have been presented in Table 9.

The data in Table 9 indicates that both member and non-member respondents adopted feeding of animals to the higher with MPS 97.00 and 82.00, respectively and ranked first by both the categories of respondents. The table further show that both member and non-member respondents ranked last in adoption of management and breeding practices of animals with MPS 55.63 and 42.00, respectively.

Table 9: To Judge Adoption level of member and non-member respondents about improved animal husbandry practices in terms of MPS   n=144

Sr. No.	Improved practices	Members of DCSs (n=72)		Non-members of DCSs (n=72)	
		MPS	Rank	MPS	Rank
1	Breeding	74.93	III	42.00	V
2	Feeding	97.00	I	82.00	I
3	Management	55.63	V	48.00	III
4	Milking	93.00	II	43.00	IV
5	Health care	70.00	IV	48.50	II
	Overall	78.11		52.70	

The data also reveal the table reveal that member respondents had adopted practices like milking, breeding, and health care, were found to be 93.00, 74.93, and 70.00 MPS, respectively.

The data in the table shows that non-member respondents were adopting

the practices like health care, management and milking, were found to be 48.50, 48.00 and 43.00 MPS, respectively.

The overall adoption of member and non-member respondents about improved animal husbandry practices were 78.11 and 52.70 per cent, respectively. It means that member respondents had higher adoption than non-member respondents about all improved animal husbandry practices.

(D) Comparison of to judge adoption level between member and non-member respondents about improved animal husbandry practices

Table 10 : Comparison of to judge adoption level between member and non-member respondents about improved animal husbandry practices

n=144

Sr. No.	Improved practices	Members of DCSs (n=72)		Non-members of DCSs (n=72)		'Z' value
		Mean	± SD	Mean	± SD	
1	Breeding	8.94	1.64	5.14	1.92	12.72**
2	Feeding	12.65	0.79	10.69	1.07	11.76**
3	Management	9.76	1.15	8.34	0.84	8.33**
4	Milking	3.74	0.67	1.75	0.63	18.87**
5	Health care	6.32	1.14	4.36	1.32	9.15**

** Significant at 1% level of significance,

It is clear from the data in Table 10 that calculated 'Z' value was greater than its tabulated value at 1 per cent of significance for all the five improved practices of animal husbandry.

CONCLUSION

It may be concluded that the majority of dairy members were in medium adoption group followed by low and high adoption group, respectively. Relatively more number of DCSs members fell in medium adoption group as compared to non-members. Both type of respondents adopted, management, breeding and feeding practices to a large extent. Minimum adoption was found in health care aspect of improved animal husbandry practices. There was similarity between ranks assigned to various practices of improved animal husbandry practices on the basis of adoption by the member and nonmembers respondents. There was significant difference in the extent of adoption of improved animal husbandry practices by member and non-member respondents.

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